265 Dandenong-Hastings Road
Development Plan

PLANNING & ENVIRONMENT ACT 1987
GREATER DANDENONG PLANNING SCHEME
Pursuant to Clause 43.04, Schedule 6 of the Greater Dandenong Planning Scheme, this is a copy of the Development Plan for the land defined as 265 Dandenong Hastings Road.
This Development Plan DPO has been prepared to the satisfaction of the Responsible Authority. Once the Development Plan has been approved by Council, Council retains the sole right to amend the Development Plan.
Council Delegate: Will Stewart, Manager Statutory Planning
Date: 04/09/2024 Total pages: 201
Greater Dandenong City Council

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Prepared by Ethos Urban for ISPT Pty Ltd
August 2024

'Dagura Buumarri'

Liz Belanjee Cameron

'Dagura Buumarri' – translates to Cold Brown Country. Representing Victoria.

Ethos Urban acknowledges the Traditional Custodians of Country throughout Australia and recognises their continuing connection to land, waters and culture.

We acknowledge the Wurundjeri Woi Wurrung people, of the Kulin Nation, the Traditional Custodians of the land where this document was prepared, and all peoples and nations from lands affected. We pay our respects to their Elders past, present and emerging.

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Site and Surrounds Analysis

1.1 Introduction

The site, located at 265 Dandenong-Hastings Road, Dandenong South, is bounded by Dandenong-Hastings Road/Western Port Highway to the east, Glasscocks Road to the south, Portlink Drive to the north and 225 Glasscocks Road to the west.

Formerly Green Wedge Land, the site was included within the Urban Growth Boundary after 2005. The site currently accommodates a single dwelling and infrastructure associated with agriculture including sheds and fences. Several dams remain on the site, adjacent to the dwelling and along the western boundary. The topography of the site slopes gently down to the north west.

Access to the site is currently provided via a private crossover from Dandenong-Hastings Road to the dwelling which is lined with planted mature trees. Additional scattered mature trees are located throughout the site.

The site is located within the Lyndhurst Precinct in the Dandenong South Structure Plan (2009). The precinct is identified as State Significant Industrial Land with the Melbourne Industrial and Commercial Land Use Plan (MICLUP). The site was included in an industrial extension to the Urban Growth Boundary to complement the Dandenong South Industrial Precinct. Land to the south of the site is within the Dandenong green wedge. The site is within the City of Greater Dandenong. The Casey City Council is to the east of the Western Port Highway and the Frankston City Council boundary is Thompsons Road to the south of the site.

01 Site Overview. *Source: Ethos Urban*

SECTION 1
Site and Surrounds Analysis

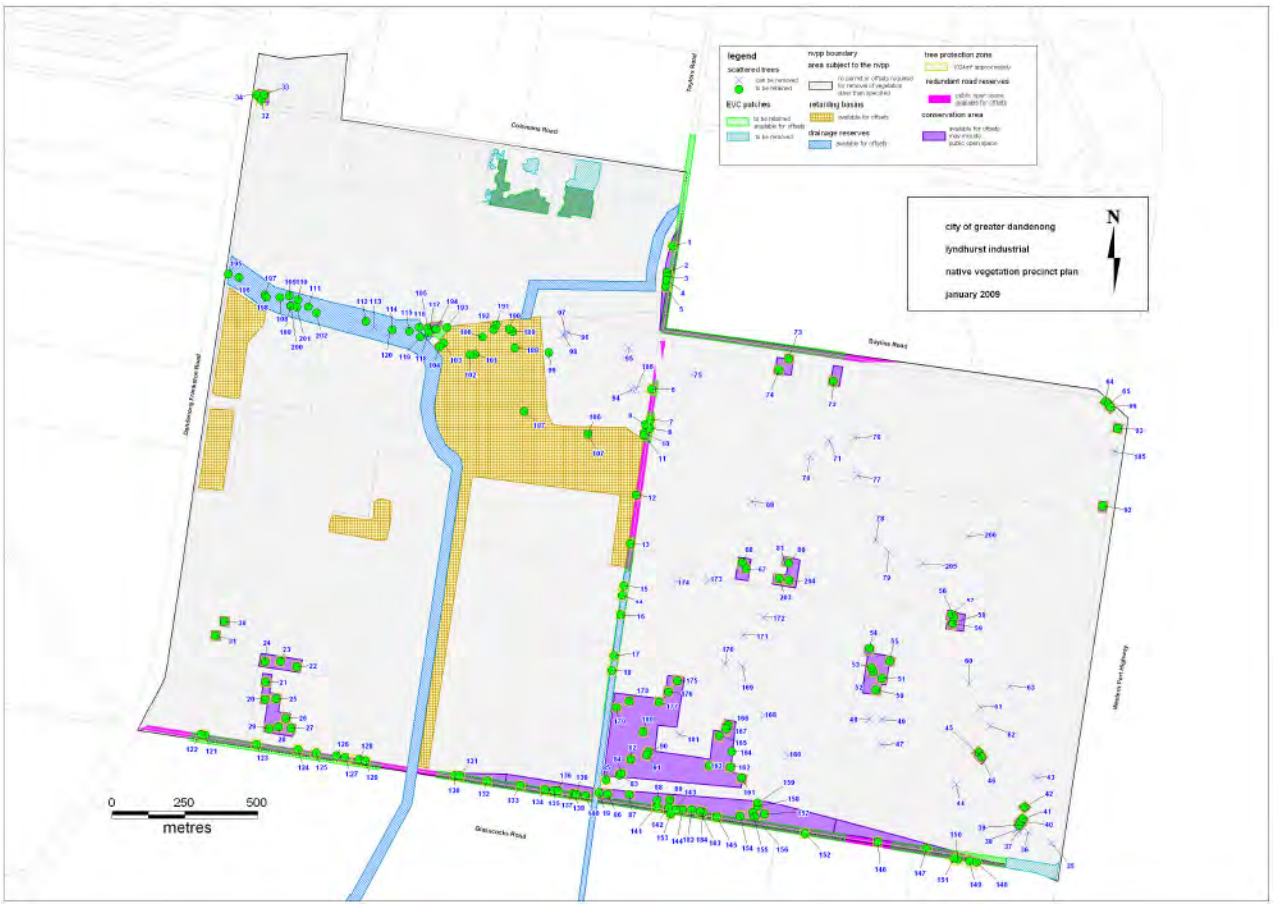
The following uses surround the site:

North: Land directly north of Portlink Drive is currently being developed under the Lyndhurst Inland port and Industrial Hub Development Plan. Industrial land continues further north and to the west of Western Port Highway/South Gippsland Freeway for approximately 6 km. The Melbourne Water Retarding Basin is located approximately 4 km to the north of the site. The Dandenong Railway Station is located 8km north west of the site within the Dandenong National Employment & Innovation Cluster (NEIC).

West: Further industrial development is located between the site and Dandenong Valley Highway. Further west, agricultural land is located between Dandenong Valley Highway and the Eastlink Toll Road. The Eastern Treatment Plant operated by Melbourne Water is located approximately 5km west of the site. Beyond this development is characterised by conventional and medium density residential development that continues to the Port Phillip Bay Shoreline approximately 10km from the site.

East: Land to the east of the Dandenong-Hastings Road is characterised by detached dwellings at conventional residential densities and some medium density townhouses. The Western Port Highway provides a buffer between these residential uses and the development site; however, any development with potential adverse amenity impacts will need to locate away from the sites boundary with the Highway. A landfill and recycling centre is located 3km to the east of the site. The Cranbourne Golf Course is located 4km to the east of the site.

South: Glasscocks Road is the southern boundary of the State Significant Industrial Area and the Urban Growth Boundary (UGB). The Melbourne Chevra Kadisha Cemetery is located to the south of Glasscocks Road. Land further south is within the Green Wedge and remains in agricultural type uses. Pockets of urban development, including the Sandhurst Estate, are located further to the south.



02 Native Vegetation Precinct Plan

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Native Vegetation

Formerly Green Wedge Land, the site was included within the Urban Growth Boundary after 2005. The previous agricultural uses at the site have resulted in clearing the majority of vegetation at the site. The Native Vegetation Precinct Plan for the Dandenong South Precinct identifies 29 scattered River Red Gums trees (Eucalyptus Camaldulensis) located at the site. Sixteen of the 29 trees have been marked for retention. A number of planted exotic trees line the driveway to the former dwelling.

Road Network and Access

The site includes an extensive acquisition area along the eastern and southern boundaries required for upgrades to Glasscocks Road and the widening of the Western Port Highway.

The DCP will upgraded Glasscocks Road including widening the road to two lanes. Ultimate upgrades to widen the road further will be delivered by Head of Transport Victoria at a later stage. The DCP will also deliver upgrades to the roundabout at Glasscocks Road and the Western Port Highway.

Future road works to be delivered by Head of Transport Victoria are the ultimate upgrades to the Western Port Highway and the interchange with Glasscocks Road. This will include on-ramps and road widening within the PAO area in the south eastern corner of the site.

Permanent access to the site will be to Glasscocks Road via the parcel to the west. The existing access directly from the Western Port Highway will be removed. The extent of Portlink Drive adjacent to the site is a private road and as such the site has no legal right of access from Portlink Drive.

03 Arterial Road Network. *Source: Ethos Urban*

SECTION 1
Site and Surrounds Analysis

1.2 Approved Development Plans

Development Plans have been approved for the following nearby sites.

45-85 & 125 Glasscocks Road, Lyndhurst

The development plan for 45-85 & 125 Glasscocks Road, Lyndhurst was approved on 31st January 2012. This approval applied to the Goodman and Jayco Development Land across various land holdings at the corner of Glasscocks Road and Dandenong Valley Highway. Development has been completed at the sites.

845-875 Taylors Road, Dandenong South

The Development Plan for 845-875 Taylors Road, Dandenong South was approved on 6th September 2013 and enables an industrial and warehouse outcome. The development was planned across three stages and includes a Melbourne Water Reserve that dissects the site, separating Stage 1 and 2 in the south, and Stage 3 to the north. The internal road network and lot subdivision has been completed for Stages 1 and 2, with the majority of the area developed apart from 1 large central lot. The Stage 3 internal road network is still under development.

Colemans Road Entrance Development Plan.

The Colemans Road Entrance Development Plan includes land at 9 Colemans Road, and 375A Frankston-Dandenong Road, Dandenong South. The plan was approved on 13th June 2014 and facilitates an industrial and warehouse outcome. Development at the site has been completed.

80 Colemans Road Development Plan.

The 80 Colemans Road, Dandenong South Development Plan was approved on 11th May 2010. The plan facilitates industrial development on the western boundary of the site while maintaining the existing native vegetation on the eastern and south eastern portions of the site. The site remains undeveloped.

Colemans Road West Development Plan

The Colemans Road West Development Plan was approved on 17th December 2007 and includes the following properties:

- 110 Abbotts Road
- 125 Colemans Road
- 75-90 Colemans Road
- 35 Colemans Road
- 15 Colemans Road
- 3 & 9 Colemans Road.

The development plan has largely been delivered on the ground.

Lyndhurst Industrial Development Plan Stage 1

The Lyndhurst Industrial Development Plan Stage 1 was approved on 31st August 2012 and facilitates industrial development on the land parcels Dandenong-Cranbourne Road, Bayliss Road, Taylors Road and Abbotts Road. The development at the site has been completed.

115 Glasscocks Road, Lyndhurst Development Plan

The development plan for 115 Glasscocks Road, Lyndhurst was approved on 18th December 2009. While the development at the site has been completed, the intersection at Taylors Road and Glasscocks Road on the eastern boundary of the site is yet to be delivered.

Innovation Park Development Plan

The Innovation Park Development Plan includes the properties of 2-60 & 130-150 Colemans Road, Dandenong South. The plan was approved on 22nd June 2010. The majority of the site has been developed.

Lyndhurst Inland Port and Industrial Hub Development Plan

The Lyndhurst Inland Port and Industrial Hub Development Plan includes the land parcels to the north and west the subject site. These include 155 and 185 Dandenong-Hastings Road and 225 Glasscocks Road. The Development Plan was approved in August 2021 and development works have commenced.

Prosperity Business Park Development Plan

The Prosperity Business Park Development Plan includes the properties of 469-491 and 499-523 Frankston-Dandenong Road, Lyndhurst. The development plan was approved on 1st August 2013 and facilitates an industrial outcome. The majority of the site has been delivered, with the exception of parcels fronting Dandenong-Valley Hwy.

90-120 Colemans Road, Dandenong South Development Plan

The Development Plan for 90-120 Colemans Road, Dandenong South was approved on 5th December 2012. To date only land clearing and demolition of structures has occurred within the development plan area.

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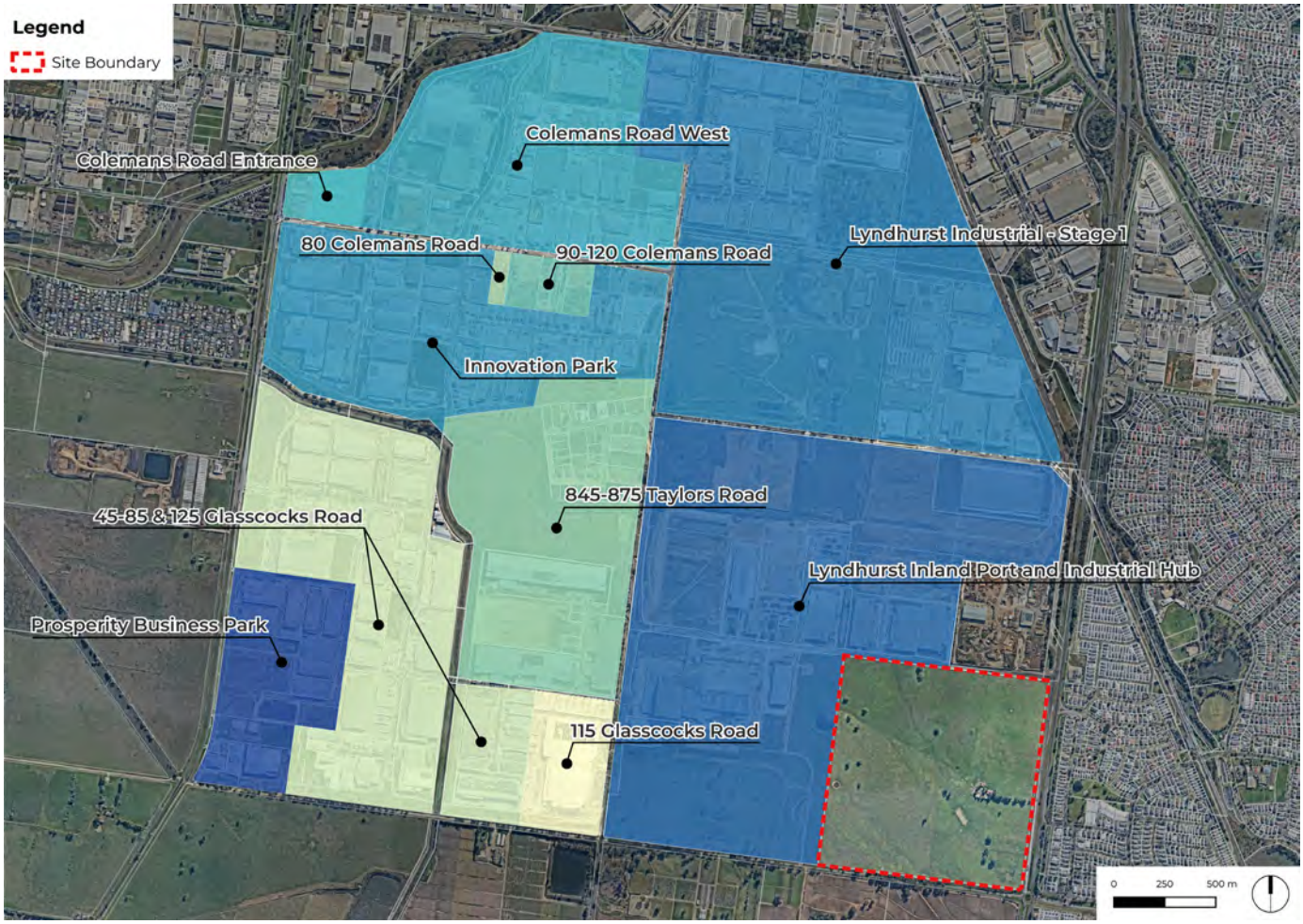

04 Nearby Approved Development Plans. *Source: Ethos Urban*

SECTION 2

Planning Context

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2.1 Strategic Context

Plan Melbourne

Plan Melbourne sets out the vision for Melbourne to continue to be a global city of opportunity and choice.

In accordance with Plan Melbourne, the site is located adjacent to an Innovation Park within the Southern State-Significant Industrial Precinct as part of the Dandenong National Employment and Innovation Cluster (NEIC). This cluster has strengths in advanced manufacturing, health, education, wholesale trade, retail and transport, postal services and warehousing. The Dandenong NEIC also includes the Dandenong Metropolitan Activity Centre.

The Plan articulates the importance of protecting areas of state-significant industry including the Dandenong South Industrial area. The Plan also highlights the importance of continuing to improve the freight network to ensure continued support of the growing industrial area of Dandenong South.

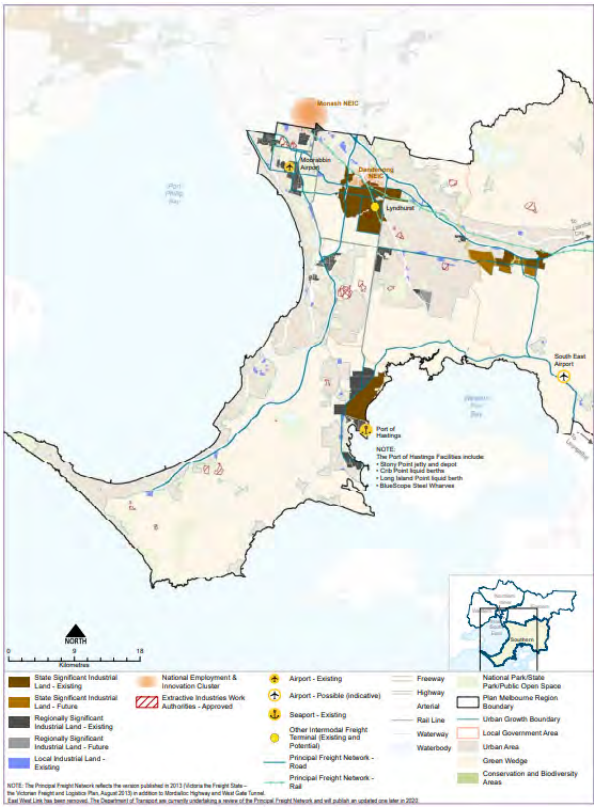
Melbourne Industrial and Commercial Land Use Plan

The Melbourne Industrial and Commercial Land Use Plan (MICLUP) identifies the site within the Southern State-Significant Industrial Precinct (Southern SSIP).

The SSIP is defined as strategically located land available for major industrial development linked to the Principal Freight Network and Transport gateways. They will be protected from incompatible land uses to allow continual growth in freight, logistics and manufacturing investment.

The Southern SSIP is the third largest SSIP in Melbourne and includes the municipalities of Greater Dandenong and Casey.

More specifically, the site is located within the Lyndhurst Precinct which is the southern most precinct of the Southern SSIP. It has the largest supply of vacant land and is expected to facilitate manufacturing, warehouse and distribution use and development.



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Dandenong South Industrial Area Extension Native Vegetation Precinct Plan - January 2009

The purpose of the Dandenong South Industrial Area Extension Native Vegetation Precinct Plan is to:

- Specify native vegetation areas to be retained and ensure that these areas are managed to protect the ecological values of habitat and natural values of the area.
- Specify the native vegetation to be removed, destroyed or lopped and the works to be provided to offset the removal, destruction or lopping of native vegetation.

The plan requires a permanent fence to be erected around all vegetation to be retained to the satisfaction of the responsible authority. Greater Dandenong has confirmed a square protected area of 32m X 32m, totaling 1024m2 for each tree is sufficient. How to manage access to these areas and whether a fence is the most appropriate outcome will be confirmed with Council.

Two remnant patches of native vegetation will be required to be retained within the Glasscocks Road Reserve. The plan also outlines 0.15 habitat hectares of Plains Grassy Woodland within the Glasscocks Road Reserve that is being removed that will require offsets. Sixteen trees are expected to be retained on site.

Dandenong South Industrial Area Extension Development Contributions Plan

The Dandenong South Industrial Area (DSIA) Extension Development Contributions Plan (DCP) sets out the capital costs for scheduled infrastructure within the DSIA. The subject site is located within Area 2 - Lyndhurst.

The original DCP was prepared in 2005. The most recent version is 4.2 released in January 2015.

The following infrastructure items will be delivered by the DCP in proximity to the subject site:

- Glasscocks Road Realignment and widening.
- Western Port Highway and Glasscocks Road intersection upgrade.
- Land for the stormwater detention basin to the west of the site. The asset will be delivered by ISPT/Aliro, on behalf of delivered by Melbourne Water as part of the Drainage Services Scheme.

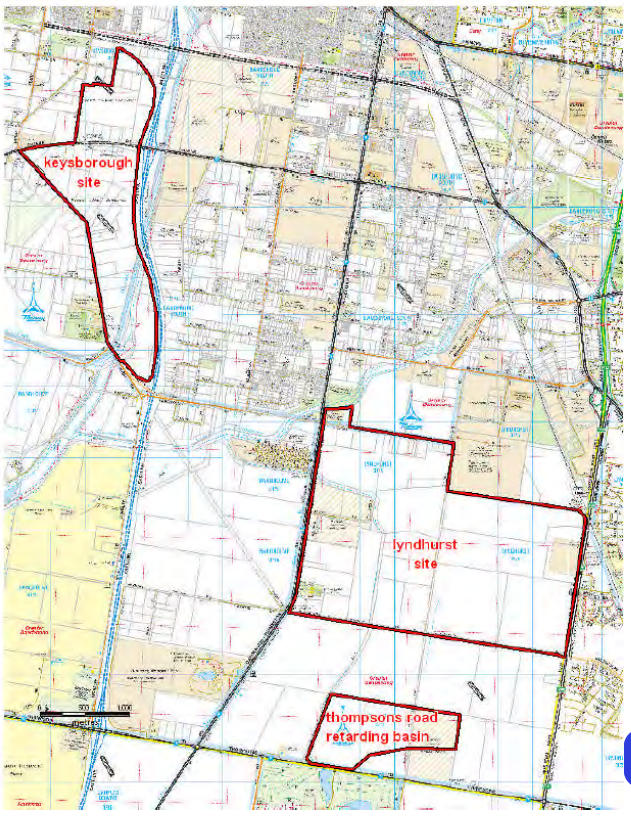
Discussions are currently underway with Council to deliver some of the required infrastructure as Works in Kind.

Victorian Freight Plan 2018-2050

The Victorian Freight Plan, *Delivering the Goods*, sets out short, medium and long-term priorities to support Victoria's freight and logistics system through a period of unprecedented growth in freight volumes and rapid change in the broader environment, while allowing for new opportunities in the future.

Both the Frankston Railway Line to the west of the site and Dandenong/Pakenham Railway Line to the east of the site are included in the Rail Principal Freight Network. The Level Crossing Removal Works along both of these train lines have seen major improvements to the rail network.

The site is also positioned to leverage access to the Road Principal Freight Network, including the Western Port Highway, Eastlink and the South Gippsland Highway.



05 Dandenong South DCP Areas

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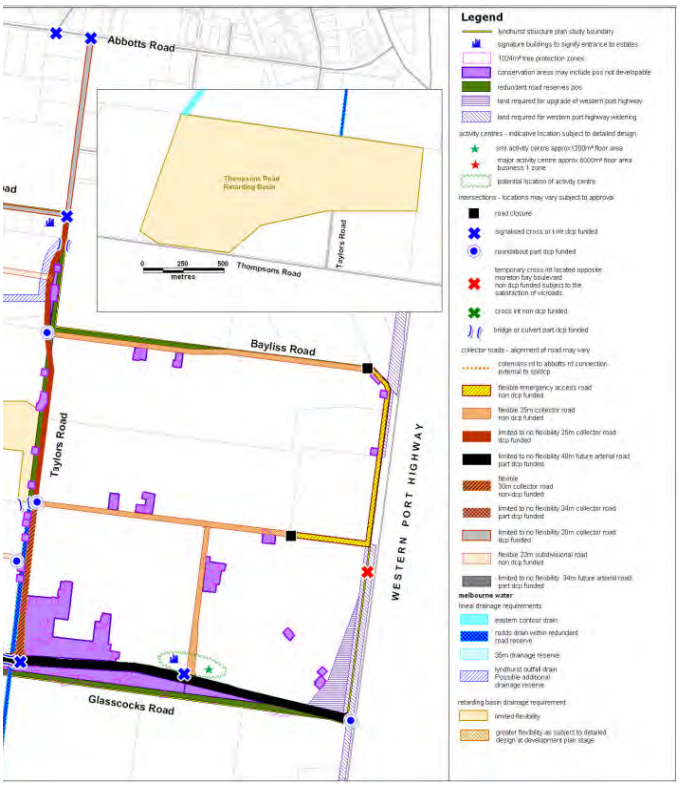
Dandenong South Industrial Area Extension Structure Plan

The Structure Plan facilitates the urbanisation and the industrial outcomes sought for the precinct following it's inclusion within the UGB.

The site is located within the Lyndhurst Precinct shown in the Figure below. The Structure Plan envisages conservation areas, a network of watercourses, wetlands and retarding basins, road networks and two activity centres. Specific features relating to the site are:

- Realignment and upgrades to Glasscocks Road along the southern boundary of the site.
- Land within the PAO in the south-east of the site to facilitate the future expansion of Western Port Highway.
- The removal of all vegetation other than two patches and 16 scattered trees.
- Conservation areas that protect remnant trees to be retained and to separate the precinct from Green Wedge properties on the south side of Glasscocks Road.



06 Dandenong South Industrial Area Extension Structure Plan

City of Greater Dandenong - Open Space Strategy

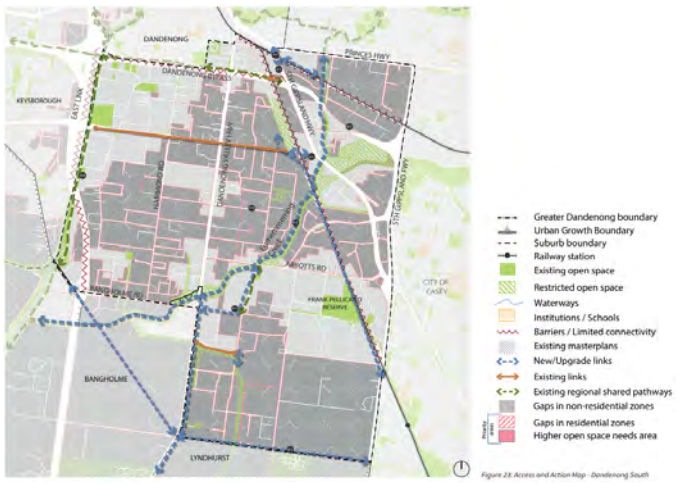
The City of Greater Dandenong - Open Space Strategy describes the Dandenong South area as dominated by industrial land. This is anticipated to result in negligible population growth for generating significant demand for open space.

Figure 23 of the strategy does not show any existing or restricted open space contained within the subject site.

Opportunities for the area include the Dandenong South Native Vegetation Precinct Plan facilitating a continued provision of open space and conservation reserves in this area.

The strategy seeks to facilitate a high standard of street tree planting to improve canopy coverage, increase biodiversity, improve visual amenity and provide recreational opportunities for workers.

The strategy outlines the main issue for the area as the reliance on the implementation of Development Plans to provide key improvements to the amenity of open space.



07 City of Greater Dandenong Open Space Strategy

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2.2 Greater Dandenong Planning Policy Framework

The Planning Policy Framework (PPF) provides the broad objectives for planning in Victoria at state, regional and local levels. The key provisions of the Framework relevant to this application are provided below.

Clause 11 Settlement seeks to ensure planning anticipates and responds to the needs of existing and future communities through the provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure.

Development at the subject site will enable the development of sustainability communities by providing jobs close to settlements. Development should be planned along existing and planned transport infrastructure.

Clause 12 Environmental and Landscape Values seeks to protect the health of the environment and ecological systems and the biodiversity they support, and conserve areas with identified environmental landscape values. Vegetation management at the site should following the Native Vegetation Precinct Plan.

Clause 13 Environmental Risks and Amenity seeks to ensure planning strengthens the resilience and safety of communities by adopting a best practice environmental management risk management approach.

Development at the site should respond as required to the objectives of the Bushfire Prone Area by protecting human life and infrastructure assets.

The proposal will need to be compatible with the surrounding land uses and ensure no adverse amenity impacts to nearby sensitive uses.

Clause 15 Built Environment and Heritage seeks to ensure planning recognises the role of urban design, building design, heritage and energy and resource efficiency in delivering liveable and sustainable cities, towns and neighbourhoods.

The design of the subject site should response to its surrounding context. The development should provide a high quality working environment including public safety and amenity, attractive landscaping and pedestrian friendly streetscapes.

Building design should consider the following :

- Siting and design including massing, height and energy performance.
- Water efficiency and the use of rainwater, stormwater and recycled water.
- Design that enhances the public realm.
- Development that considers and responds to safe transport movement for vehicles, pedestrians and cyclists.
- Building design that incorporates high quality landscaping and retains existing vegetation where possible.

Clause 17 Economic Development seeks to ensure planning provides for a strong and innovative economy, where all sectors are critical to economic prosperity.

The proposal should endeavour to strengthen the planned employment area. The development should consider the ability to facilitate growth in employment within the industrial sector while creating jobs closer to residential areas.

Protection of the State Significant Industrial Land requires that only land uses that are compatible with the strategic future direction of the precinct are located within proximity to the precinct.

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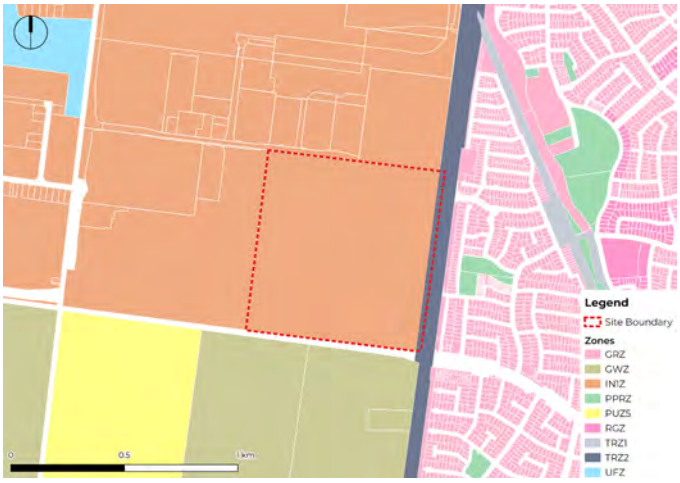
2.3 Zones

The majority of the site is within the IN1Z. The purpose of IN1Z is *to provide for manufacturing industry, the storage and distribution of goods and associated uses in a manner which does not affect the safety and amenity of local communities.*

Approximately 20 metres along the eastern boundary of the site is within the Transport Zone 2 (TRZ2). This part of the site is entirely within the Public Acquisition Overlay for the Western Port Highway. The vendor will be pursuing a Loss on Sale Claim with DTP for the PAO. As such, this area will be subdivided immediately.



08 Zones. *Source: Ethos Urban*

2.4 Other Controls

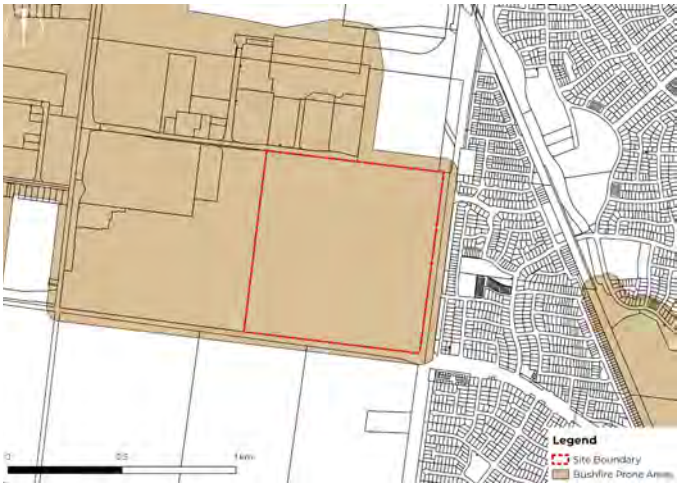
Area of Aboriginal Cultural Heritage Sensitivity

The north western portion of the site is located within the Area of Aboriginal Cultural Heritage Sensitivity. Further information regarding cultural heritage management at the site is provided in Section 3 of this Development Plan.

09 Aboriginal Cultural Heritage Sensitivity. *Source: Ethos Urban*

Bushfire Prone Area

The site is located within a Bushfire Prone Area (BPA). This designation is expected to be periodically removed as the precinct is developed. While this may have implications in the short term for construction to BAL standards, the industrial and warehousing outcome anticipated for the site is outside the sensitive uses listed in Clause 13.02-1S.



10 Bushfire Prone Area. *Source: Ethos Urban*

SECTION 2
Planning Context

2.5 Overlays

The following overlays apply to the site.

Public Acquisition Overlay, Schedule 1 (PAO1)

The PAO1 applies to the east and south east of the site. The purpose of the PAO is:

- *To identify land which is proposed to be acquired by a Minister, public authority or municipal council.*
- *To reserve land for a public purpose and to ensure that changes to the use or development of the land do not prejudice the purpose for which the land is to be acquired.*
- *To designate a Minister, public authority or municipal council as an acquiring authority for land reserved for a public purpose.*

PAO1 designates the Roads Corporation as the acquiring authority for the purpose of proposed freeway/road widening. This is to facilitate the expansion of Dandenong-Hastings Road and delivery of the future interchange at Glasscocks Road.

Development Contributions Plan Overlay, Schedule 3 (DCPO3)

The DCPO3 applies to the Dandenong South Industrial Area Development Contributions Plan - Lyndhurst. The purpose of DCPO is to levy contributions for the provision of works, services and facilities required for the efficient development of the precinct.

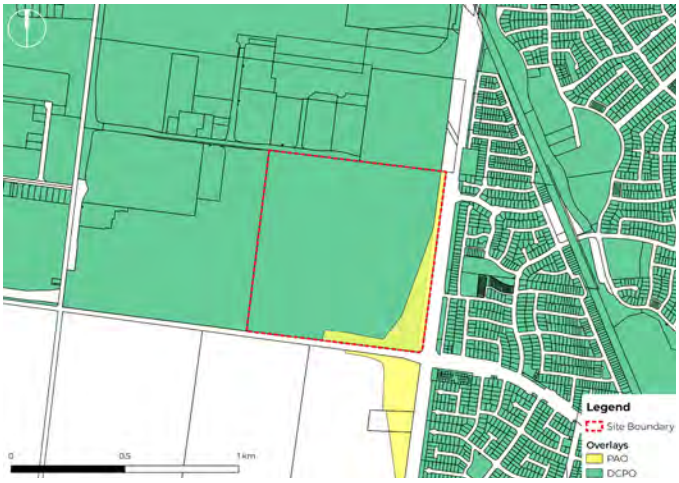
It is acknowledged the site will be subject to a development contributions levy. This does not apply to land required for the upgrades to Glasscocks Road and land identified for conservation areas.

Development Plan Overlay, Schedule 6 (DPO6)

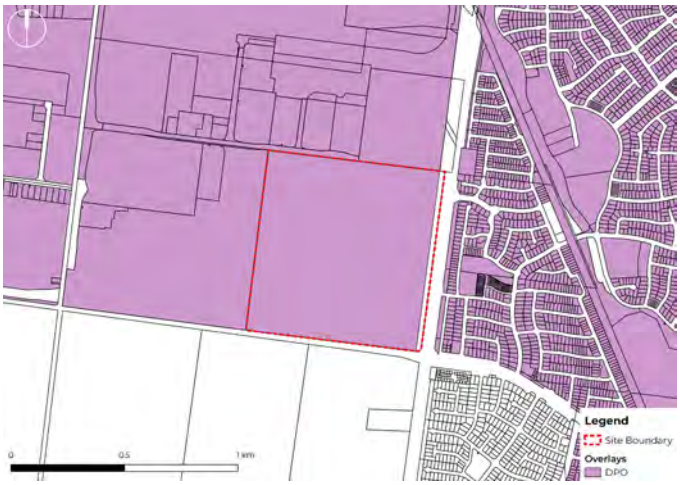
The DPO6 applies to the Dandenong South Industrial Area Extension - Keysborough & Lyndhurst Sites. The purpose of DCPO is:

- To require the planning and coordination of the urbanisation of the precinct.
- To enable efficient and orderly development.

The purpose of this report is to satisfy the requirements of Schedule 6 to the Development Plan Overlay.



11 PAO and DCPO Overlays. *Source: Ethos Urban*



12 DPO Overlay. *Source: Ethos Urban*

SECTION 2
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2.6 Particular Provisions

The following provisions are relevant to the development.

Clause 52.06 Car parking

The purpose of Clause 52.06 is:

- *To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.*
- *To support sustainable transport alternatives to the motor car.*
- *To promote the efficient use of car parking spaces through the consolidation of car parking facilities.*
- *To ensure that car parking does not adversely affect the amenity of the locality.*
- *To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.*

Clause 52.16: Native Vegetation Precinct Plan

The purpose of Clause 52.16 is:

- The provide for the protection, management and removal of native vegetation through the use of a native vegetation precinct plan incorporated into this scheme.
- To ensure that there is not net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. This is achieved by applying the following three step approach in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (Department of Environment, Land, Water and Planning, 2017) (The Guidelines):

1. Avoid the removal, destruction or lopping of native vegetation.
2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
3. Provide an offset to compensate for the biodiversity impact if a permit is granted to remove, destroy or lop native vegetation.

- The manage the removal, destruction or lopping of native vegetation to minimise land and water degradation.

The schedule to Clause 52.16 lists the Dandenong South Native Vegetation Precinct Plan (January 2009), which applies to the site. Vegetation retention and removal must be done in accordance with this plan.

Clause 52.29 Land Adjacent to the Principal Road Network

The purpose of Clause 52.29 is:

- To ensure appropriate access to the Principal Road Network or land planned to form part of the Principal Road Network.
- To ensure appropriate subdivision of land adjacent to Principal Road Network or land planned to form part of the Principal Road Network.

Image Source: MDG

SECTION 3

Development Plan

SECTION 3
Development Plan

3.1 Principles

As per the Precinct Structure Plan (PSP) the site should be developed in accordance with the following principles:

- **High quality urban design and landscaping**. This includes providing a 'Green front of house' within the lot frontage to create a landscaped interface to the road and high-quality warehouse entrance. The design of buildings and entries will incorporate attractive streetscape frontages with built form orientated to road frontages and public open space.
- **Environmentally sensitive subdivision and building design** based on environmental sustainability. Landscaping will be robust, incorporating green buffers with native vegetation. The development will incorporate significant Public Open Space and Conservation Reserves to provide a variety of passive and active recreation areas and to protect and enhance remnant native vegetation.
- **Development of effective and sustainable transport networks** within the precinct and integrated into the regional transportation system. The development will ensure internal collector roads provide efficient circulation of vehicle movement through the site. Access to Glasscocks Road and subsequently the Western Port Highway is planned through the adjacent DPO site to the west. An interim access road connecting the site to Glasscocks Road is enabled by the Masterplan in the event access to the adjacent site cannot be secured.

This Development Plan has been prepared to satisfy the conditions to Schedule 6 of Clause 43.03, Development Plan Overlay. The following documents have been appended to this report:

- Traffic Management Plan - Impact Traffic
- Stormwater Management Plan - Dalton Consulting Engineers
- Concept Plans - Watson Young
- Landscape Package - MDG
- Civil Masterplans - Dalton Consulting Engineers

Image Source: MDG

SECTION 3
Development Plan

3.2 Masterplan Layout

Development at the site will consist of the following:

Road network: Permanent access to the site is planned through the adjacent west site via a connector road to Glasscocks Road. An interim connector road directly from the site to Glasscocks Road is proposed in the event that access to the adjacent site is not available at the time of development. If the interim access is required, this access will be removed within 6 months of the completion of the permanent access to Atlas Boulevard, subject to appropriate of all relevant authorities.

Internal movement will be facilitate via a 'horse shoe bend' road that provides circular movement throughout the site to the proposed sub precincts.

Built form: The site proposes four (4) sub precincts to facilitate warehouses, associated hardstand, car parking and loading/ unloading areas. Specifically, the sub-precincts will comprise:

- Sub-precinct A (9.4 hectares) located in the south west portion of the site adjacent to Glasscocks Road.
- Sub-precinct B (17.1 hectares) located on the eastern portion of the site adjacent to Western Port Highway.
- Sub-precinct C (17.3 hectares) located in the central portion of the site.
- Sub-precinct D (3.5 hectares) located in the north western corner of the site adjacent to Port Link Drive.

This development plan provides a broad layout to guide the future development of the site. For the avoidance of doubt, the detailed lot layout and size of individual warehouses will be determined through future planning permit processes.

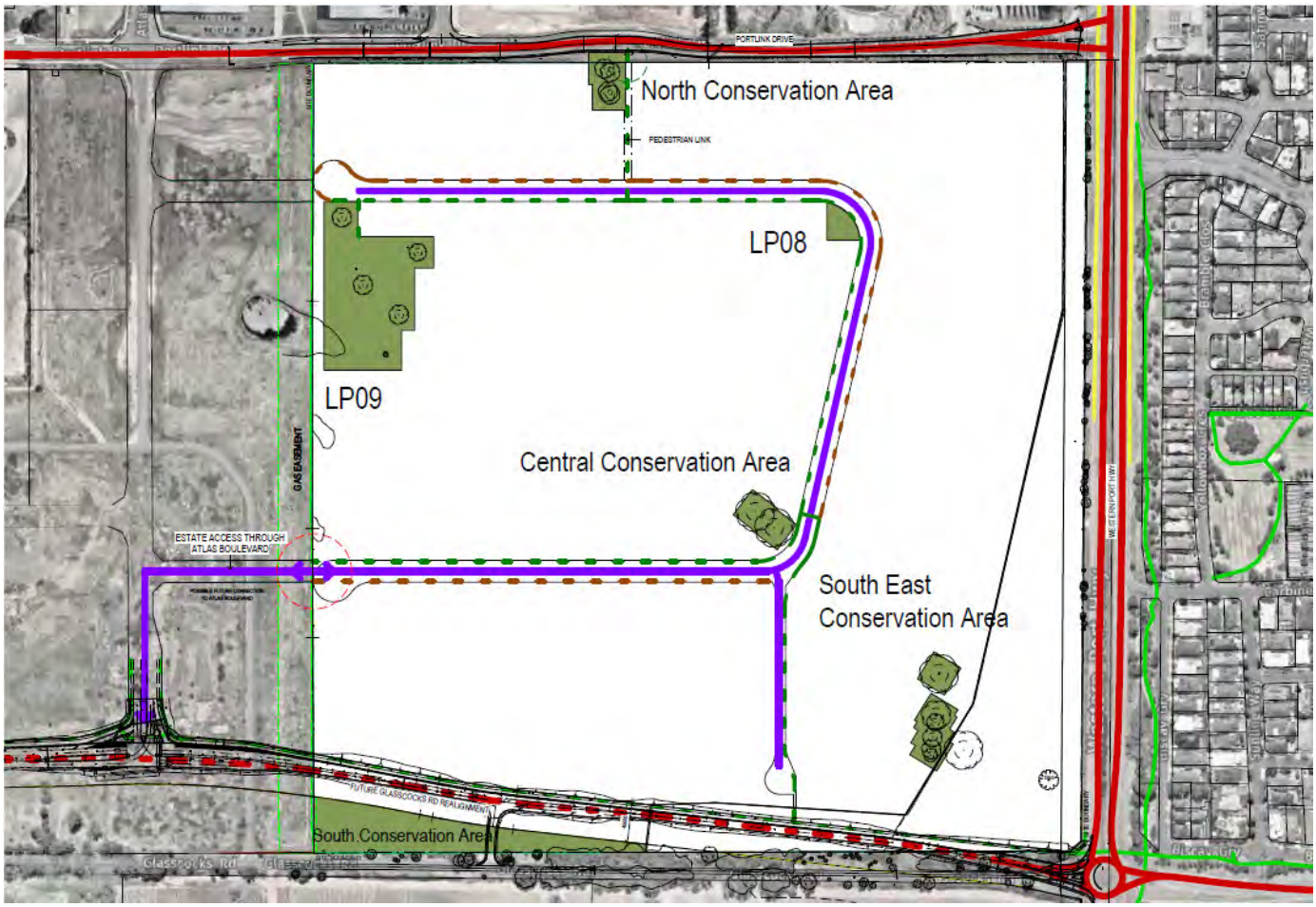
The built form layout indicated in the Stormwater Management Strategy (DCE, March 2024) has not been endorsed by Council and will be the subject of a future planning permit application.

Open space and conservation areas: Open space and tree conservation areas are provided throughout the site. The main areas include:

- LP9 has a total area of 13,610m2 hectares and an open space contribution of 8,940m2 hectares, located adjacent to the western boundary of the site. This area comprises 5 existing trees to be retained. This will be a publicly accessible open space vested to Council.
- North Conservation Area: Four trees will be retained within a conservation area on the northern boundary of the site adjacent to Portlink Road. This will not be publicly accessible and will remain in private ownership while Portlink Drive remains in private ownership. This will be revisited once Portlink Drive is a public road.
- LP8 is located adjacent to the internal connector road with an area of 894 m2. The structure plan and NVPP envisaged this area of open space adjacent to the trees to be retained at the northern boundary of the site by Portlink Drive. As Portlink Drive remains a private road, the subject site has no access from the northern boundary. To maximise the usefulness of this open space and the contribution it makes to the wider precinct, the development plan proposes to relocate the open space to the corner of the internal road network. This will be a publicly accessible open space vested to Council.
- Central Conservation Area: Two existing trees will be retained within the central area of the site. The ownership of these trees will be finalised with the completion of the CHMP.
- South East Conservation Area: An open space area is proposed on the south east corner of the site with five existing trees to be retained. This will not be publicly accessible and will remain in private ownership.

Landscaping will also be provided along the internal connector road, along the warehouse hardstand and within car parking areas. This detail will be finalised at the planning permit application stage.

SECTION 3
Development Plan



14 Masterplan. *Source: Watson Young*

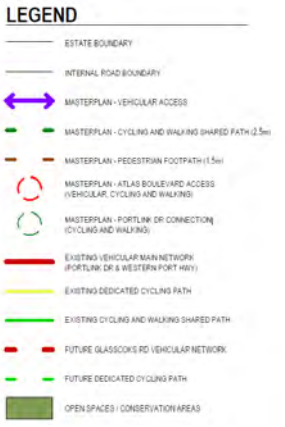


Figure 14 Masterplan demonstrates the permanent access arrangement for the site. Access to the site will be achieved through the adjacent site to the west. In the event that an interim solution is required, an access road will be developed directly into the site via Glasscocks Road. A plan of this arrangement is provided at Figure 18.

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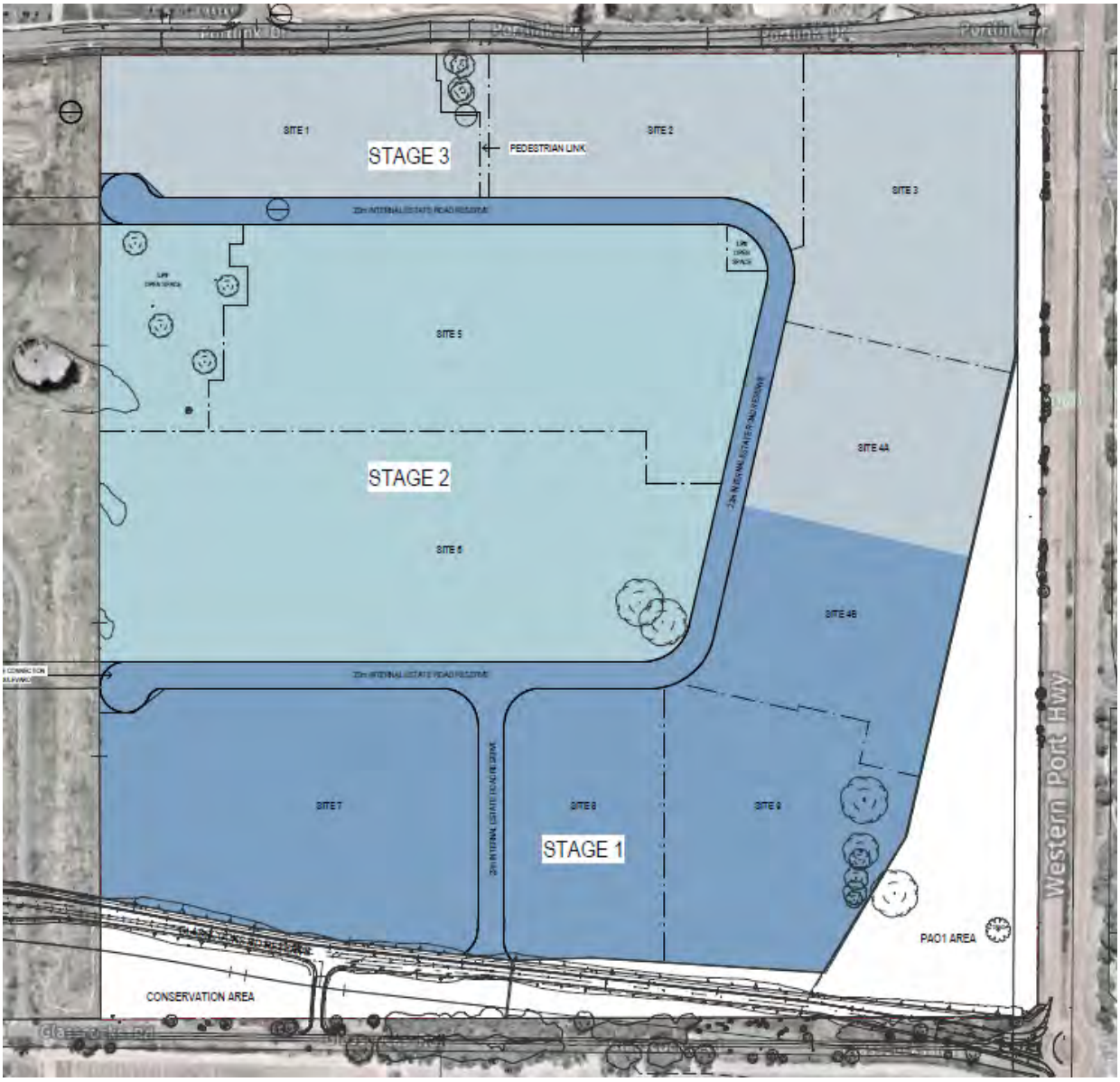
3.3 Staging

The development is proposed to be delivered in three stages:

- **Stage 1** will comprise all internal roads, pedestrian paths and intersections as well as Lots 7, 8, 9 and 4B, including associated conservation areas, landscaping, car parking and hardstand. The upgrades to Glasscocks Road will also need to be delivered to enable stage 1.
- **Stage 2** will comprise the central area of the site consisting of Lots 5 and 6, conservation areas LP9 and LP8, and the proposed amenity building.
- **Stage 3** will comprise the Lots 1, 2, 3 and 4A as well as associated carparking, hardstand, conservation areas and landscaping.



15 Staging Plan. *Source: Watson Young*

SECTION 3
Development Plan

3.4 Cultural Heritage

A mandatory Cultural Heritage Management Plan (CHMP) is required for this development.

The CHMP baseline investigative works commenced in February 2023 (Project Number 19171). The initial investigation determined that, while artefact densities have been low, artefacts encountered in one trench were of a density to be deemed an artefact scatter rather than a low-density artefact distribution. As such, additional testing is required to determine the extent of the artefacts in the area. Initial grids points of 75 metres in sensitive areas and 200 metres in sensitive areas have been increased to 25 metres for sensitive areas and 75 metres for non-sensitive areas.

The additional field work has commenced and is expected to be completed by October 2024. The CHMP is anticipated to be approved April 2025.

It is acknowledged an approved CHMP will be required before any future planning permit can be issued. Any changes to the approved Development Plan as a result of the findings of the CHMP may result in amendments to the approved Development Plan to the satisfaction of the City of Greater Dandenong.

Image Source: Ethos Urban

SECTION 3
Development Plan

3.5 Environmental Management

Nature Advisory have provided input into the preparation of this Development Plan. Dalton Consulting Engineers have also collaborated on the hydrological regimes for the retained conservation areas. Any future planning permit for land located within the NVPP must be consistent with any conditions or requirements listed within the document.

Environmental Issues Affecting the Site

Human disturbance is the most prominent threat to areas of retained native vegetation once development is completed. This can be in the form of direct destruction, compaction of soil surrounding the trees from vehicle access and inappropriate management. This can be mitigated by limiting the type of access into retained areas of native vegetation. The most appropriate method would be to install bollards that prevents vehicle access into these areas, as well as clear signage to demonstrate that access is not permitted. In addition to this, any tree maintenance or necessary lopping must be conducted by a suitably qualified arborist.

Environmental risks will also be present during the construction phase of the development. This includes damage to native vegetation, spread of weeds, pest animals and unauthorised access. A Construction Environmental Management Plan (CEMP) will likely be the condition of future planning permits to ensure that environmental risks during construction are properly addressed.

Environmental Management Plan Objectives

The Environmental Management Plan (EMP) will focus on the protection and enhancement of the remaining open space and environmental values once the site is fully developed. This will involve the mitigation of future threats to these values. The following high-level goals and objectives for the EMP are proposed:

- **High-threat weeds** – The EMP will aim to reduce the spread of high threat weeds, particularly CaLP Act listed weeds during and post development. This will be done through active management (slashing/ spraying) and strategic planting to out compete weed species.
- **Rubbish control and appropriate management** – As well as weed control, active management should focus on rubbish control, monitoring and removing and illegal dumping of rubbish when needed.
- **Protection of values** – The EMP will outline how to limit damage from inappropriate access. Bollards will be used to protect these values, as outlined above. Active management of the areas should only be conducted by suitably qualified personnel.
- **Enhancement of retained vegetation** – The EMP will involve a landscaping plan (where appropriate) that incorporates appropriate species from the Plains Grassy Woodland (EVC 55) and encouraging natural recruitment of the retained canopy trees.
- **Control pest animals** – The EMP will include measures to control pest animals and prevent them from degrading native vegetation values and any revegetation areas.

It is acknowledged an EMP is likely to form a condition of any future permit that is required to be satisfied prior to the commencement of works on-site.

Landscaping in Areas of Environmental Significance

Landscaping should focus on incorporating appropriate species from the Plains Grassy Woodland (EVC 55) and encouraging natural recruitment of the retained canopy trees. Management of retained areas of native vegetation should focus on high threat weed control, particularly Catchment and Land Protection Act 1994 (CaLP Act) listed weeds. The detailed landscape design for the site and appropriate landscaping within conservation areas will be resolved at the planning permit stage.

Offset Strategy

The vegetation removal enabled by the NVPP requires securing of an offset of 0.129 general habitat units with a minimum strategic biodiversity value of 0.314, including at least 10 large trees, and be located within Greater Dandenong or the Melbourne Water CMA boundary. This offset will be secured via a third-party offset and secured through the appropriate legal mechanism by the native vegetation credit owner.

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Protection of Open Space and Conservation Areas

It is anticipated Council's willingness to take on any open space or conservation areas will depend on future discussions on timing and Council's expectations regarding the condition of the reserves and ongoing maintenance obligations. As a starting point inappropriate access to the reserves will be managed with landscaping design and bollards. The scope of any EMP for the site will incorporate detailed mapping and descriptions of open spaces, conservation areas, and restricted access zones. Any access restrictions will adhere to the requirements outlined in the NVPP. Conservation areas will be managed to ensure the protection of the native vegetation from the public, while still providing access to open space for employees to enjoy.

The following steps are recommended to minimise any impacts to vegetation to be retained during construction:

- Establish appropriate vegetation protection zones around areas of native vegetation to be retained prior to works.
- Establish appropriate tree protection zones around scattered native trees to be retained prior to works.
- Ensure all construction personnel are appropriately briefed prior to works, and that no construction personnel, machinery or equipment are placed inside vegetation/tree protection zones.
- A suitably qualified zoologist should undertake a pre-clearance survey of planted trees to be removed in the week prior to removal to identify the presence of any nests or hollows.
- If considered necessary based on the results of the pre-clearance survey, a suitably qualified zoologist should be on site during any tree removal works to capture and relocate any misplaced fauna that may be present.

Hydrological Regimes for Conservation Areas

The urbanisation of the site has the potential to impact the hydrological regimes of the conservation areas. This is by either limiting water flows or by directing additional runoff into these areas that could impact the ongoing viability of the existing mature trees to be retained. As well as the ecological value of these trees, they are a significant landscape asset the estate can leverage.

Nature Advisory have advised the open space retained around each reserve, in particular the 1024m2 open space area for retained scattered trees, will ensure there is appropriate surface water for the trees to remain unaffected by the surrounding urbanisation.

The stormwater strategy directs overland flows down the internal road network and avoids any discharge into conservation areas. In addition, the strategy avoids any change of levels within these conservation areas and will provide appropriate discharge points from the conservation areas into the drainage network. This approach will ensure there are no prolonged periods of inundation in the conservation areas.

A more detailed assessment of the hydrological impacts on native vegetation will be provided as part of the EMP process, This will include a detailed engineering assessment of the changes in hydrology across the site and the impact that this will have on tree health throughout the site.

The table below provides a breakdown of the proposed ownership and management of the conservation and open space areas.

16 Open Space and Conservation Area Ownership and Management.

Open Space Area	Ownership and management
LP8	Open space to be vested to Council at point of subdivision
LP9	Open space to be vested to Council at point of subdivision
North Conservation Area	Ownership will be maintained by ISPT. If Portlink Drive becomes a public road this will be revisited.
Central Conservation Area	Conservation Area to be vested to Council at point of subdivision
South East Conservation Area	Conservation area to remain in private ownership
South Conservation Area	Conservation area to be vested to Council at point of subdivision

SECTION 3
Development Plan

3.6 Stormwater Management

Melbourne Water's Glasscocks Road Drainage Services Scheme (DSS) applies to this precinct. The drainage scheme envisages developed flows from the subject site to be directed to the existing detention and treatment infrastructure located on Portlink Drive and Taylors Road. The DSS anticipates three discharge connections from the site – all of which are into the neighbouring site to the west.

A Stormwater Management Strategy (SWMS) has been prepared by Dalton Consulting Engineers (DCE) and is attached as Appendix B to this Development Plan. The SWMS will be referred to Melbourne Water who must endorse the stormwater approach before the Development Plan can be approved.

The SWMS proposes minor event flows up to the 5% Annual Exceedance Probability (AEP) are conveyed via underground drainage through to the existing assets at Portlink Drive and Taylors Road. Major event flows greater than the 5% AEP and up to the 1% AEP are proposed to be conveyed via overland flow paths utilising the internal road network through the site. No treatment or detention is proposed within the site's boundaries in accordance with the Glasscocks Road DSS. As such, this Development Plan will not provide construction or maintenance details for waterbodies.

The site naturally falls generally towards the northwest corner. The SWMS and civil plans package demonstrate the proposed cut and fill regime across the site. The Bulk Earthworks Plan shown in Figure 13 demonstrates earthworks are limited to developable portions of the site only. No earthworks are proposed within the conservation reserves. Minor retaining walls are proposed to avoid earthworks encroaching into conservation areas.

The stormwater strategy directs overland flows through the internal road network and therefore avoids inundation of conservation areas. No discharging through the conservation areas is proposed. Drainage will also be provided to these areas to ensure they are adequately drained. This concept will be refined through the detailed design stage.

Standard erosion and siltation control measures during the construction period will be utilised. These measures will be consistent with Melbourne Water's Principles of Erosion Management and may include staging of works, sediment fencing and stablisation with revegetation and matting. It is expected future planning permits will require the preparation of an Environmental Management Plan to demonstrate best practice erosion and siltation control during construction prior to commencement of any works on site.

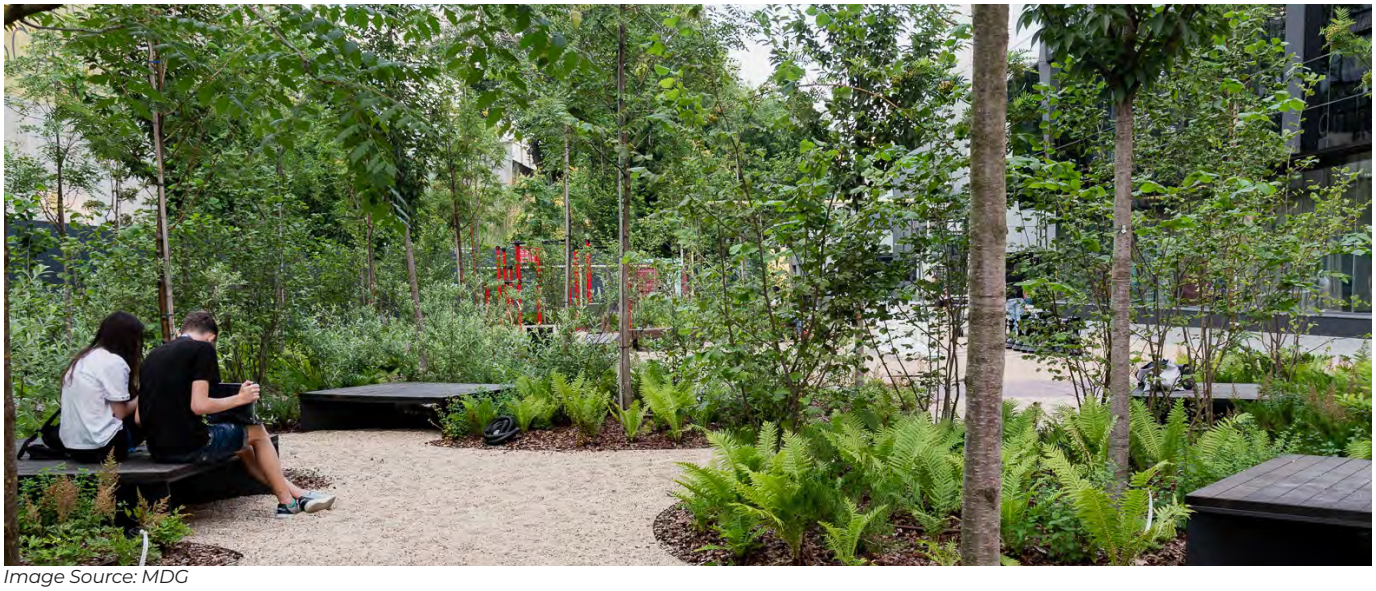

Image Source: MDG

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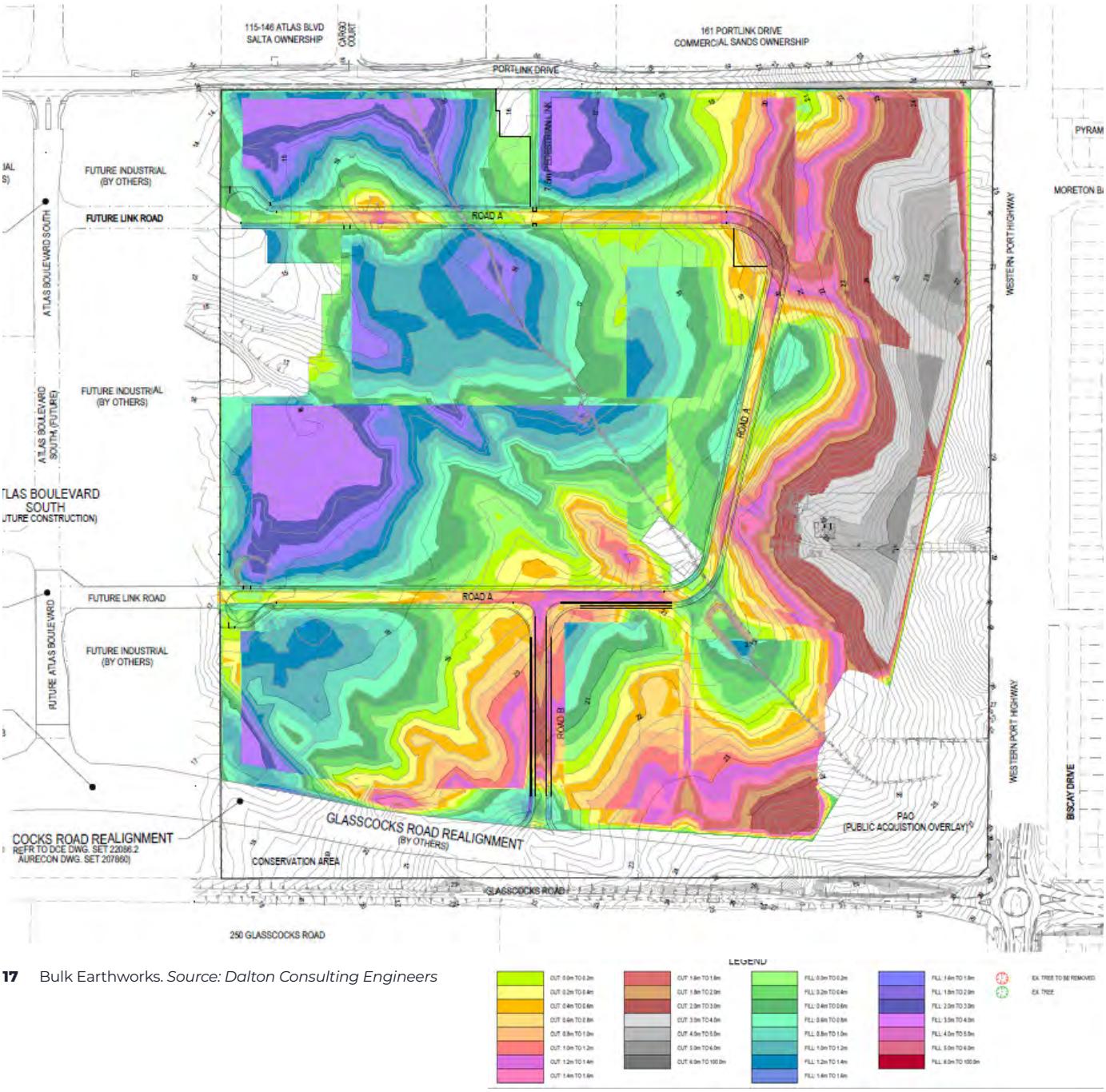


17 Bulk Earthworks. *Source: Dalton Consulting Engineers*

SECTION 3
Development Plan

3.7 Integrated Transport Plan

An Integrated Transport Plan prepared by Impact Traffic is attached as Appendix F to this development plan.

Interim and Permanent Access

While the site is expected to deliver Glasscocks Road from the Western Port Highway, the structure plan only envisages access to the site from Atlas Boulevard to the west and Portlink Drive from the north. The structure plan does not envisage access from Glasscocks Road directly into the site.

Atlas Boulevard is yet to be delivered on the neighbouring parcel. Discussions are progressing with the neighbouring land owner to enable the delivery of Atlas Boulevard and Glasscocks Road to provide access to the subject site via the southern connection into the western parcel.

Portlink Drive is a private road. The site does not benefit from legal access from this road. There is no certainty as to whether Portlink Drive will ever be a public road.

To enable the delivery of the site the development plan proposes a temporary access from Glasscocks Road to be delivered as part of the Glasscocks Road upgrade works. As such, direct access to Glasscocks Road is proposed on a temporary basis until the wider network enables alternative access to the site. This access will be removed 6 months following the completion of the permanent access from Atlas Boulevard, contingent on other authorities.

Ultimate Access

Ultimate access is proposed to comprise two connections from Atlas Boulevard. It is anticipated that the southern most access will be delivered initially, with the northern most access delivered at a later stage as the estate develops. The interim treatment will be a court bowl to be developed into a connecting road, dealt with via an easement over the balance of the court bowl. This approach has been discussed with Council.

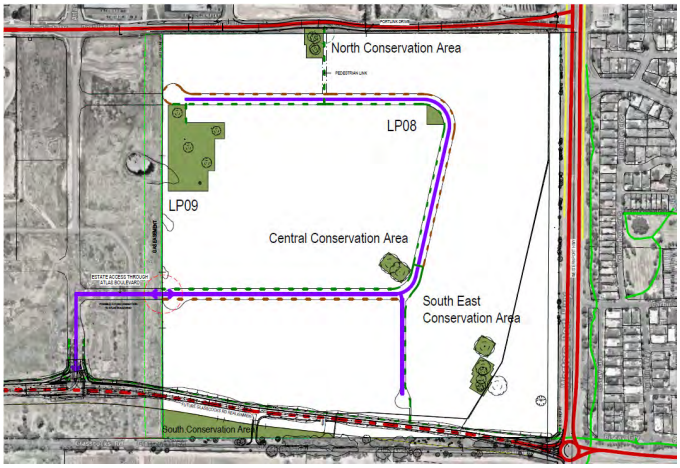
Public Transport Network

Public transport does not currently service the estate. The nearest services are the 890, 891, 863 and 897 bus routes and Lynbrook Station to the east of the Western Port Highway.

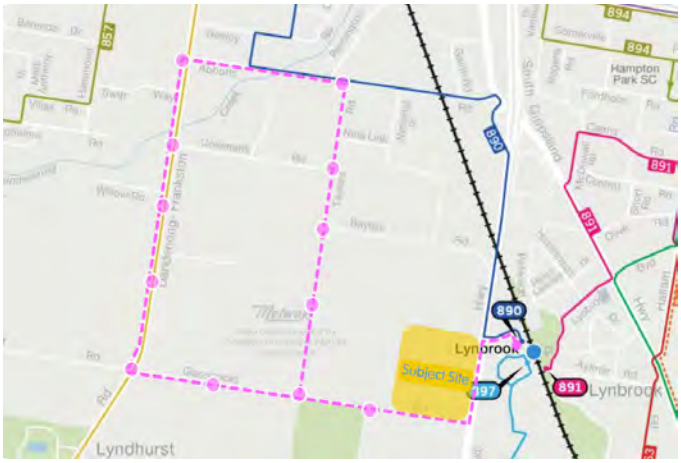
The ITP envisages potential bus routes along Glasscocks Road, Taylors Road and Frankston-Dandenong Road that would service the estate.

The potential service route integrates with Principal Public Transport Network at two locations namely, at Lynbrook Train Station, where metropolitan train services are provided and at Dandenong Frankston Road where SmartBus services are provided.

18 Interim Access Arrangements. *Source: Watson Young*



19 Permanent Access Arrangement. *Source: Watson Young*



20 Potential Public Transport Services. *Source: Impact Traffic*

SECTION 3
Development Plan

Principal Bicycle Network and Strategic Cycle Corridors

Western Port Highway is on the Principal Bicycle Network (PBN). Glasscocks Road is planned as a main route in the Strategic Cycling Corridor.

The ITP proposes the internal road network in incorporate a shared path which will integrate into the wider bicycle network. Atlas Boulevard and Taylors Road are proposed to also deliver shared paths.

3.8 Interfaces

The site is well positioned to provide a large separation between the future development of the site and nearby sensitive uses. The Western Port Highway separates the site from the residential area to the east. The development of the site is further setback from this eastern boundary by the Public Acquisition Overlay for the widening of the Highway. The subject site will adjoin the industrial precinct land to the north and west that is progressively being urbanised. The site is separated from the Green Wedge land to the south by Glasscocks Road.

As Western Port Highway will be the main arterial access road to the site, there should be a limited requirement for industrial traffic to travel through the eastern residential area. Access can be achieved to the Mornington Peninsula Freeway and the Eastlink Toll Road via Thompsons Road, which does not require travel through residential areas. The site will have direct access to the arterial road network and therefore will not impact traffic flow through nearby residential areas.

The amenity of the adjoining green wedge land to the south of the site will be protected. Access to the site will ultimately be limited to the intersection at Glasscocks Road through the adjoining site to the west. A temporary intersection may be constructed at Glasscocks Road to provide direct access to the site if access through the adjoining site is not available.

A 20-metre built form setback from Glasscocks Road and Western Port Highway has been incorporated into the overall design of the estate. A minimum 5 metre landscape setback will be incorporated across the site.

3.9 Activity Centre Network

The structure plan envisages a potential activity centre at the intersection of Glasscocks Road and Atlas Boulevard South. This town centre has been identified on the Salta land to the west in the approved development plan for that site. Notwithstanding this future minor activity centre on the neighbouring parcel, the subject site would be well served by it's own amenity offering. This development plan has identified an approximate 2,000m2 parcel adjacent to LP9.

At this stage the ultimate use of this parcel has not been determined; however, it is envisaged to provide a daily convenience and amenity function for the precinct. The development of the site would leverage the adjacent open space and the prominent location at a future entrance to the site. The use of the parcel will remain flexible but could contain a convenience or food and drink offering, gym or similar use that will activate this pocket of the site

Image Source: MDG

SECTION 3
Development Plan

3.10 Urban Design

The development plan urban design guidelines build upon the Urban Design Guidelines set out in Section 4 of the Dandenong South Industrial Extension Structure Plan.

Estate Layout

The new subdivision within the development area will provide for a range of flexible lot types that are regular in shape, easily accessible and enable the required built form and landscape setbacks to be achieved.

Lot configurations will facilitate energy efficient site and building design and water sensitive urban design. The development will protect and enhance the remnant River Red Gum trees that are proposed to be retained. The public open space areas are well positioned for safety and access, providing a range of easily accessible spaces for use by estate employees.

The main entrance for the site, proposed on the west boundary of the site, will facilitate an attractive estate entrance, utilising integrated and high quality business identification signage to attract visitors to the estate.

In the event the access to the parcel to the west cannot be achieved in time for the development of the site, a temporary access has been shown directly from Glasscocks Road. This temporary access would also feature an attractive entrance with signage. Once permanent access has been arranged, entrance features including signage will be removed.

Site Layout and External Site Design

The proposal provides separation between pedestrian and shared paths from vehicle circulation. Car parking in front setbacks has been minimised and is separated from any road frontage with a landscaped setback. Appropriate setbacks have been provided along the internal road network and feature landscaping buffers with all road interfaces.

The development will provide a range of outdoor passive open space areas throughout for use by employees working within the estate.

The built form throughout the site is softened with the use of appropriate, attractive but hardy landscaping. Particular attention has been given to incorporate trees within car parking areas.

Fencing will be setback behind landscaping and be visually permeable with a high-quality design.

Building Design

The buildings will be designed to a high standard and will be contemporary, efficient and functional. The office areas will be located at the front of the warehouses adjacent to the main entrances to provide maximum visibility to visitors and passive surveillance of the street network.

Existing vegetation has been incorporated into the layout of the estate. The built form will respond to the conservation and open spaces to ensure they are effectively integrated into the design of the Estate.

The detailed built form will be finalised through the planning permit application. The following key features will be included in the final design:

- Exposed plain concrete block walls will be minimised along street frontages or boundaries to the public realm.
- Signage will be integrated with the building architecture and landscape design.
- Highly reflective materials will be avoided. Plant and service equipment will be screened from view or located to the rear of the buildings.
- Frontages to the internal road network will be active and dynamic to promote safety and comfort for users of the public realm.

21 Example Facade Treatment. *Source: Watson Young*

SECTION 3
Development Plan

3.11 Landscaping

The existing site is defined by gentle undulating paddocks and a number of mature River Red Gums dotted throughout the precinct. River Red Gums can live over 500 years and are a major asset to this site. The landscape design will leverage the existing River Red Gums to create an established landscape outcome for the site.

Pockets parks and open space adjacent to this site typically include very modest shelter and picnic facilities. There is great potential to set a new precedent for public open spaces within this area with the provision of higher-quality amenity and people-focused spaces.

There is also a great opportunity to provide genuine tree canopy and screening of large built-form within the precinct to reduce the urban heat island effect and create cooler, more pleasant spaces for people to work and rest.

The landscape design response will be informed by Environmentally Sustainable Design Principles with potential for implementation of the following initiatives during detailed design as follows:

- Water sensitive urban design.
- Biodiversity.
- Recycle / Reuse / Source Local.
- Carbon Neutrality.
- Social Sustainability.
- Project Legacy.

Public Realm Principles

The public realm principles focus on creating a sustainable and people focused approach to an industrial park, with a discernibly greener aesthetic.

- Designing for the Human Dimension.
- Sustainability and Industrial Greening.
- Activation and Invitation.
- Flexible Gathering Spaces for all shapes and sizes.
- Informality and layering of planted areas.
- Celebrating the Industrial use of the area.

Signage

A clear signage and way-finding hierarchy is crucial for consistent messaging across the precinct. The signs will have a common theme but would include variations in form and materiality. Proposed signs include entry and exit points to the Estate, parking identification, wayfinding and facility information.

Image Source: MDG

Fencing

Fencing will build on landscape themes and materiality used elsewhere in the development to create a distinctive and integrated aesthetic. Highlight fencing will be used to break up traditional fencing design. All fencing will be of a high-quality while maintaining the security of each tenancy. Fencing will have a high-level of visual permeability.

Image Source: MDG

SECTION 3
Development Plan

Streets and Industrial Greening

Industrial greening will be implemented throughout the site through the following methods:

- Tree plantings that will develop into canopy trees and provide a lush, green, welcoming and cool public realm;
- Highlight species to assist in defining the various buildings within the precincts.
- Opportunities for vertical greening to buildings.

Understorey planting to nature strip areas and car park setbacks offers the opportunity to define and punctuate key points within the public realm streetscapes, to soften view lines and create a sense of separation and respite from the street and built form. The planting will typically be comprised of drought tolerant species that minimise the amount of water required for establishment irrigation. Planting on battering areas should be done at a ratio of 4 plants per m2.

In accordance with the NVPP, planting in the conservation areas are to be strictly indigenous species. The planting schedule for the remaining areas include a large number of native and indigenous species and will be further refined as the design of the development progresses.

Image Source: MDG

Public Realm and Activation

The proposal aims to provide a diverse range of facilities throughout the open space network catering for multiple age and user groups. The estate will have a mix of passive and active recreation areas with strong, user-friendly links between spaces.

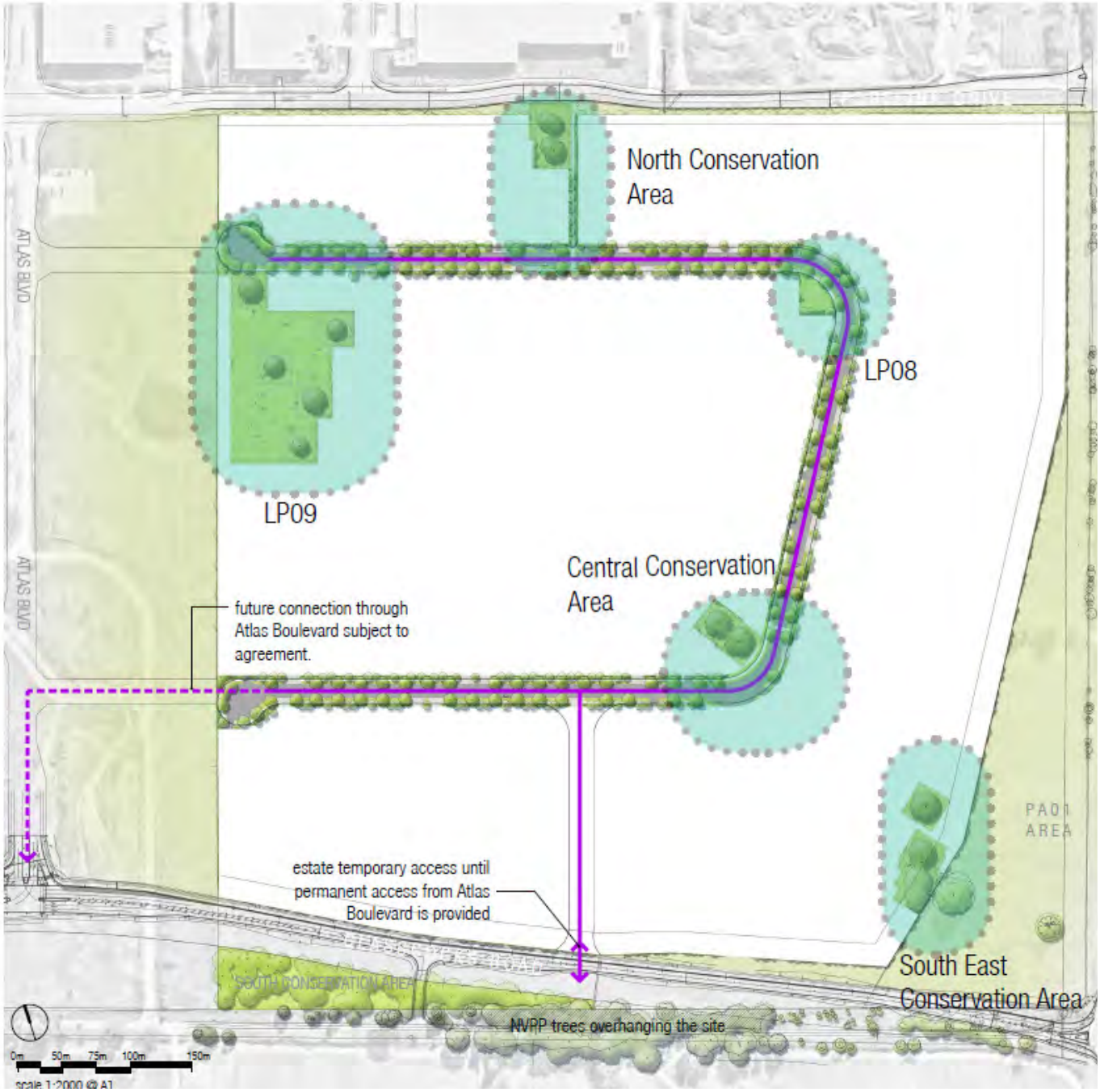
LP8 has been relocated to a corner of the internal road network. The Structure Plan and NVPP envisaged this area of open space adjacent to the trees to be retained at the northern boundary of the site by Portlink Drive. To maximise the usefulness of this open space and the contribution it makes to the wider precinct, this open space will be relocated to the corner of the internal road network. This enables open space areas to address all corners of the internal road network and continues the network of highly visible and usable open space areas throughout the site.

Fitness stations are proposed to complement walking trails and are spaced at strategic internals to mimic natural running and fitness patterns. These spaces will incorporate the existing River Red Gums for increased amenity.

Textural threshold treatments are proposed at key points in the internal road network to clarify the road hierarchy, slow traffic and create an improved pedestrian experience.

Image Source: MDG

SECTION 3
Development Plan



22 Landscape Masterplan. *Source: MDG Landscape Architects*

APPENDIX A

DESIGN GUIDELINES

APPENDIX A
Design Guidelines

Siting and setbacks

Objectives

- To promote active street frontages through a reduction in front setbacks.
- To provide landscaped building setbacks that enhance the appearance of development
- To maintain the attractiveness of the streetscape by locating carparking structures, driveways or open parking areas so they do not visually dominate the frontage of a site.
- To ensure that the sitting of buildings provides for adequate separation between buildings for the amenity of the development and adjoining properties.
- To provide a safe environment for after hours access by employees.

Guidelines: Setbacks

- Require front building setbacks adjoining existing and future arterial roads (Western Port Highway, Glasscocks Road) to be generally 20m. This zone could be fully landscaped and could include car parking. A minimum 5m landscape strip between the property boundary and any car parking should be provided to create a unified appearance of the area.
- Front building and landscaping setbacks for internal roads should be well designed with a minimum setback of 9 metres and incorporated a 5m landscape set`back to assist in creating a unified appearance.
- Canopies to warehouses should be setback 5m from the lot boundary. Support columns and canopy edges include guttering and skirting may be located in landscaped areas.

Guidelines: Siting

Landscaping

- The siting of buildings is to spatially define the street and provide opportunities for landscape planting in order to improve the visual quality of the streetscape.
- Landscaping should be appropriate to the character of the area, and should soften car parks and buildings.
- All landscaping must be appropriately designed to ensure long term viability by providing adequate space for protection and full growth potential.

Open Space Interfaces

- Incorporate buildings that front, rather than back onto abutting public open space reserves.

Lots adjoining major roads

- Development on lots adjoining major roads are to be designed so that the view from the road is not of storage, garbage or other unsightly areas. This will be achieved by incorporating articulation and visual interest through the use of materials, design, colour and signage.

Office Components

- The location of office or showroom components should be orientated to the front of the site where possible. This can assist in a means of wayfinding and business identification for each tenant.
- Tenant office exposure should be designed and sited to provide a sense of arrival. Ease of pedestrian and bicycle access for employees and visitors should be enhanced. Office design and siting should contribute to activating the Estate Internal Roads.

Built Form

Objectives

- To encourage a high visual standard and quality of industrial and commercial development particularly on frontages to roads such as Glasscocks Road and the Western Port Highway.
- To minimize the impact of the appearance of industrial buildings on the surrounding rural and residential areas and areas of environmental significance
- To achieve active and vibrant street frontages through the relationship between landscaping, building design and setbacks. Reducing setbacks, encouraging landscaping in the frontage and providing buildings that incorporate interesting facades will create pedestrian friendly streets
- To achieve both functional and visually attractive buildings with a high standard of design
- To maintain the functional integrity of the area as employment generating industrial and commercial development in form and character.
- To reduce the impact of development on the amenity of adjoining residential areas.
- To ensure that buildings are designed to minimize embodied energy and operational energy consumption, in order to reduce lifetime greenhouse gas emissions from the development.

APPENDIX A
Design Guidelines

Guidelines

High profile locations

Buildings at high profile and gateway locations should contribute to the urban design importance of the location by:

- Demonstrating excellence of design and attention to construction quality which is commensurate with the location along high profile and gateway locations. This will be achieved through articulation and visual interest to surrounding roads through the use of materials, design, colour and signage. This may include office components or design which appears as on office to these frontages.
- Incorporating landscaping that complements the landscape design of any public space at the gateway location.
- Locating and designing appropriate promotional and identification signs in these locations.
- Not incorporating large promotional signs which are considered inappropriate in gateway locations.
- Ensure the new buildings are in scale with the dominant pattern of the adjacent buildings with respect to massing and built form.
- Matching the dominant setback from the road frontage.

Built form

Industrial buildings, whether single purpose or multi-unit complexes, should comprise two function elements: an office, which is usually a public access zone, and an industrial activity area which is a private zone.

The design of the office component is to identify it as the focal point of the development when viewed from the street, with clearly defined entry points for staff and visitors which are linked to car parking areas and pedestrian paths.

Office areas will be designed to achieve exposure and provide a sense of arrival . Office areas will be easy to access for pedestrians and bicyclists, employees and visitors and activate the Estate Internal Roads.

Building height is determined at a site by site basis, depending on the needs and requirements for each tenant. Built form fronting Western Port Highway and Glasscocks Road will need to by sympathetic to this interface.

The frontage to Western Port Highway is more sensitive than elsewhere in the precinct to building height and visual bulk. Future planning applications along this frontage will be required to respond to this frontage through appropriate design and built form outcomes to minimise any visual impacts (Refer to Figures 23 and 24). This may include a combination of overall building height and length, and incorporating different materials, colours and design elements into the façade to create textural contrast and break up built form elements.

Entrances

Architectural features are to be used to emphasize entrances and improve the way buildings address the primary street frontage.

Building facades

Building facades of industrial development are to be of a simple contemporary architectural style, tidy and reflect an industrial character. Avoid the use of highly reflective materials.

Building facades facing major road frontages, Glasscocks Road and Western Port Highway, should provide a greater variation in external finishes. This includes incorporation of colours and materials to provide more visual interest.

Treatment of walls

Exposed blank walls on the boundary are to be finished to the same standard as the rest of the building and minimize the potential for graffiti or other vandalism. The visual impact of large wall expanses is to be reduced in scale by architectural treatment, landscaping and/or the use of colour.

Exposed plain concrete block walls should be avoided along street frontages or boundaries to the public realm.

Construction materials

The primary construction materials should be contemporary in nature, robust and of a high quality. Office areas should feature high levels of glazing.

Roof design

The roof is to provide visual interest but remain unobtrusive and compatible within an industrial and commercial environment and context.

APPENDIX A
Design Guidelines

Roof structure

All rooftop or exposed structures together with air conditioning, satellite dishes, ventilation and exhaust systems are to be suitably screened and integrated into the building façade to ensure they do not detract from the overall appearance. Parapets can help in screening such services.

Natural lighting

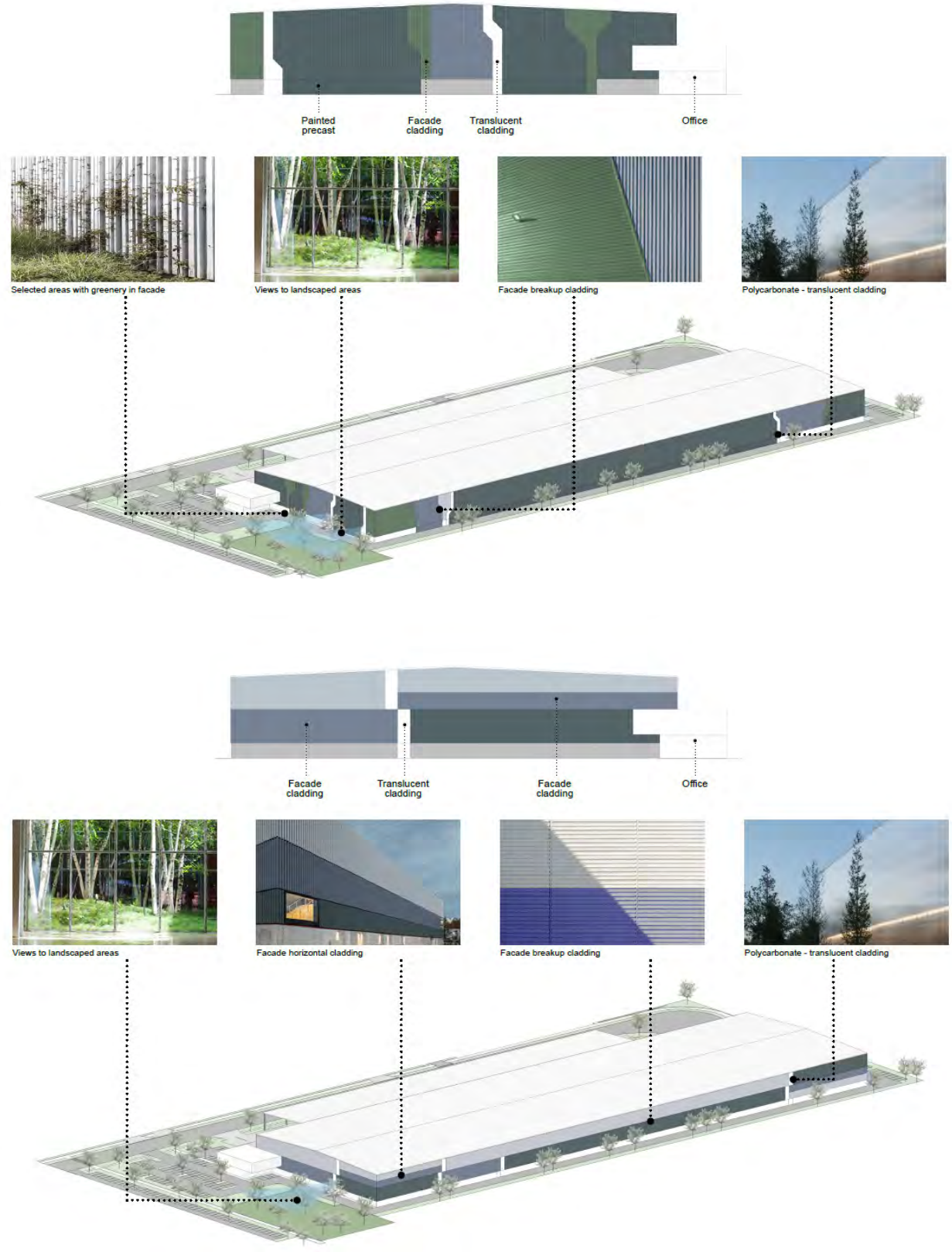
Natural lighting must be incorporated into the roof design for large space buildings.

Exterior elements

Exterior elements such as plumbing, heating and ventilation systems are to be integrated into the building and concealed or, in the case of freestanding structure, appropriately screened from view

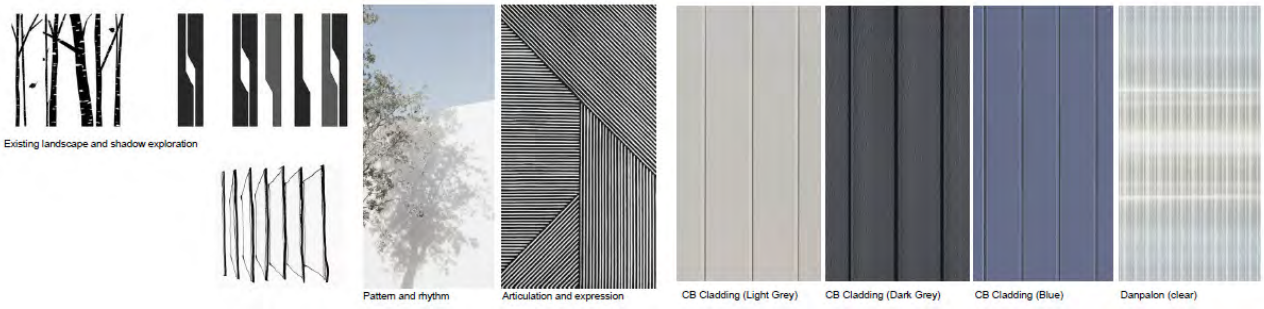
23 Example Facade Treatment. *Source: Watson Young*

APPENDIX A
Design Guidelines



24 Example Facade Treatment for Western Port Highway Frontage. *Source: Watson Young*

APPENDIX A
Design Guidelines



25 xample Facade Treatment for Western Port Highway Frontage. *Source: Watson Young*

APPENDIX A
Design Guidelines

Advertising and Signage

Objectives

- To provide informative, orderly and coordinated business identification which avoids clutter, is compatible with the scale and character of the development and locality and does not unduly intrude upon the amenity of adjacent residential or rural properties or public spaces.
- To provide lighting for site security while preventing light spill beyond site boundaries.

Guidelines

Advertisements and advertising structures should:

- Form an integrated part of the building façade, architectural design, and scale the building.
- Be limited in numbers to avoid cluttering, distraction and unnecessary repetition. Total advertisement area will be dependent on the size of the premises, generally only one (1) wall sign shall be permitted per occupancy.
- Signage along Western Port Highway and Glasscocks Road should be generally limited to business identification signage.

Advertising on multi-tenancy industrial buildings will be limited to the following:

- The building /complex name or head tenant identification. Where there is more than one major tenant, a single advertisement incorporating all major tenants is preferred.
- Central registry sign identifying all tenancies on the site. This is to be located at the entrance of the complex and is to be integrated with adjacent buildings and landscaping. A small single identification sign and unit number may be located at the entrance to individual sites.

Directional signage

Each development should provide appropriate directional signage to assist with the movement of pedestrian and vehicular traffic. Directional signage should be of a consistent type and style throughout the development. In general this signage should explain:

- Site entries and exists.
- Staff and visitor car parking
- Goods delivery and pick-up
- Reception/office areas

26 Signage Example. *Source: Aliro*

APPENDIX A
Design Guidelines

Fencing

Objectives

- To create an attractive setting for the development when viewed from the street and surrounding areas.
- To ensure that front fences and walls complement and are compatible with the design of the development and the streetscape.

Guidelines

Perimeter and Security fencing

Fencing around the perimeter of individual tenancies should be minimized as far as reasonably practicable.

Fencing should be as unobtrusive as possible to allow the building itself to become part of the security solution for each tenancy. High quality fencing should be utilised, designed with a high level of transparency and set back to, or behind, the line of the building where possible.

In the event of fencing being required for security purposes on the rear boundary of buildings, it is to be plastic coated (black) cyclone wire or similar. Barbed wire or razor wire are not acceptable fencing materials.

All fencing to be provided must be specified on the planning application for each lot.

Screen fencing

Screen fencing of a minimum height of 2.5m shall be erected and maintained around storage areas as required. The style and material of screen fencing should complement the main building on the site.

Retaining walls and battering

Retaining walls will be incorporated into the building design or cut down to reduce the visual impact of retaining walls along the boundary of the site.

Battering will be incorporated with landscaping to soften visual impacts.

27 Battering with Landscaping Example. *Source: Aliro*

APPENDIX A
Design Guidelines

Storage and loading

Objectives

- To ensure that provision is made for the safe loading and unloading of goods on site, without impacting pedestrian and vehicular traffic in the street.
- To ensure that the loading and unloading of goods and the location of storage areas is not visible from the street.
- To ensure that any activities which could adversely affect neighbouring development are suitably constrained within the site.

Guidelines

Loading docks

The industrial development must be provided with a loading dock and goods handling areas to serve the intended use. Speculative development where the end user and product are not known, are to provide loading facilities for a range of truck sizes.

Design integration

Where possible, loading and servicing areas should be designed as an integral part of the development on each site. Loading and storage areas should be located to the rear or side of buildings with screening as appropriate.

Each tenancy is to have separate loading facilities.

Delivery of goods

Provision must be made for all loading and unloading of goods and manoeuvring of vehicles to take place in the internal docks areas and adjoining goods handling area. These areas are to be physically line marked and are to be maintained free of obstruction, for the sole use of delivery vehicles. Truck turning templates, for delivery and garbage trucks, are to be provided in accordance with the relevant Australian Standards.

All deliveries to and from the site are to be conducted from vehicles standing wholly within the site and under no circumstances from vehicles standing kerbside in laneways, rights-of-way or in any public street.

Screening

External storage of goods and materials, refuse collection areas and garbage skips will be fully screened as required. Screen fencing will be of a minimum height of 2.5m. The style and material of screen fencing should complement the main building on the site.

APPENDIX B

STORMWATER MANAGEMENT PLAN

DALTON CONSULTING ENGINEERS

265 Dandenong-Hasting Road, Dandenong South VIC 3175

STORMWATER MANAGEMENT STRATEGY

March 2024

DCE Ref: 22086

FOR

Aliro

ISPT SUPER PROPERTY

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Disclaimer

Dalton Consulting Engineers Pty Ltd

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C Vu AN: 4511014
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K.Phal AN: 1871829
Approved:
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Executive Summary

This report outlines the stormwater drainage and management strategy for the development at 265 Dandenong – Hastings Road. The 62.3-ha subject site, located within the City of Greater Dandenong, will be developed such that City of Greater Dandenong and Melbourne Water stormwater requirements are achieved. The proposed development will comprise industrial development in accordance with the Dandenong South Industrial Area Extension Structure Plan and Glasscocks Road realignment.

The subject site is located within Melbourne Water's Glasscocks Road Drainage Scheme (DSS) 0710. Developed flows from site will be directed to the Portlink Drive and Taylors Road infrastructure for stormwater management and treatment.

Underground drainage within the proposed development will be designed to convey minor event flows up to and including the 5% annual exceedance probability (AEP) in accordance with council requirements.

For major flows, defined as flows greater than the 5% AEP event, up to and including the 1% AEP (gap flow), safe overland flow paths will be provided through the development's internal roads to the assets associated with the Glasscocks Road DSS. The flow paths will be analysed during the detailed design, ensuring appropriate protection is provided to finished floor levels within the development.

Stormwater quality treatment and any required stormwater retention will be provided downstream of the subject site by Glasscocks Road DSS infrastructure.

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1. Introduction

This report presents the stormwater drainage and management strategy for the proposed industrial development at 265 Dandenong-Hastings Road, Dandenong South (now also known as Western Port Highway). The site comprises 62.3 ha, is located within the City of Greater Dandenong, and is proposed to be developed as nine (9) large warehouses along with the realignment of Glasscocks Road.

The subject site is currently zoned for industrial use and is bounded by Portlink Drive to the north, a partly developed industrial development to the west (currently owned privately by Salta), Glasscocks Road to the south and Western Port Highway to the east. Western Port Highway is the only VicRoads state declared road adjacent to the subject site. Figure 1 shows the site in the existing condition.

The site is located within Melbourne Water's Glasscocks Roads DSS (0710), as shown in Figure 4. DSS infrastructure has been designed to cater for stormwater retention and quality from the subject site. A full-size plan of the Glasscocks Road DSS is included as Appendix A.

The subject site is located within Greater Dandenong Council and as such, must adhere to the Design Manual for the subdivision of land (Greater Dandenong Council 2017) and must comply with their stormwater requirements. As set forth in the guidelines, stormwater flows up to and including the 5% annual exceedance probability (AEP) flows will be conveyed by the underground drainage. Flows greater than the 5% AEP flow up to and including the 1% AEP flow will be safely conveyed overland through the development to the infrastructure associated with the Melbourne Water's Glasscocks Road DSS.

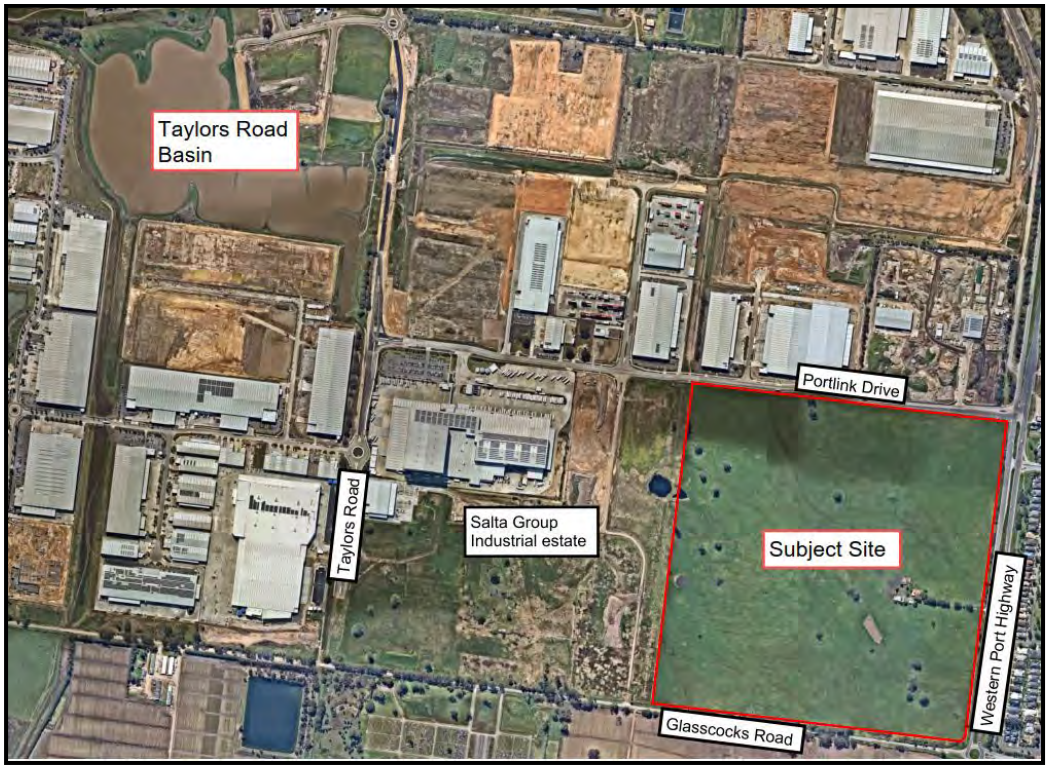


Figure 1: Subject site in existing condition

2. Site Overview

2.1. Existing condition

In the existing condition, the site is used for agricultural land use and has scattered vegetation. There is currently an occupied existing dwelling on site as well an existing farmer's dam. Figure 2 shows the site topography in the existing condition. Surface contours indicate that all flows generated by the subject site and external catchment will be conveyed through the site to the north-west, this 1.2 ha external catchment from Western Port Highway can be seen in Figure 17. There is approximately 14 m vertical fall across the site with varying slopes of 1 in 20 to 1 in 100.

Areas adjacent to the subject site serve a variety of land uses in the existing condition. Portlink Drive is an urbanised industrial road to north which provides large vehicular access to the existing sites. Western Port Highway to the east, is a partially urbanised state-controlled road, which contributes external catchment into the site. To the west there is a partially developed industrial estate owned by Salta. Within this Salta property there is an existing gas/utilities easement corridor which exists along the subject site's western boundary. There is also Glasscocks Road which is council controlled rural road formation with proposed development works to the south.

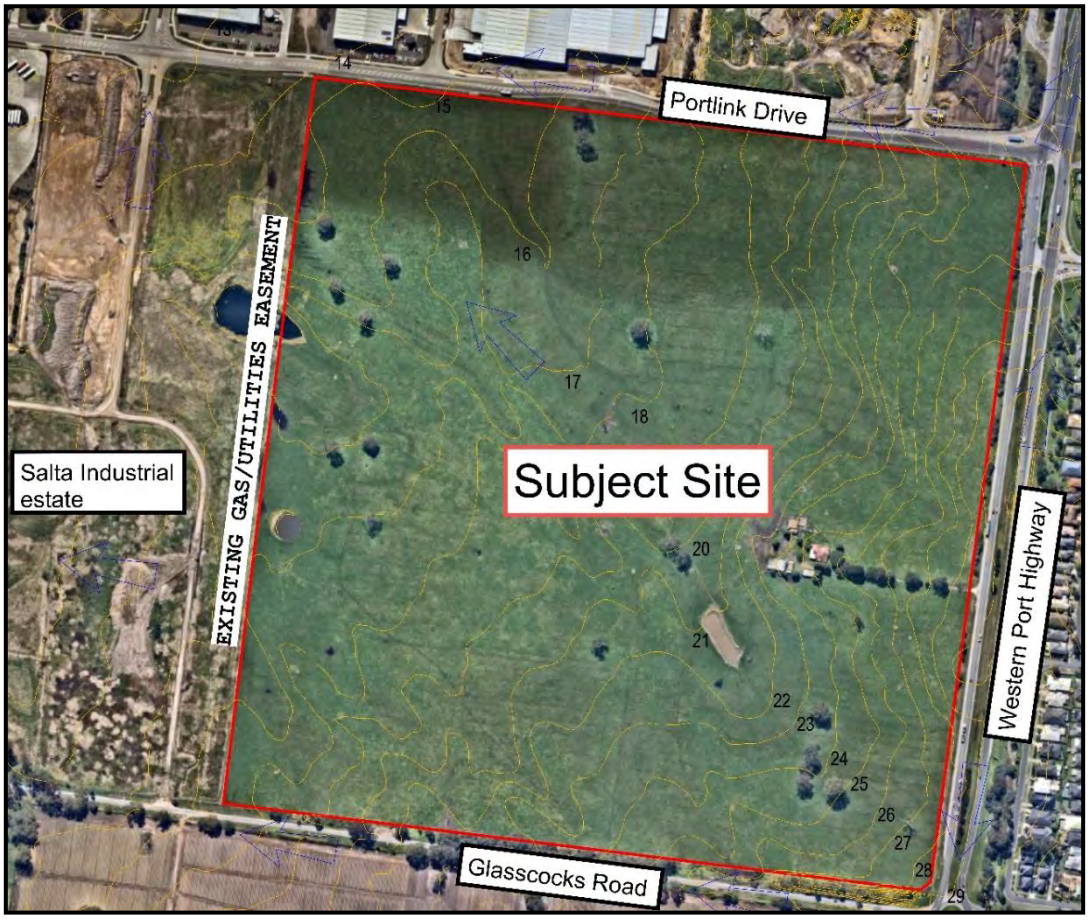


Figure 2: Site topography in existing condition

Figure 3 shows the existing catchment. Peak flows have been calculated at the catchment outlet. Greater Dandenong Council recommends that new developments are designed using the parameters set out in their design manual. Stormwater flows generated by the subject site in the existing condition have been calculated using the Rational Method. The calculated existing condition stormwater peak flows from the site are shown in Table 1.

Table 1: Existing flows at the subject site

Catchment	Area (ha)	1% AEP flow (m3/s)
Existing vacant rural site + External Catchment	63.5	2.18

Figure 3: Existing condition stormwater catchments

2.2. Development Service Schemes

The subject site is located within the Melbourne Water Glasscocks Road DSS as shown in Figure 4. A full-size plan of the Glasscocks Road DSS is attached as Appendix A. The publicly available plan is dated 2017.

The Glasscocks Road DSS proposed 3 drainage connections for the subject site:

- E10-B10
- D5-C5
- F3-G3

All the connections for the subject site drain through the neighbouring property to the west. The links will provide drainage outlets for the subject site. In addition, existing drain H5-I10 caters for a small area at the north-west of the subject site. For any external flows coming from the south of the site, it is intended that they will be conveyed to the west towards node A2 as per the scheme.

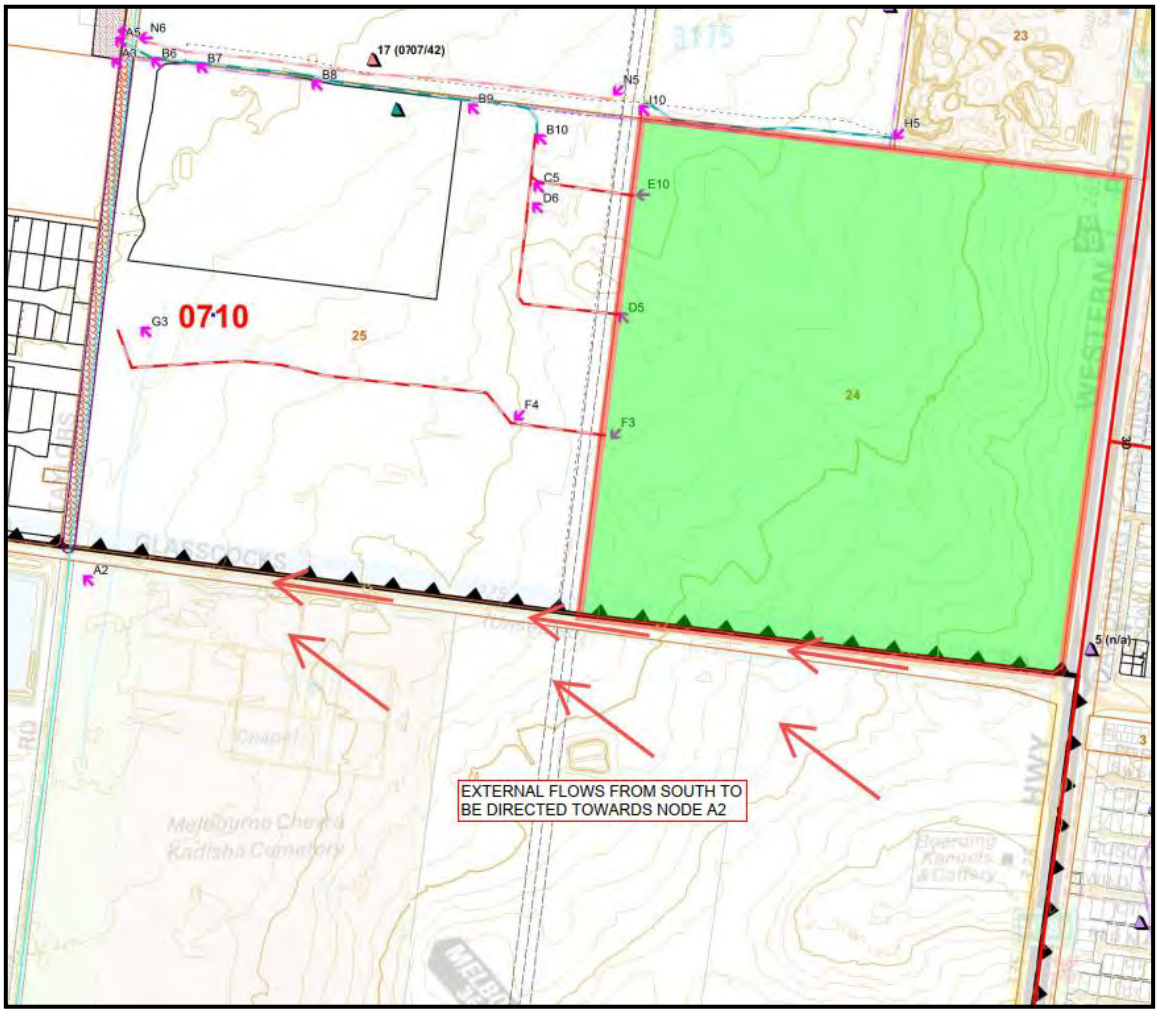


Figure 4: Subject site with Glasscocks Road DSS

2.3. Previous Investigations

During the development of Dandenong South Industrial Area in 2015, DCE developed a drainage strategy for a portion of the Glasscocks Road DSS. The constructed drainage infrastructure is referred to as Rodds Drain.

In the drainage strategy plan, Rodds Drain is split up into 2 separate catchments, a northern and a southern catchment, that will caterfor all flows coming from the subject site. The southern catchment is included as Figure 5 and the northern catchment is included as Figure 6. Full drawing can be seen in Appendix B and Appendix C.

Rodds Drain southern catchment, includes the construction of Melbourne Water drainage line B10-A3. The northern catchment includes the construction of Melbourne Water drainage line H5-I10. Figure 7 shows a sketch of the existing drainage network constructed in Portlink Drive. Melbourne Water drainage from I10 to N6, has also been subsequently constructed.

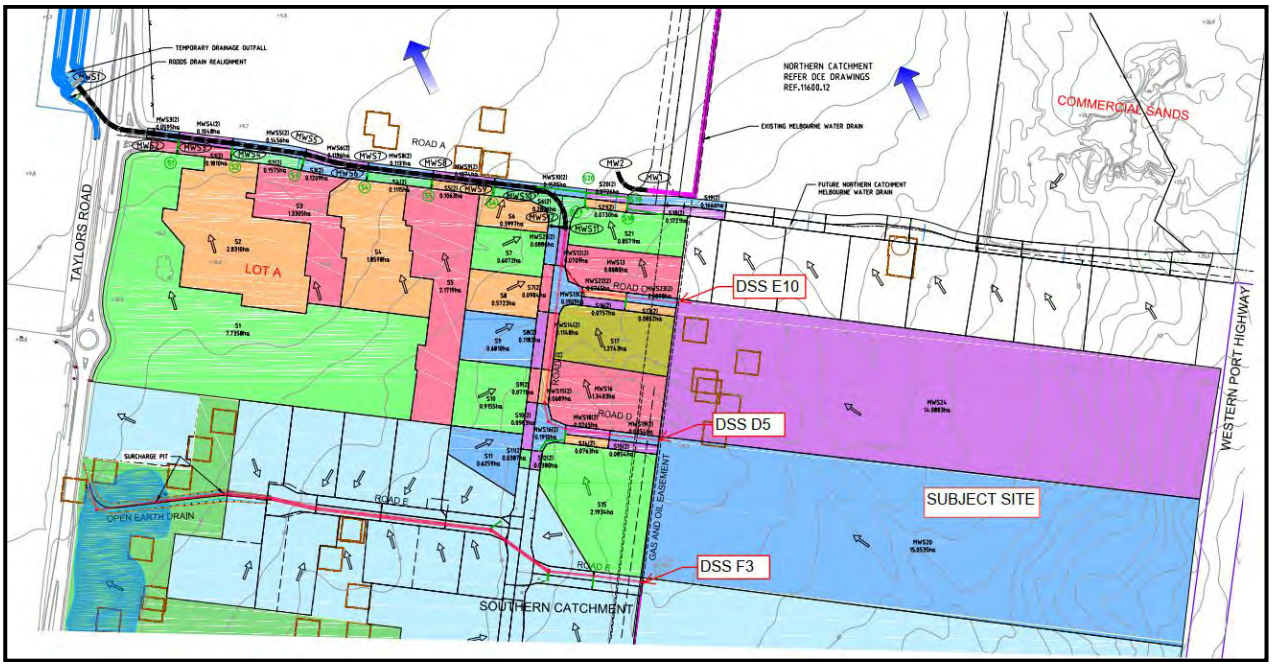


Figure 5: Rodds drain southern catchment, previous investigations as part of Salta's adjacent development

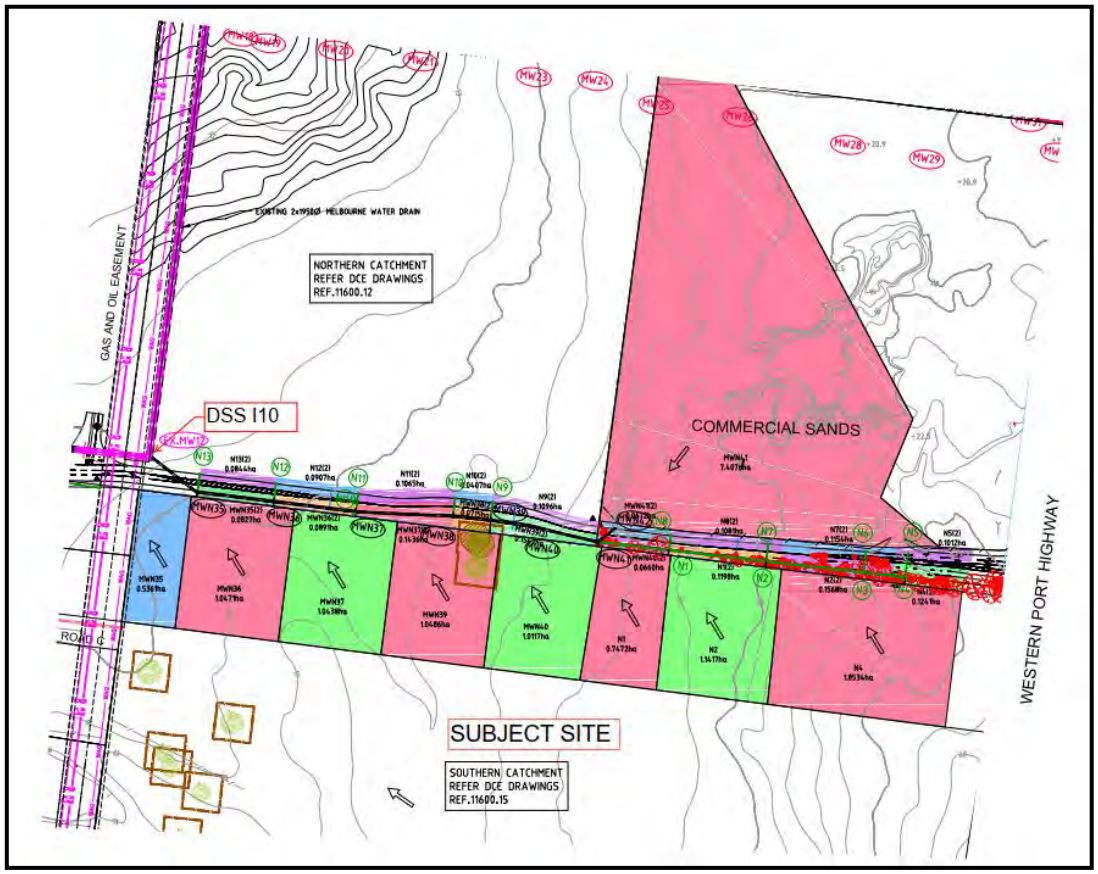


Figure 6: Rodds Drain northern catchment, previous investigations as part of Salta's adjacent development

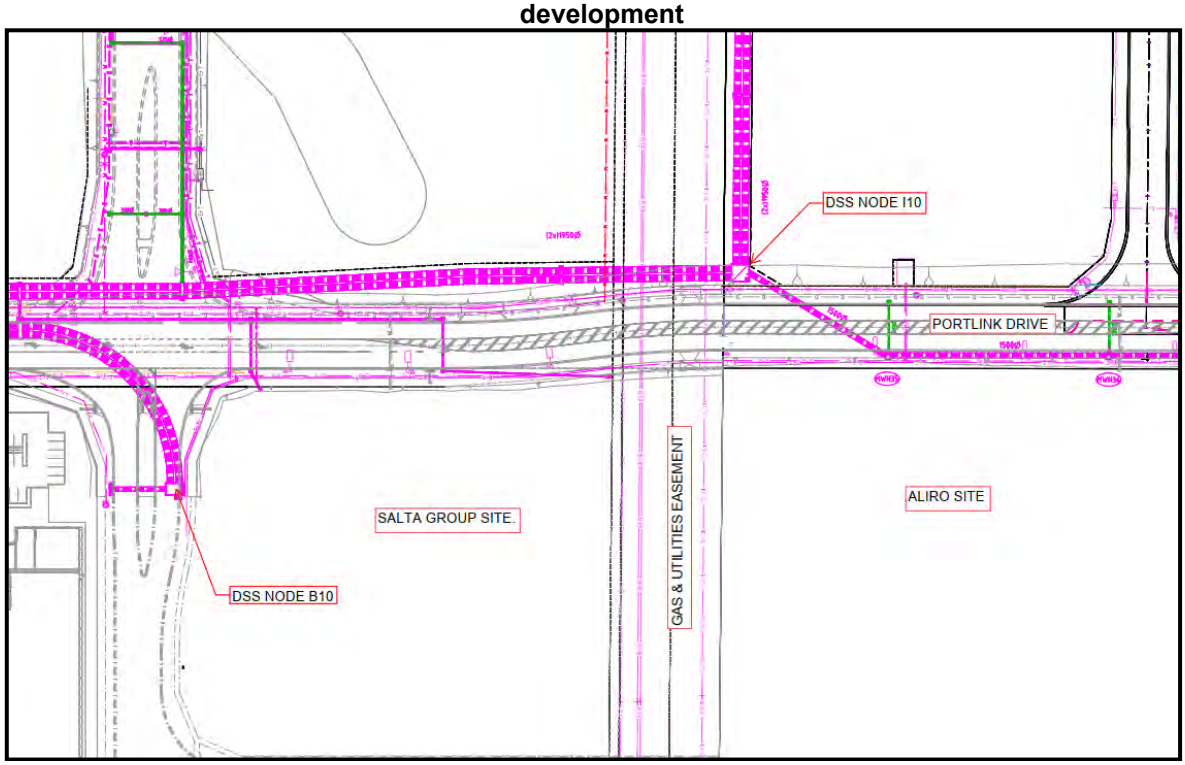


Figure 7 Sketch showing existing drainage infrastructure within Portlink Drive

2.4. Developed Condition

In the developed condition, the subject site will be developed for industrial use in accordance with the Dandenong South industrial area extension structure plan. The development plan incorporates industrial lots, internal roads, public open spaces, and conservation areas, as indicated in Figure 8. A full-size plan of the proposed development is included as Appendix D. Conservation areas will remain undisturbed during the construction of the development and retaining walls will be provided to allow for earthworks without encroaching into this area. Location of retaining walls will be refined during detailed design.

Realignment of Glasscocks Road will also be constructed at the same time as the internal development to allow for access into the site. Glasscocks Road realignment was designed by Aurecon and approved by City of Greater Geelong Council, the construction of Glasscocks Road will include all necessary pavement, stormwater and earthworks as shown in Figure 11, Figure 12 and Figure 13. Glasscocks Road realignment will also convey any external flows coming from the south through its own roads and internal drainage network west into Rodds drain via Node A2 in the DSS preventing any flows from entering the development.

Downstream drainage infrastructure connections E10-B10 and F3-G3 will be constructed alongside the internal development to allow for the flows to be conveyed to the existing downstream infrastructure. A proposed link road will also be constructed to the south-west of the property to allow for access into the development, refer Figure 9.

Note that the proposed development plan shows two (2) drainage connections at the western boundary as opposed to the three (3) connections shown in the DSS. The development plan allows for most flows to be directed to the west further downstream, towards node E10, as shown in Figure 9. It is anticipated that drainage connection E10-B10 will need to be slightly larger to cater for the additional flow. Discussion of pipe sizing is included in Section 3 of this report.

In the developed condition, stormwater runoff from subject site will increase because of the increased impervious area. Both minor and major from the site must be catered for. Minor flows from the site have been catered for by others through Rodds Drain northern and southern catchments. Minor flows will be discharged through the site as shown in Figure 10.

Some stormwater runoff coming from the roads and warehouses will be directed towards conservation areas in order to provide the existing trees that reside within them with water. Drainage will also be provided to ensure that these areas are adequately drained to avoid water being trapped if the conservation area is abutting the warehouses. This drainage will be provided as part of the internal drainage works.

Figure 8: Proposed development plan

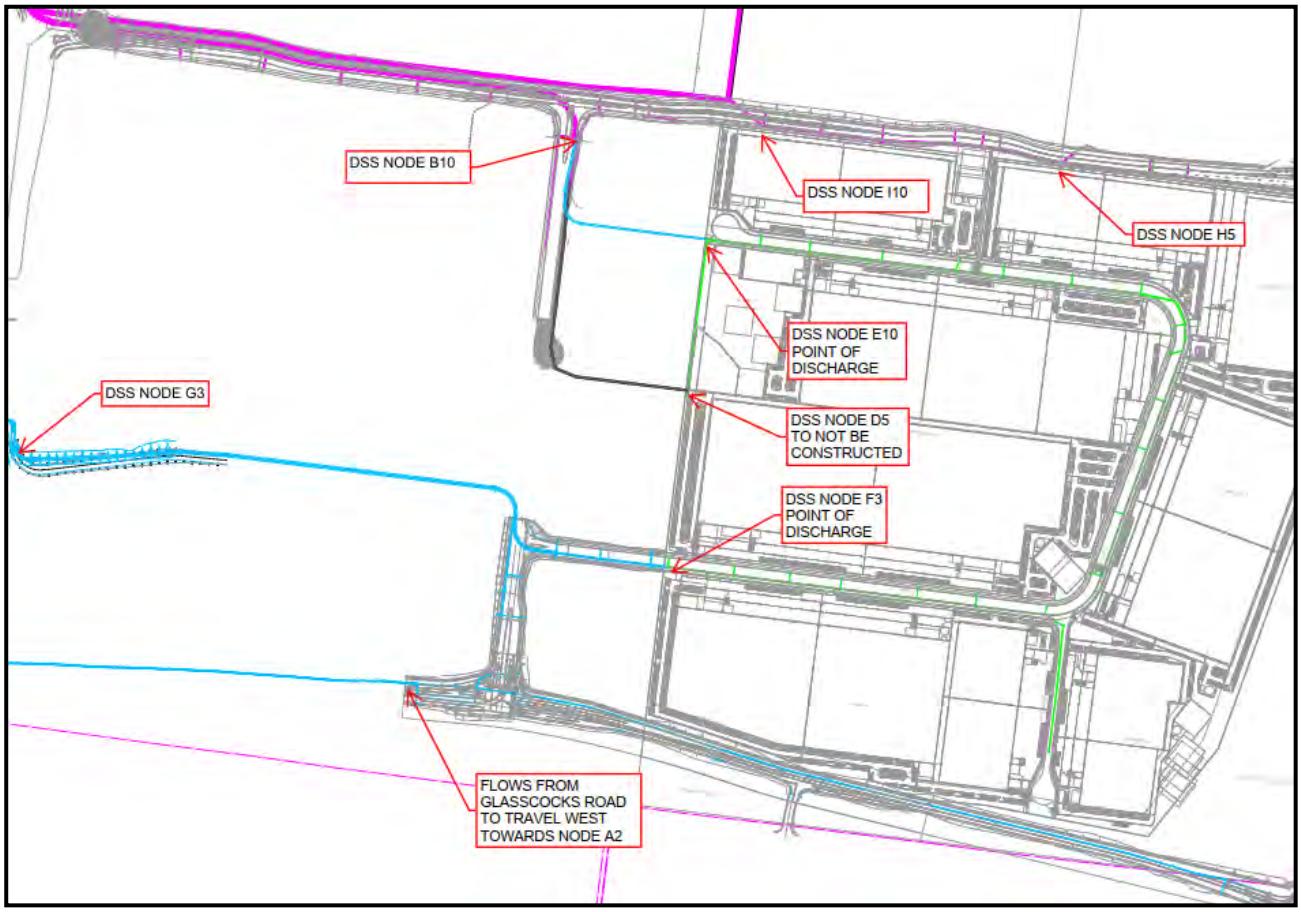


Figure 9: Proposed point of discharge into Glasscocks Road DSS

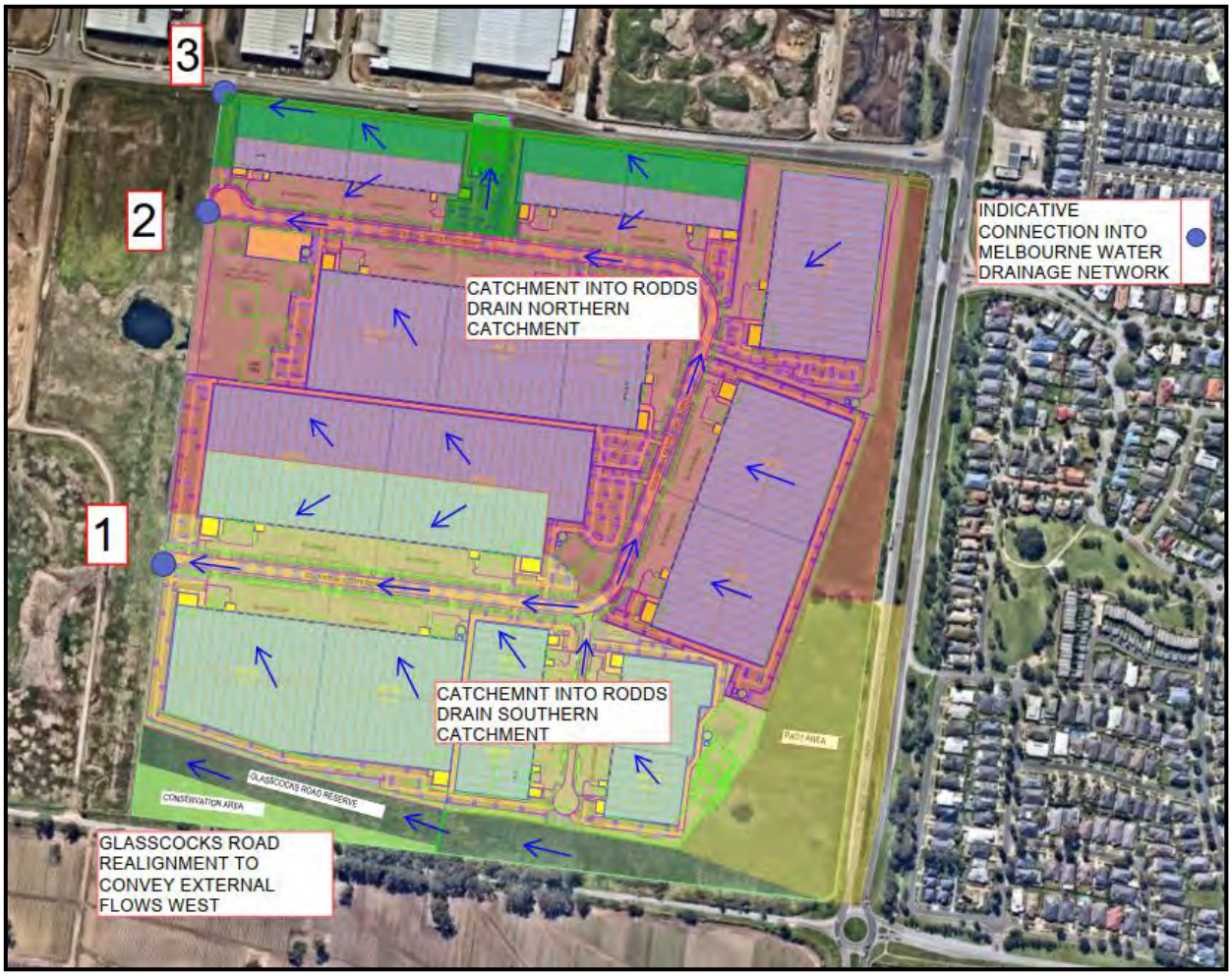


Figure 10: Stormwater catchment for minor developed flows

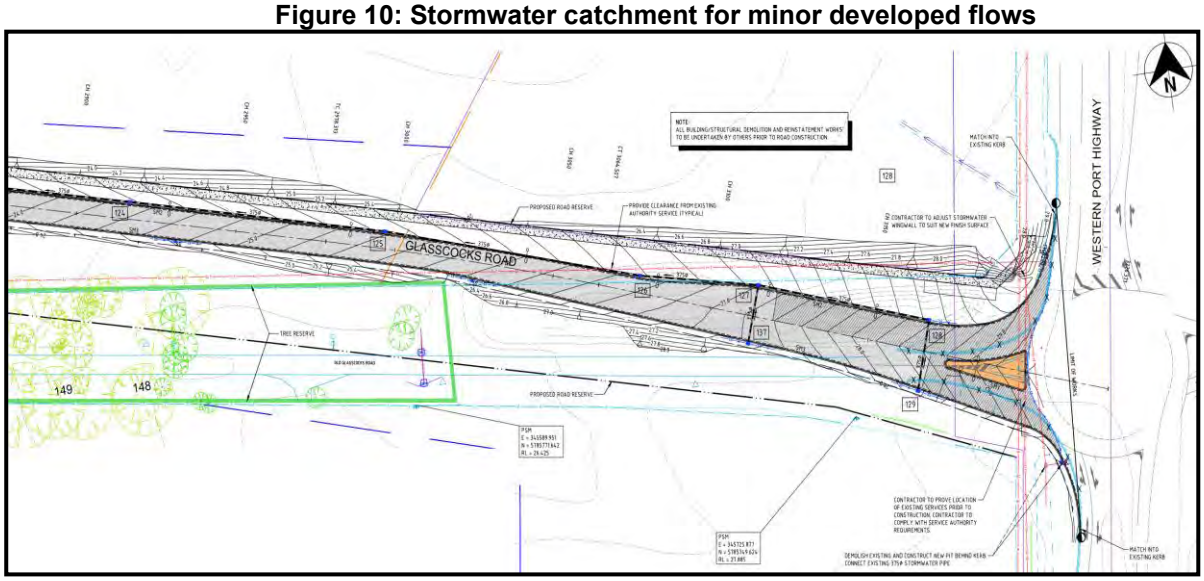


Figure 11: Glasscocks Road Aurecon drawings C-310

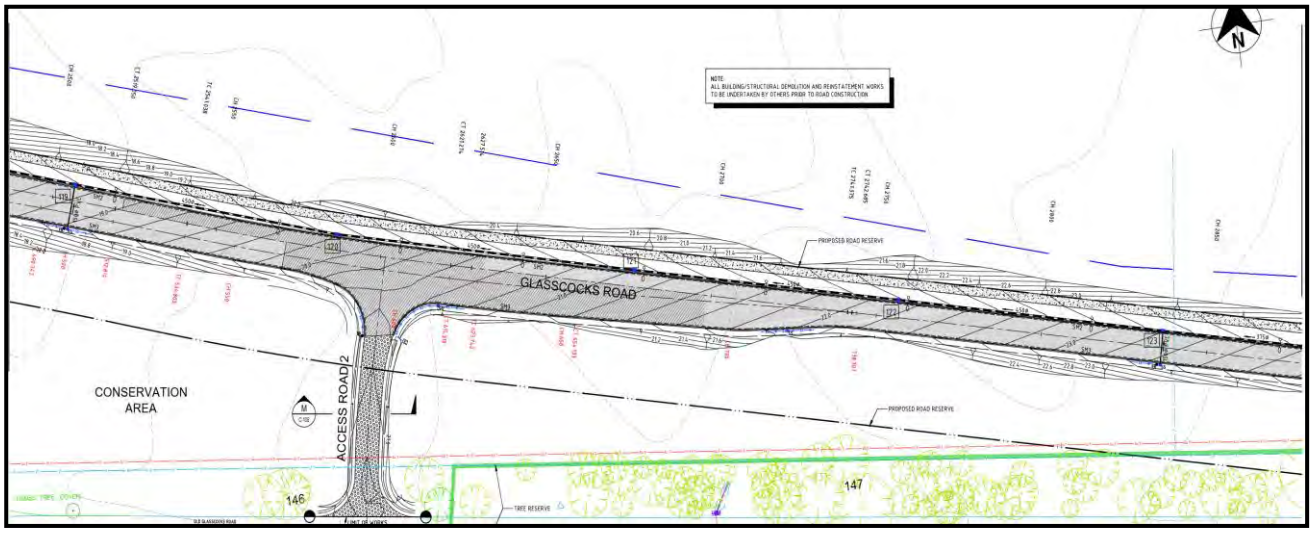


Figure 12: Glasscocks Road Aurecon drawings C-309

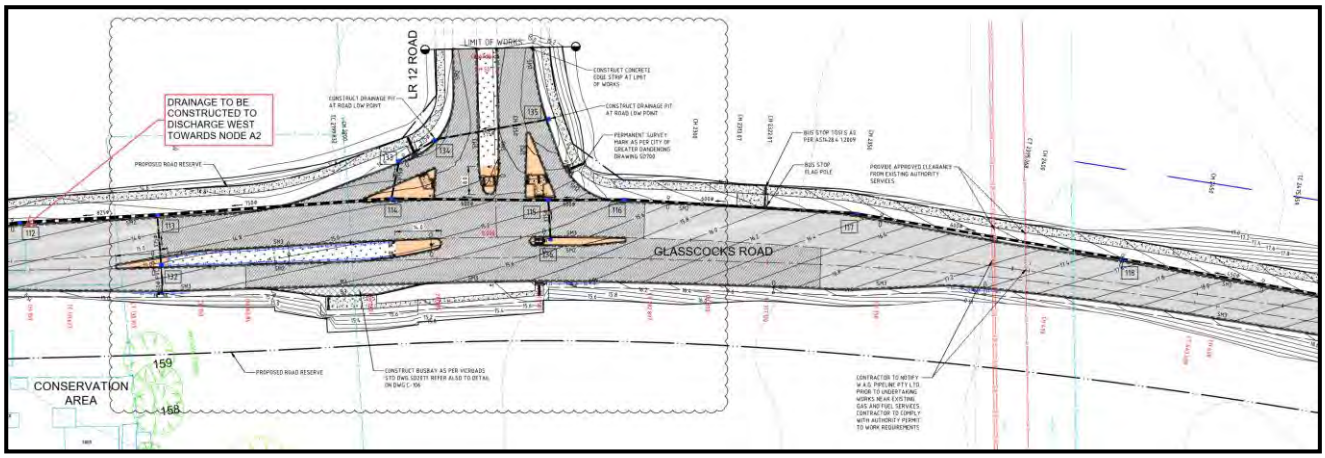


Figure 13: Glasscocks Road Aurecon drawings C-308

3. Stormwater Management

The subject site is located within Greater Dandenong Council and is subject to council stormwater guidelines. Major and minor flows have been calculated for both existing and developed conditions for the development. Flows have been calculated based on council design manual for the subdivision of land.

3.1. Minor Flow Events

Minor Flows will be managed at the development level. Minor event flows, up to and including the 5% AEP, are proposed to be conveyed safely via the proposed underground drainage system.

The minor drainage system will be designed to convey flows under normal operating conditions and minor rainfall events.

3.1.1. Minor Flow calculations

Minor event flows are shown in Table 2. Complete drainage calculations are included in Appendix E. the flows presented in this report will be refined during the detailed design.

Table 2: Developed Minor Flows

Catchment	Upstream Area (ha)	5% AEP flow (m^3/s)
1-DSS F3 (Taylors Road)	24.6	3.28
2-DSS E10 (Portlink Drive via neighbouring property)	32.3	4.60
3-DSS I10 (Portlink Drive)	3.2	0.58

3.1.2. Management of Minor Flows

Minor stormwater flows for events up to and including the 5% AEP event flows, are proposed to be conveyed by the underground drainage system and connect to the Melbourne Water DSS infrastructure.

Figure 14 shows the indicative piped minor flow paths and the indicative location of connections into the drainage network. Stormwater drainage will be provided within the road reserve, with the inlet pits spaced adequately to capture the minor flows from the roads. For every industrial allotment, a single or double stormwater property connection will be provided and sized to connect to council's stormwater system as needed to adequately control the allotment discharge. The exact configuration of the underground system will be finalised during the detailed design. Flows discharging from the northern portion of the site will enter the scheme west of node H5. It is noted that this node and connections upstream of it is intended for this neighbouring parcel only (Commercial Sands).

The design of all pipelines, pits and connections will be in accordance with the Greater Dandenong Council design standards.

Figure 14: Indicative minor flow directions

3.2. Major Event Flows

Major flows, greater than the 5% AEP and up to and including the 1% AEP, will be conveyed safely overland through the subject site via the internal roads, ensuring no damage to property or risk to people. The grading of the site will be finalised during the detailed design, and this SWMS presents conceptual major flow paths.

3.2.1. Major Event Flows Calculation

The 1% AEP and the gap flow is shown in Table 3. Gap flow is defined as the 1% AEP minus the 5% AEP flow. Both flows are calculated using the rational method. Complete drainage calculations are included in Appendix E. RORB modelling of the site was also conducted to determine flows in the developed condition. Methodology and results of the RORB model are included in Appendix G.

Table 3: Developed Major Flows Rational Method

Catchment	Upstream Area (ha)	1% AEP flow (m^3/s)	Gap flow (1% AEP – 5% AEP) (m^3/s)
1-DSS F3	24.6	3.95	0.67
2-DSS E10	32.3	5.60	1.00
3-DSS I10	3.2	0.74	0.17

3.2.2. Management of Major Flows

Major flows up to and including the 1% AEP from the subject site will be conveyed safely overland and underground through the proposed internal roads, hardstands, and drainage infrastructure, to two discharge points along the western boundary of the subject site. The area to the west will be a proposed industrial development by Salta which will then carry these major flows via their internal road network and proposed scheme drains downstream into the Glasscocks Road DSS as per Figure 15. A northern portion of the site will also discharge into Portlink Drive and travel downstream.

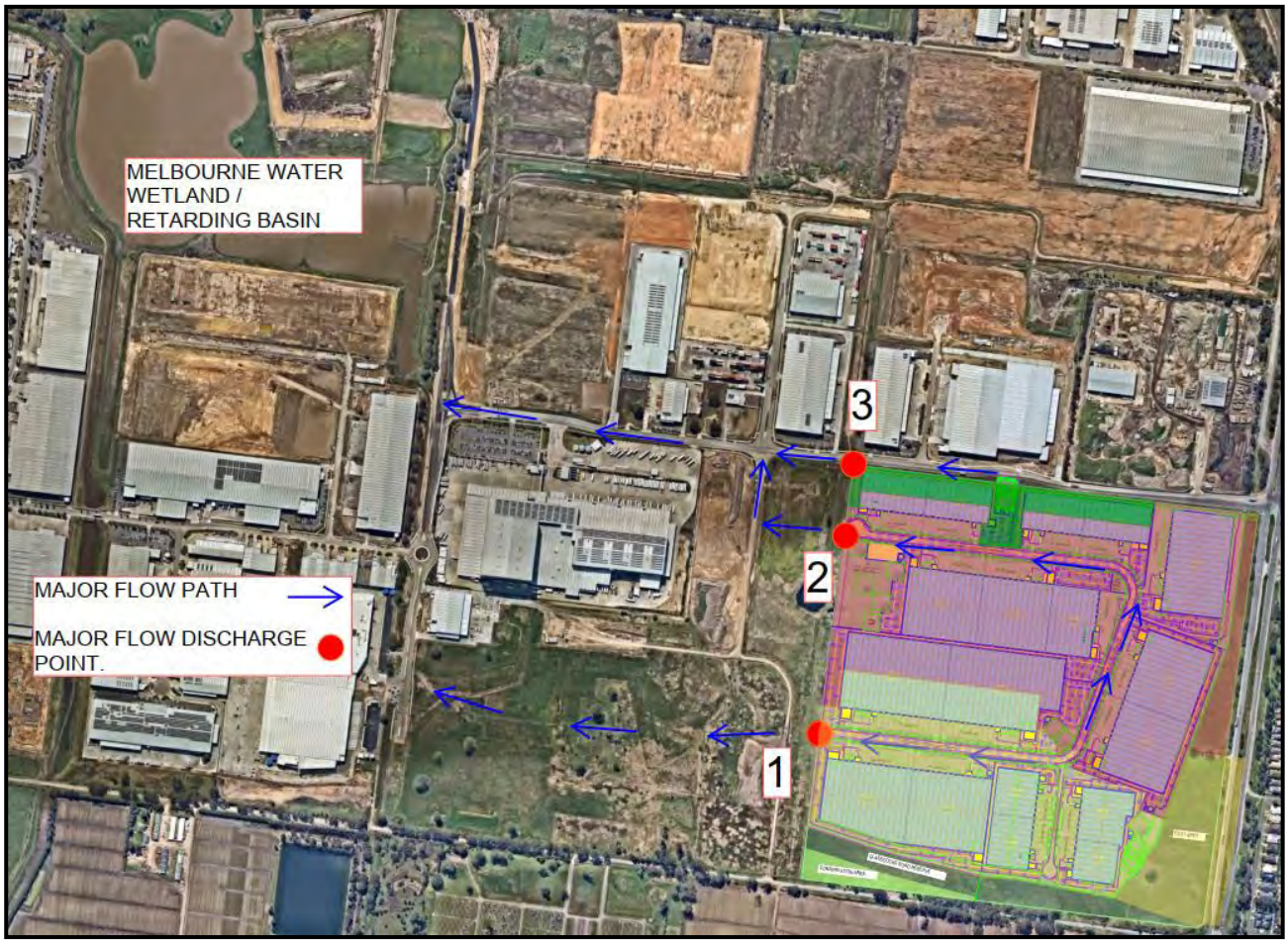


Figure 15: Indicative major Flow Path, catchment, and direction downstream into Glasscocks Road DSS

3.2.3 Overland Flow Paths

The overland flow paths within the subject site will be designed such that Melbourne Water's guidelines for development in Flood-Prone Areas (Melbourne Water, 2007) criteria for safe overland flow depth, velocity and depth x velocity criteria and DELWP criteria for developments in flood affected areas are met. The design of the development will also ensure sufficient protection from 1% AEP flows to the finished floor levels. Freeboard protection will be provided as per local council standards.

PC Convey cross-sections have been created at critical points within the subject site to ensure that minimum freeboard is achieved while also meeting Melbourne Water requirements. PC Convey results are attached as Appendix F. Locations where cross sections were created can be seen in Figure 16.

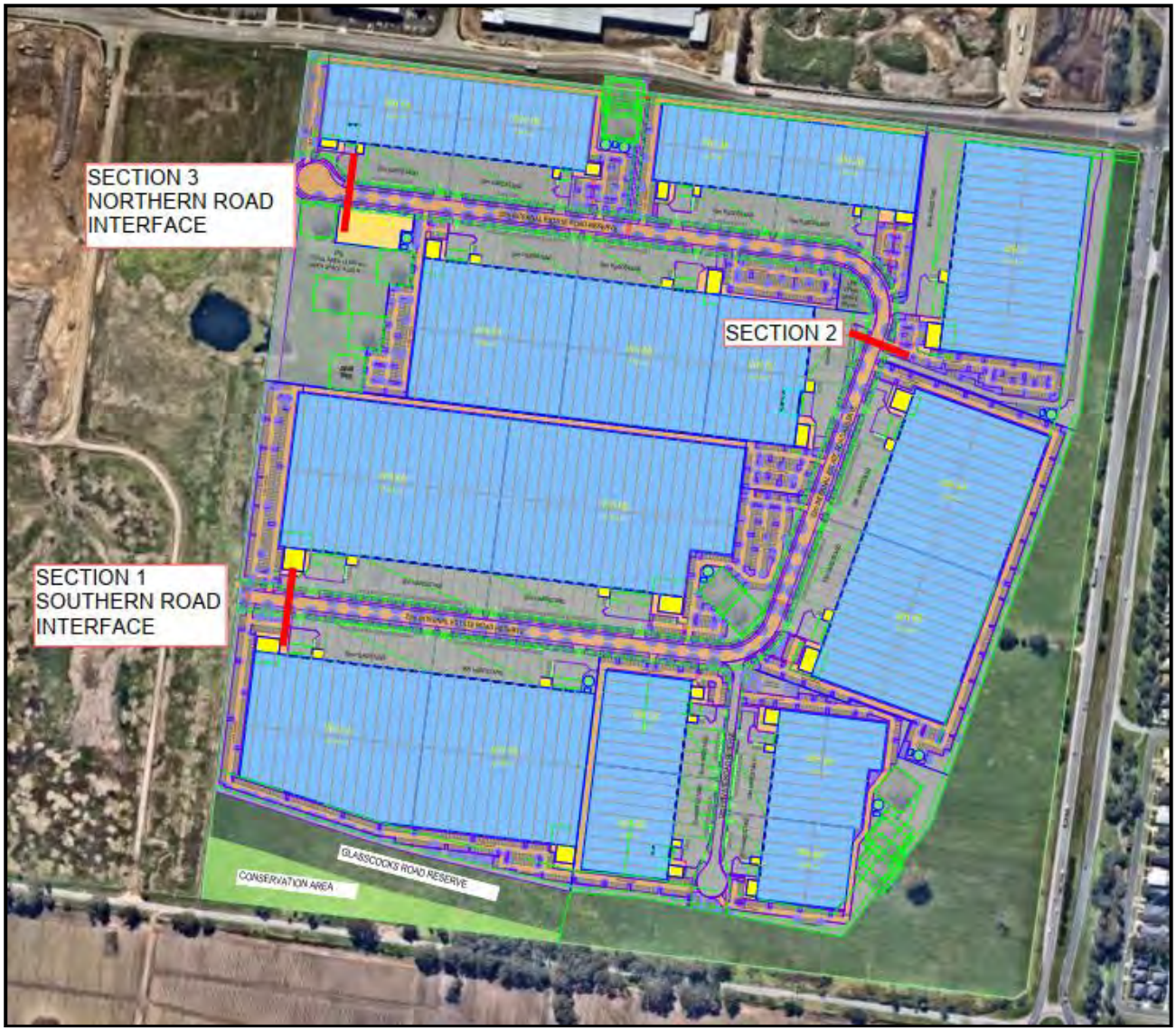


Figure 16: Location of PC Convey Cross-Sections

3.3. External Catchments

Analysis of the Western Port Highway cross sections and catchment indicate that major and minor flows from a 1.2 ha. catchment external to the subject site need to be catered for during the development of the subject site. The external catchment is shown in Figure 17. Flows from this catchment have been included in the drainage calculations for the subject site.

Figure 17: Western Port Highway external catchment

3.4. On-site Detention (OSD)

There is no Greater Dandenong Council OSD requirements because the subject site in located within Melbourne Water's Glasscocks Road DSS. Stormwater retention will be provided by the downstream DSS infrastructure.

4. Stormwater Quality Treatment

The subject site is located within the Glasscocks Road DSS. Stormwater quality treatment will be provided for the subject site by downstream DSS infrastructure. It is recommended that contributions be made to the Glasscocks Road DSS so that the subject site can take advantage of downstream stormwater quality treatment.

The existing Melbourne Water Glasscocks Road DSS wetland and retarding basin that will provide stormwater quality treatment for the subject site is shown and labelled in Figure 15.

5. Melbourne Water Referral

As part of the planning process, Melbourne Water is a referral agency that has provided various comments regarding the development, two (2) of which require commentary within the storm water management strategy to address them. Melbourne Water referral comments regarding the SWMS can be seen below.

1. The Melbourne Water Development Services Scheme (DSS) requires three drainage pipe outlet connections and drainage pipes to be constructed for any development to occur on this site. As per the DSS, the drainage pipes are required to be located on the adjoining property to the west. The Stormwater Management Strategy prepared by Dalton Consulting Engineers dated June 2023, Revision B states that there is a proposed reduction to two drainage pipe outlet connections and drainage pipes which is inconsistent with the DSS. The proposal has not demonstrated that the outfall will have suitable clearance to the existing gas pipe. This is required to be demonstrated in the Stormwater Management Strategy (SWMS). Plans, computations, and relevant gas authority approvals must be provided to support the proposed variation and demonstrate how 10% flows can be adequately conveyed.

2. The SWMS has not adequately demonstrated how low/high flows will be conveyed from the site and connected to the downstream retarding basin.

5.1. Melbourne Water Referral Comment One (1)

As part of the proposed development, DCE was also engaged in the design of the Melbourne Water scheme drains within Glasscocks Road DSS. The functional plans for MW drains E10-B10 (Industrial Subdivision North Scheme Drain) and F3-G3 (Industrial Subdivision South Scheme Drain) have been submitted to Melbourne Water and Greater Dandenong Council for review. A full-sized copy of these plans can be seen in Appendix H. The functional plans include the drainage layout, sizing of proposed drains, computations, catchments, and drainage sections which show clearances to the existing gas services within the existing easement. The gas crossing details and clearances shown on these functional plans are based on service proving undertaken on December 21st, 2015. Revised and up to date service proving is currently being undertaken and will be used for the purpose of detailed design once completed.

5.2. Melbourne Water Referral Comment Two (2)

The developer for the proposed subject site and the developer downstream that share the Scheme assets will be delivering the infrastructure together. It is intended that a majority of the required roads and drainage scheme assets will be delivered / constructed together (and not phased). A site plan detailing intended infrastructure proposed to be delivered as part of the site works is detailed in Appendix I that shows how flows are connected to the downstream basin at the end of the 265 Dandenong-Hastings Road project.

6. Conclusion

This report outlines the stormwater drainage and management strategy for the proposed development at 265 Dandenong–Hastings Road, Dandenong South. The development of 62.3-ha subject site will comprise industrial development and internal roads in accordance with the Dandenong South industrial area extension structure plan and Glasscocks Road realignment.

In minor events, up to and including the 5% AEP event, stormwater will be safely conveyed via an underground drainage network to the Glasscocks Road DSS infrastructure. The details of the drainage connections will be finalised during the detailed design.

In major events (greater than the 5% AEP and up to and including the 1% AEP), safe overland flow paths will be provided through the subject site to the infrastructure associated with the Glasscocks Road DSS. All overland flow paths shall be sized during detailed design to ensure appropriate protection is provided to the developments finished floor levels.

The subject site is included in Melbourne Water's Glasscocks Road DSS. Downstream DSS infrastructure, a wetland, will provide stormwater quality treatment for the subject site. The wetland is located within a retarding basin that will provide retention and management of peak flows. Drainage contributions will be made to Melbourne Water to participate in the DSS. The contributions fund the construction and maintenance of drainage infrastructure that will be utilised by the subject site.

This stormwater drainage and management strategy has been developed in accordance with Greater Dandenong Council, and Melbourne Water guidelines. This strategy is a concept drainage design and may require further refinement as more detailed design occurs.

Appendices

Appendix A: Glasscocks Road DSS

Melbourne Water

0710 - Glasscocks Road DSS Infrastructure 1/1

N

Melway Ref: 128 G2

Author: Rebekah Campbell

Scale @ A1 1:6000

DSCM Legend

- DSS Boundary
- DS Strategy Boundary
- DSCM Property
- Stage (Allocated)
- Stage (Works in Progress)
- Stage (Finalised)
- Nodes
- Bio-Retention Swale
- Channel
- Cleanout works
- Culvert
- Grassed Swale
- Low flow pipe with Channel
- Overland flow path
- Pipeline
- Soft Engineering
- Bio-Retention Basin
- Buffer Strip
- Inlet/Outlet Structure
- Junction Pit
- Litter trap
- Retarding Basin
- Sediment trap
- Wetland

As Constructed Legend

- Channel
- Natural Waterway
- Sewer Main
- Underground Drain
- Water Main
- Flood Extents
- Lake
- Retarding Basin
- Sediment Trap
- Wetland

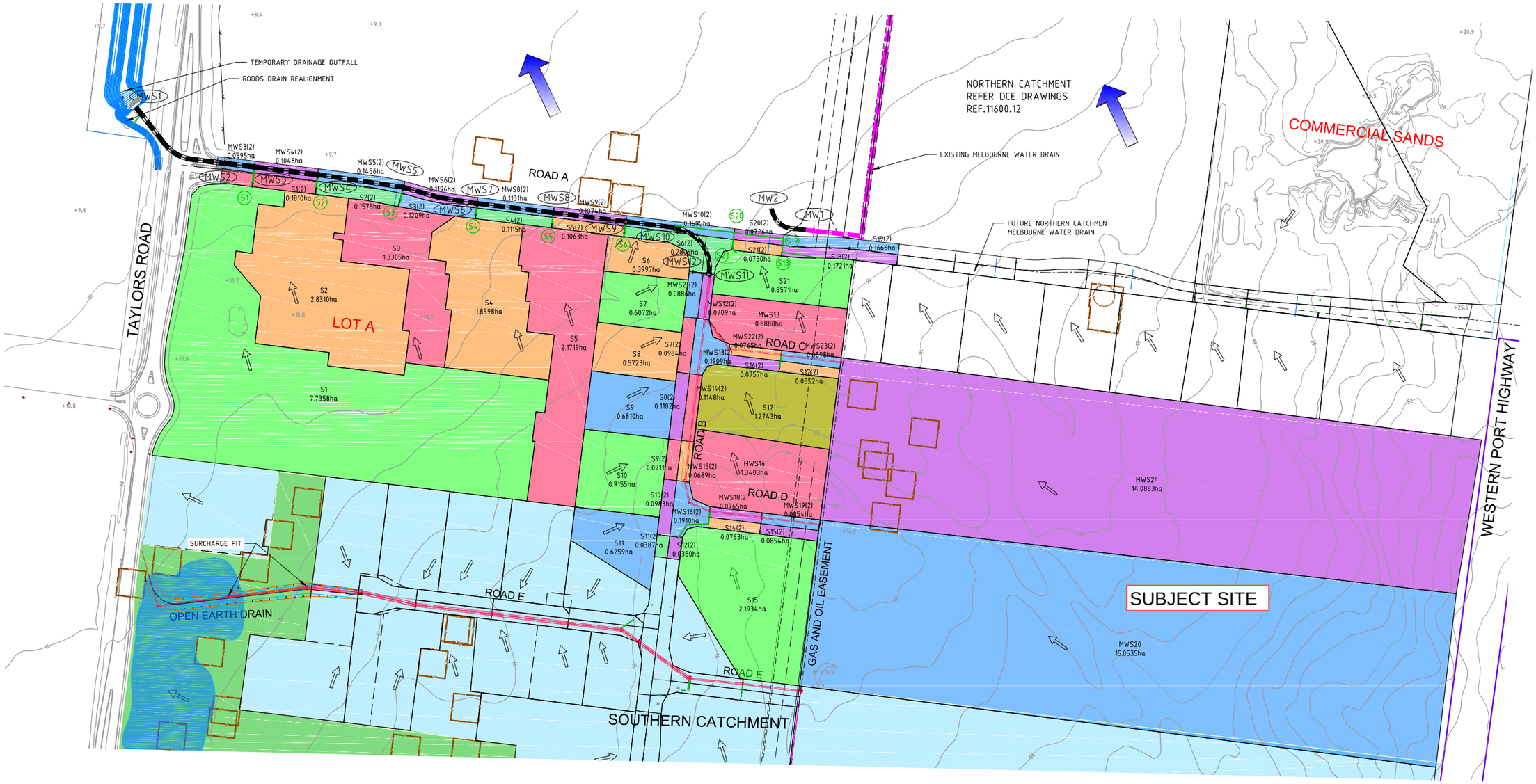
Plan Date: April 2017

Melbourne Water is providing our indicative assets information and is not to be used as the basis of future design and expects that the appointed engineering consultant will perform their own calculations as part of requirements for their development.
Please note that as schemes develop and Melbourne Water receives additional information, the conceptual/indicative advice you have been provided as part of the feasibility request may become ou-dated. Under the QA process it is the responsibility of the consultant to ensure that Melbourne Water's feasibility advice is current and to certify that all information ultimately provided to Melbourne Water for acceptance is correct having completed their own detailed catchment analysis.

0706

0710

Appendix B: Rodds Drain Southern Catchment plans



Hor 1:2500 0m 25m 50m 100m 150m

NOT TO BE USED FOR CONSTRUCTION

REF	ZONE	REVISION	DATE	APP'D.
B		MELBOURNE WATER ISSUE	15/01/16	TL
A		TENDER ISSUE	20/11/15	TL

LEGEND

- COUNCIL STORMWATER DRAIN & PIT
- MELBOURNE WATER DRAIN & PIT
- S5 COUNCIL DRAIN SOUTHERN CATCHMENT
- FUTURE MELBOURNE WATER DRAIN & PIT
- FUTURE COUNCIL STORMWATER DRAIN & PIT
- MWS2 MELBOURNE WATER DRAIN SOUTHERN CATCHMENT
- PROPOSED TEMPORARY FLOOD INUNDATION
- CONSERVATION RESERVE

DRAWN	J.CAPPELLARI	26/10/15
	1241192	
DESIGNED	J.CAPPELLARI	
	1241211	26/10/15
VERIFIED	T.THAVENDRAN	
		25/11/15
AUDITED	-	-
AUTHORISED BY	-	-

TENDER

PLAN REFERENCE	11600SCP01
MELWAY REFERENCE	128 H1
WATER COMPANY FILE No.	0707/36

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MELBOURNE WATER

CITY OF GREATER DANDENONG
0707/36 RODDS DRAIN - SECTION 36
155 WESTERN PORT HIGHWAY, DANDENONG SOUTH
Q20 CATCHMENT PLAN

SCALE: 1:2500/1:5000
SHEET C01 of 18
DRAWING NO. 0707/36 (S1) C01 B A

A1

0 10 20 30 40 50 60 70 80 90 100 150mm

Drawing File: G:\Designdata\11600\11600_15_225 Glasscocks Rd- Stage 1 MW Drain\Acad\RD\11600_15CP01 South.dwg - 11600SCP01
Date/Time: Tue Jan 19, 2016 - 11:34am - Richard.Susenko--

12D MODEL - HYDRAULIC DESIGN SHEET

Project: Drainage
Drainage Model: d drain Allen 20 yr Council June 2015
Rainfall File: AUS VIC DandenongCC.12dhydro
Rainfall Method: ARR 1977
Pipe Cover Limit: 1.1 m
Manning n Roughness: 0.013
Freeboard Limit: 0.3 m

Minor 20 Year Storm Event

Pipe ID	Pipe Type	Pipe Length	Pipe Size	Full Pipe Area Af	Pipe Grade	Pipe Grade	Full-area Tct	Full-area I	Full-area Sum CA	Full-area Qc=CIA	Part-area Tct	Part-area I	Part-area Sum CA	Part-area Qc=CIA	Catchment Flow Qc	Direct Pit Flow Qdg	Pipe Flow Q	Excess Pipe Flow Qx	Capacity Flow Qcap	Q/Qcap Ratio	Full Pipe Vel Vf=Q/Af	Norm Depth Vel Vn=Q/An	Crit Depth Vel Vc=Q/Ac	Capacity Vel Vcap=Qc ap/Af	US Pit Grate RL	Pipe US IL	Pipe DS IL	DS Pit Grate RL	Cover Min	Pipe DS Bend	Pipe DS Drop	US Pit Ku	US Pit Kw	Pipe V'head	P'head Loss (Ku.V'head)	WSE Loss (Kw.V'head)	Pipe T'head Loss	US Pit HGL	Pipe US HGL	Pipe DS HGL	DS Pit HGL	HGL Grade	HGL Grade	F'board US
(-)	(-)	(m)	(mm)	(sq.m)	(%)	(1 in)	(min)	(mm/hr)	(ha)	(L/s)	(min)	(mm/hr)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(-)	(m/s)	(m/s)	(m/s)	(m/s)	(m)	(m)	(m)	(m)	(m)	(deg)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(1 in)	(m)
TP1 to MWS1	RCP	54.32	(2x)2250	7.952	0.2	501.1	25.45	52.9	53.5637	7870.3	24.33	54.3	52.7225	7952.6	7952.6	8.4	7961		18628.7	0.43	1	2.25	2.6	2.34	9.6	6.58	6.47	9.48	-1.34	0		0.2		0.05	0.01		0.54	8.84	8.83	8.27	8.27	1.03	97.3	0.76
TP2 to TP1	RCP	37.89	(2x)2250	7.952	0.24	419.6	25.19	53.22	53.5637	7918.2	24.07	54.65	52.7225	8003	8003	8.4	8011.4		20356.7	0.39	1.01	2.41	2.61	2.56	10.99	6.67	6.58	9.6	0.65	0.8	0	0.21		0.05	0.01		0.08	8.93	8.92	8.84	8.84	0.21	473.9	2.06
MWS2 to TP2	RCP	38.54	(2x)2250	7.952	0.21	471.2	24.91	53.56	53.5637	7969.8	23.79	55.02	52.7225	8057.2	8057.2	8.4	8065.6		19210.5	0.42	1.01	2.31	2.61	2.42	10.68	6.75	6.67	10.99	1.57	-3.2	0	0.23		0.05	0.01		0.07	9.01	9	8.93	8.93	0.18	543.4	1.67
MWS3 to MWS2	RCP	35.16	(2x)2250	7.952	0.21	468.2	24.66	53.88	53.5101	8009.4	23.54	55.36	52.6689	8099.1	8099.1		8099.1		19272.7	0.42	1.02	2.32	2.62	2.42	10.58	6.83	6.75	10.68	0.61	3.9	0	0.26		0.05	0.01		0.06	9.09	9.08	9.01	9.01	0.18	556.3	1.49
MWS4 to MWS3	RCP	74.72	(2x)2250	7.952	0.18	560.9	24.06	54.66	46.2907	7028	22.94	56.19	45.4495	7093.3	7093.3		7093.3		17606.8	0.4	0.89	2.09	2.51	2.21	10.75	6.96	6.83	10.58	1.4	-0.1	0	0.18		0.04	0.01		0.12	9.22	9.21	9.09	9.09	0.16	624.7	1.53
MWS5 to MWS4	RCP	101.69	(2x)2100	6.927	0.2	502.4	23.28	55.72	43.47	6728	22.16	57.32	42.6288	6788	6788		6788		15477.5	0.44	0.98	2.16	2.52	2.23	10.94	7.31	7.11	10.75	1.41	1.7	0.15	0.26		0.05	0.01		0.2	9.42	9.41	9.22	9.22	0.19	520.8	1.52
MWS6 to MWS5	RCP	43.2	(2x)2100	6.927	0.28	357.3	22.98	56.13	42.0561	6557.6	21.86	57.77	41.2149	6613.8	6613.8		6613.8		18354.2	0.36	0.95	2.43	2.5	2.65	11.22	7.43	7.31	10.94	1.43	7.3	0	0.22		0.05	0.01		0.11	9.54	9.53	9.42	9.42	0.25	398.8	1.67
MWS7 to MWS6	RCP	45.16	(2x)2100	6.927	0.22	448.6	22.65	56.61	42.0561	6613.6	21.53	58.28	41.2149	6672.8	6672.8		6672.8		16380.2	0.41	0.96	2.24	2.51	2.36	11.18	7.53	7.43	11.22	1.44	-6.7	0	0.14		0.05	0.01		0.09	9.64	9.63	9.54	9.54	0.2	499.6	1.54
MWS8 to MWS7	RCP	90	(2x)1950	5.973	0.29	350	22.03	57.52	40.1802	6419.4	20.92	59.26	39.339	6475.3	6475.3		6475.3		15217.9	0.43	1.08	2.44	2.54	2.55	11.33	7.94	7.68	11.18	1.33	-2.2	0.15	0.24		0.06	0.01		0.25	9.9	9.89	9.64	9.64	0.28	359.5	1.43
MWS9 to MWS8	RCP	85.67	(2x)1950	5.973	0.25	402.8	21.41	58.47	38.0332	6177	20.29	60.28	37.192	6228	6228		6228		14185.6	0.44	1.04	2.3	2.51	2.37	11.46	8.15	7.94	11.33	1.25	0	0	0.24		0.06	0.01		0.2	10.12	10.1	9.9	9.9	0.23	431.7	1.34
MWS10 to MWS9	RCP	57.6	(2x)1950	5.973	0.46	216.4	21.08	59	37.2774	6108.9	19.96	60.85	36.4362	6159.2	6159.2		6159.2		19352.7	0.32	1.03	2.88	2.5	3.24	11.87	8.42	8.15	11.46	1.25	0	0	0.21		0.05	0.01		0.25	10.38	10.37	10.12	10.12	0.44	227.8	1.49
MWS11 to MWS10	RCP	80.63	(2x)1950	5.973	0.28	360.1	20.51	59.92	36.0705	6003.5	19.39	61.85	35.2293	6052.8	6052.8		6052.8		15004.4	0.4	1.01	2.38	2.49	2.51	12.2	8.67	8.45	11.87	1.36	-3.2	0.03	1		0.05	0.05		0.24	10.67	10.62	10.38	10.38	0.3	332.4	1.53
MWS12 to MWS11	RCP	53.17	2100	3.464	0.32	309.6	20.22	60.42	35.927	6029.3	19.1	62.39	35.0858	6080.6	6080.6		6080.6		9858.1	0.62	1.76	2.99	3.06	2.85	12.47	8.84	8.67	12.2	1.43	-6	0	0.49		0.16	0.08		0.26	11.02	10.94	10.67	10.67	0.51	197.4	1.45
MWS13 to MWS12	RCP	65.61	1800	2.545	0.2	494.4	19.71	61.29	20.2001	3438.8	12.46	78.64	14.742	3220.2	3438.8		3438.8		5171.8	0.66	1.35	2.17	2.66	2.03	12.8	9.28	9.15	12.47	1.48	0	0.303	0.08		0.09	0.01		0.06	11.09	11.08	11.02	11.02	0.09	1118.3	1.71
MWS14 to MWS13	RCP	78.79	1650	2.138	0.45	224.7	19.26	62.09	19.4753	3359	12.01	80.15	14.0172	3120.6	3359		3359		6083.5	0.55	1.57	2.91	2.72	2.85	13.19	9.78	9.43	12.8	1.72	0	0.15	0.24		0.13	0.03		0.34	11.46	11.43	11.09	11.09	0.44	229.8	1.73
MWS15 to MWS14	RCP	47.31	1650	2.138	0.55	181	19.01	62.55	18.7363	3255.5	11.76	81.02	13.2783	2988.3	3255.5		3255.5		6778.3	0.48	1.52	3.14	2.69	3.17	13.43	10.06	9.8	13.19	1.71	0	0.02	0.84		0.12	0.1		0.25	11.81	11.71	11.46	11.46	0.53	188.5	1.62
MWS16 to MWS15	RCP	24.37	1650	2.138	0.5	200	18.87	62.81	16.4458	2869.3	11.62	81.51	10.9877	2487.9	2869.3		2869.3		6447.6	0.45	1.34	2.93	2.57	3.02	13.6	10.21	10.09	13.43	1.69	-19	0.03	0.99	1.03	0.09	0.09	0.09	0.05	11.96	11.86	11.81	11.81	0.21	467.1	1.64
MWS17 to MWS16	RCP	25.5	1650	2.138	0.5	200	18.73	63.08	16.4458	2881.8	11.48	82.03	10.9877	2503.8	2881.8		2881.8		6447.6	0.45	1.35	2.93	2.58	3.02	13.64	10.37	10.24	13.6	1.62	-54.7	0.03	0.3		0.09	0.03		0.07	12.05	12.02	11.95	11.96	0.26	382.1	1.59
MWS18 to MWS17	RCP	61.11	1650	2.138	0.5	200	18.38	63.76	15.6759	2776.2	11.12	83.33	10.2179	2365.3	2776.2		2776.2		6447.1	0.43	1.3	2.9	2.55	3.02	14.53	10.71	10.4	13.64	1.59	-16.3	0.03	0.28		0.09	0.02		0.31	12.38	12.36	12.05	12.05	0.5	198.4	2.15
MWS19 to MWS18	RCP	70.54	1500	1.767	0.67	150	18	64.5	13.5481	2427.3	18	64.5	13.5481	2427.3	2427.3		2427.3		5774.2	0.42	1.37	3.12	2.51	3.27	15.34	11.33	10.86	14.53	2.19	0.5	0.15	9.21		0.1	0.89		0.45	13.71	12.83	12.38	12.38	0.63	158	1.63
S1 to MWS3	RCP	21.65	1050	0.866	0.33	300	20	60.79	7.1251	1203.1	7	103.57	2.5996	747.9	1203.1		1203.1		1577.3	0.76	1.39	2	2.25	1.82	10.58	7.44	7.37	10.58	1.93	88.8	0.545	2		0.1	0.2		0.04	9.33	9.13	9.09	9.09	0.19	515.6	1.25
S2 to MWS4	RCP	18.32	900	0.636	0.5	200	12	80.18	2.6897	599.1	7	103.57	1.6281	468.4	599.1		599.1		1280.6	0.47	0.94	1.98	1.87	2.01	10.85	8.02	7.93	10.75	1.76	90.1	0.971	2		0.05	0.09		0.02	9.33	9.24	9.22	9.22	0.11	913.9	1.53
S3 to MWS5	RCP	17.7	825	0.535	0.5	200	10	87.86	1.3063	318.8	7	103.57	0.9471	272.5	318.8		318.8		1015.4	0.31	0.6	1.68	1.57	1.9	11.04	8.35	8.26	10.94	1.7	95.5	0.951	2		0.02	0.04		0.01	9.47	9.43	9.42	9.42	0.05	2028.8	1.57
S4 to MWS7	RCP	15.52	825	0.535	0.33	300	11	83.81	1.7741	413	7	103.57	1.1655	335.3	413		413		829.1	0.5	0.77	1.55	1.7	1.55	11.18	8.38	8.33	11.18	1.82	87.2	0.8	2		0.03	0.06		0.01	9.71	9.65	9.64	9.64	0.08	1208.9	1.47
S5 to MWS8	RCP	15.51	825	0.535	0.5	200	15	71.29	2.0504	406	7	103.57	1.0079	290	406		406		1015.4	0.4	0.76	1.79	1.69	1.9	11.33	8.39	8.31	11.33	1.97	89.4	0.373	2		0.03	0.06		0.01	9.98	9.92	9.9	9.9	0.08	1251	1.36
S6 to MWS9	RCP	15.52	1200	1.131	0.5	200	7	103.57	0.6123	176.2	7	103.57	0.6123	176.2	176.2		176.2		2758	0.06	0.16	1.37	1.23	2.44	11.46	8.98	8.9	11.46	1.13	90.1	0.75	5		0	0.01		0.06	10.19	10.18	10.12	10.12	0.41	241.3	1.27
MWS20 to MWS11	RCP	21.5	1200	1.131	0.15	684.7	7	103.57	0.0797	22.9	7	103.57	0.0797	22.9	22.9		22.9		1490.6	0.02	0.02	0.48	0.72	1.32	12.2	9.45	9.42	12.2	1.41	83.9	0.75	5		0	0		0	10.68	10.68	10.67	10.67	0	1000000	1.53
S7 to MWS12	RCP	21.5	525	0.216	0.33	300	9	92.43	0.635	163	7	103.57	0.5136	147.8	163		163		248.4	0.66	0.75	1.22	1.45	1.15	12.47	10.49	10.42	12.47	1.32	90	1.574	9.26		0.03	0.27		0.03	11.32	11.05	11.02	11.02	0.14	696.3	1.15
S8 to MWS13	RCP	21.5	450	0.159	0.45	220	7	103.57	0.6214	178.8	7	103.57	0.6214	178.8	178.8		178.8		192.3	0.93	1.12	1.37	1.6	1.21	12.8	10.73	10.63	12.8	1.48	90	1.35	6.99		0.06	0.45		0.09	11.63	11.18	11.09	11.09	0.42	239.3	1.17
S9 to MWS14	RCP	21.49	450	0.159	0.5	200	7	103.57	0.6769	194.7	7	103.57	0.6769	194.7	194.7		194.7		201.7	0.97	1.22	1.44	1.66	1.27	13.19	11.09	10.98	13.19	1.52	90	1.2	6.41		0.08	0.49		0.1	12.05	11.56	11.46	11.46	0.47	214.5	1.14
S10 to MWS15	RCP	21.5	600	0.283	0.5	200	9	92.43	0.9124	234.3	7	103.57	0.7293	209.8	234.3		234.3		434.4	0.54	0.83	1.56	1.56	1.54	13.43	11.22	11.11	13.43	1.47	90	1.05	9.27		0.04	0.32		0.03	12.17	11.84	11.81	11.81	0.15	687.5	1.26
S14 to MWS17	RCP	15.7	600	0.283	1	100	7.73	99.13	0.701	193	7.49	100.58	0.6798	189.9	193		193		614.2	0.31	0.68	1.92	1.47	2.17	13.64	11.58	11.42	13.64	1.33	73.6	1.05	1.5		0.02	0.04		0.13	12.21	12.18	12.05	12.05	0.83	121.2	1.43
S13 to S14	RCP	25.15	525	0.216	0.5	200	7.45	100.81	0.6323	177.1	7.2	102.32	0.6111	173.7	177.1		177.1		304.2	0.58	0.82	1.46	1.49	1.41	13.61	11.85	11.73	13.64	1.24	81.1	0.15	1.01	1.05	0.03	0.03	0.04	0.16	12.41	12.38	12.21	12.21	0.66	152.3	1.2
S12 to S13	RCP	17.46	525	0.216	0.5	200	7.25	102.02	0.6323	179.2	7	103.57	0.6111	175.8	179.2		179.2		304.2	0.59	0.83	1.46	1.5	1.41	13.76	11.97	11.88	13.61	1.22	-55.3	0.03	1.48	1.6	0.03	0.05	0.06	0.08	12.55	12.5	12.41	12.41	0.47	210.8	1.2
S11 to S12	RCP	21.5	525	0.216	0.5	200	7	103.57	0.5981	172.1	7	103.57	0.5981	172.1	172.1		172.1		304.2	0.57	0.79	1.45	1.48	1.41	13.76	12.11	12	13.76	0.98	64.3	0.03	9.31		0.03	0.3		0.09	12.93	12.63	12.55	12.55	0.4	251.2	0.82
S15 to MWS18	RCP	15.5	675	0.358	0.67	150	11	83.81	2.0509	477.5	7	103.57	1.3331	383.5	477.5		477.5		686.6	0.7	1.33	2.07	1.94	1.92	14.53	11.78	11.68	14.53	1.93	90	0.975	7.18		0.09	0.65		0.08	13.11	12.46	12.38	12.38	0.51	195	1.42
MWS21 to MWS12	RCP	44.3	1500	1.767	0.43	230	18.82	62.9	14.1208	2467.4	12.49	78.56	9.6571	2107.4	2467.4		2467.4		4663.1	0.53	1.4	2.68	2.53	2.64	12.1	9.64	9.45	12.47	1.02	-47	0.603	0.6		0.1	0.06		0.12	11.2	11.14	11.02	11.02	0.27	374	0.9
MWS22 to MWS21	RCP	60.77	1500	1.767	0.5	199.1	18.46	63.59	13.9839	2470	12.13	79.75	9.5202	2109	2470		2470		5011.7	0.49	1.4	2.82	2.53	2.84	13.02	9.94	9.64	12.1	0.94	-43	0	0.28		0.1	0.03		0.25	11.47	11.44	11.2	11.2	0.4	247.5	1.55
MWS23 to MWS22	RCP	70.54	1500	1.767	0.4	251.5	18	64.5	12.6795	2271.7	18	64.5	12.6795	2271.7	2271.7		2271.7		4458.9	0.51	1.29	2.53	2.46	2.52	14.69	10.25	9.96	13.02	1.58	0.4	0.02	9.51		0.08	0.8		0.27	12.55	11.75	11.47	11.47	0.39	258.5	2.15
S17 to MWS22	RCP	15.57	450	0.159	1	100	12	80.18	1.2235	272.5	7	103.57	0.7457	214.5	272.5		272.5		285.2	0.96	1.71	2.04	1.97	1.79	13.05	11.15	10.99	13.02	1.3	90.5	1.05	4.69		0.15	0.7		0.14	12.32	11.61	11.47	11.47	0.91	109.5	0.73
S16 to MWS21	RCP	15.5	750	0.442	0.67	150	7	103.57	0.0682	19.6	7	103.57	0.0682	19.6	19.6		19.6		909.4	0.02	0.04	0.83	0.74	2.06	12.24	10.39	10.28	12.1	0.95	46.9	0.643	9.7		0	0		0	11.2	11.2	11.2	11.2	0	322603	1.04
S20 to MWS10	RCP	69.86	525	0.216	1	100	7.82	98.64	1.2069	330.7	7.1	102.95	1.1796	337.3	337.3		337.3		430.2	0.78	1.56	2.2	1.94	1.99	12.57	10.54	9.84	11.87	1.5	0	1.425	1.55	1.68	0.12	0.19	0.21	0.69	11.28	11.07	10.38	10.38	0.98	101.7	1.29
S19 to S20	RCP	58.38	525	0.216	1	100	7.19	102.36	0.3048	86.7	7	103.57	0.3006	86.5	86.7		86.7		430.3	0.2	0.4	1.55	1.19	1.99	13	11.16	10.57	12.57	1.32	0	0.03	2.29	2.99	0.01	0.02	0.02	0.42	11.71	11.68	11.26	11.28	0.72	138.4	1.29
S18 to S19	RCP	15.5	300	0.071	1	100	7	103.57	0.1549	44.6	7	103.57	0.1549	44.6	44.6		44.6		96.7	0.46	0.63	1.34	1.13	1.37	12.99	11.54	11.38	13	1.04	90	0.225	9.08		0.02	0.18		0.14	12.02	11.84	11.7	11.71	0.88	113.7	0.97
S18A to S18	RCP	50.37	300	0.071	1	100									0		0		96.7	0	0	0	0	1.37	13.39	12.07	11.57	12.99	1.01	-88	0.03			0			0.05	12.07	12.07	12.02	12.02	0.1	1018.2	1.32

MINOR STORM EVENT HYDRAULICS REPORT

NOT TO BE USED FOR CONSTRUCTION

REF	ZONE	REVISION	DATE	APP'D.
B		MELBOURNE WATER ISSUE	15/01/16	TL
A		TENDER ISSUE	20/11/15	TL

DRAWN	J.CAPPELLARI	26/10/15
	1241192	
DESIGNED	J.CAPPELLARI	
	1241212	26/10/15
VERIFIED	T.THAVENDRAN	25/11/15
AUDITED	-	-
AUTHORISED BY	-	-

TENDER

PLAN REFERENCE	11600SCP02
MELWAY REFERENCE	128 H1
WATER COMPANY FILE No.	0707/36

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MELBOURNE WATER

CITY OF GREATER DANDENONG
0707/36 RODDS DRAIN - SECTION 36
155 WESTERN PORT HIGHWAY, DANDENONG SOUTH
HYDRAULICS AND HYDROLOGY SHEET 01 OF 04

SCALE:
SHEET C02 of 18
DRAWING NO. 0707/36 (S1) C02
B
A

A1

Drawing File: G:\Designdata\11600\11600_05 225 Glasscks Rd- Stage 1 MW Drain\Acad\RD\11600_05CP01 South.dwg - 11600SCP02
Date/Time: Tue Jan 19, 2016 - 11:36am --Richard.Sosenko--

0 10 20 30 40 50 60 70 80 90 100
150mm

12D MODEL - HYDROLOGICAL DESIGN SHEET

Project:	Drainage
Drainage Model:	d drain Allen 20 yr Council June 2015
Rainfall File:	AUS VIC DandenongCC.12dhydro
Tc Method:	Direct
Rainfall Method:	ARR 1977
Runoff C Method:	Direct

Minor 20 Year Storm Event

Pit	Pit	Setout	Setout	Setout	Catch	Time	Intensity	Runoff	Area	Full	Full	Full	Partial	Partial	Partial	Catchment	Direct	Approach
Name	Type	Easting	Northing	RL	ID	Tc	I	C	A	CA	Sum CA	Qc=CIA	CA	Sum CA	Qc=CIA	Flow Qc	Flow Qdg	Flow Qa
(-)	(-)	(m)	(m)	(m)	(-)	(min)	(mm/hr)	(-)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)
MWS1	EW	344268.4	5786848	9.48														
TP1		344299.8	5786807	9.6														0
TP2		344335	5786786	10.99														0
MWS2	GSEP	344373.6	5786786	10.68	2I	7	103.57	0.9	0.0595	0.0536	0.0536	15.4	0.0536	0.0536	15.4	15.4	8.4	23.8
MWS3	GSEP	344408.5	5786781	10.58	2I	7	103.57	0.9	0.1048	0.0943	0.0943	27.1	0.0943	0.0943	27.1	27.1		27.1
MWS4	GSEP	344482.7	5786772	10.75	2I	7	103.57	0.9	0.1456	0.131	0.131	37.7	0.131	0.131	37.7	37.7		37.7
MWS5	GSEP	344583.3	5786757	10.94	2I	7	103.57	0.9	0.1196	0.1076	0.1076	31	0.1076	0.1076	31	31		31
MWS6	JP	344624.8	5786745	11.22														0
MWS7	GSEP	344669.4	5786738	11.18	2I	7	103.57	0.9	0.1131	0.1018	0.1018	29.3	0.1018	0.1018	29.3	29.3		29.3
MWS8	GSEP	344758.8	5786727	11.33	2I	7	103.57	0.9	0.1074	0.0966	0.0966	27.8	0.0966	0.0966	27.8	27.8		27.8
MWS9	GSEP	344843.8	5786717	11.46	2I	7	103.57	0.9	0.1595	0.1435	0.1435	41.3	0.1435	0.1435	41.3	41.3		41.3
MWS10	JP	344901	5786710	11.87														0
MWS11	GSEP	344943.3	5786653	12.2	2I	7	103.57	0.9	0.0709	0.0638	0.0638	18.4	0.0638	0.0638	18.4	18.4		18.4
MWS12	GSEP	344936.9	5786600	12.47	1P	7	103.57	0.9	0.888	0.7992	0.971	279.4	0.7992	0.971	279.4	279.4		279.4
					2I	7	103.57	0.9	0.1909	0.1718			0.1718					
MWS13	GSEP	344928.9	5786535	12.8	2I	7	103.57	0.9	0.1148	0.1034	0.1034	29.7	0.1034	0.1034	29.7	29.7		29.7
MWS14	GSEP	344919.4	5786457	13.19	2I	7	103.57	0.9	0.0689	0.062	0.062	17.8	0.062	0.062	17.8	17.8		17.8
MWS15	GSEP	344913.7	5786410	13.43	1P	7	103.57	0.9	1.3403	1.2063	1.3782	396.5	1.2063	1.3782	396.5	396.5		396.5
					2I	7	103.57	0.9	0.191	0.1719			0.1719					
MWS16	GSEP	344918.7	5786386	13.6														0
MWS17	GSEP	344942.2	5786376	13.64	2I	7	103.57	0.9	0.0765	0.0688	0.0688	19.8	0.0688	0.0688	19.8	19.8		19.8
MWS18	GSEP	345002.8	5786369	14.53	2I	7	103.57	0.9	0.0854	0.0769	0.0769	22.1	0.0769	0.0769	22.1	22.1		22.1
MWS19	GSEP	345072.8	5786360	15.34	1P	18	64.5	0.9	15.0535	13.5481	13.5481	2427.3	13.5481	13.5481	2427.3	2427.3		2427.3
S1	GP	344406.4	5786760	10.58	1P	20	60.79	0.9	7.7358	6.9622	7.1251	1203.1	2.4368	2.5996	747.9	1203.1		1203.1
					2I	7	103.57	0.9	0.181	0.1629			0.1629					
S2	SEP	344480.5	5786754	10.85	1P	12	80.18	0.9	2.831	2.5479	2.6897	599.1	1.4863	1.6281	468.4	599.1		599.1
					2I	7	103.57	0.9	0.1575	0.1418			0.1418					
S3	GSEP	344579	5786740	11.04	1P	10	87.86	0.9	1.3305	1.1975	1.3063	318.8	0.8382	0.9471	272.5	318.8		318.8
					2I	7	103.57	0.9	0.1209	0.1088			0.1088					
S4	GSEP	344667.7	5786723	11.18	1P	11	83.81	0.9	1.8598	1.6738	1.7741	413	1.0652	1.1655	335.3	413		413
					2I	7	103.57	0.9	0.1115	0.1003			0.1003					
S5	GSEP	344757	5786712	11.33	1P	15	71.29	0.9	2.1719	1.9547	2.0504	406	0.9122	1.0079	290	406		406
					2I	7	103.57	0.9	0.1063	0.0957			0.0957					
S6	GSEP	344841.9	5786702	11.46	1P	7	103.57	0.9	0.3997	0.3597	0.6123	176.2	0.3597	0.6123	176.2	176.2		176.2
					2I	7	103.57	0.9	0.2806	0.2525			0.2525					
MWS20	GSEP	344921.9	5786656	12.2	2I	7	103.57	0.9	0.0886	0.0797	0.0797	22.9	0.0797	0.0797	22.9	22.9		22.9
S7	GSEP	344915.5	5786603	12.47	1P	9	92.43	0.9	0.6072	0.5464	0.635	163	0.425	0.5136	147.8	163		163
					2I	7	103.57	0.9	0.0984	0.0886			0.0886					
S8	GSEP	344907.6	5786538	12.8	1P	7	103.57	0.9	0.5723	0.5151	0.6214	178.8	0.5151	0.6214	178.8	178.8		178.8
					2I	7	103.57	0.9	0.1182	0.1064			0.1064					
S9	GSEP	344898	5786460	13.19	1P	7	103.57	0.9	0.681	0.6129	0.6769	194.7	0.6129	0.6769	194.7	194.7		194.7
					2I	7	103.57	0.9	0.0711	0.064			0.064					
S10	GSEP	344892.3	5786413	13.43	1P	9	92.43	0.9	0.9155	0.8239	0.9124	234.3	0.6408	0.7293	209.8	234.3		234.3
					2I	7	103.57	0.9	0.0983	0.0885			0.0885					
S14	GSEP	344940.3	5786360	13.64	2I	7	103.57	0.9	0.0763	0.0687	0.0687	19.8	0.0687	0.0687	19.8	19.8		19.8
S13	GSEP	344915.2	5786360	13.61														0
S12	GSEP	344905.7	5786345	13.76	2I	7	103.57	0.9	0.038	0.0342	0.0342	9.8	0.0342	0.0342	9.8	9.8		9.8
S11	GSEP	344884.4	5786348	13.76	1P	7	103.57	0.9	0.6259	0.5633	0.5981	172.1	0.5633	0.5981	172.1	172.1		172.1
					2I	7	103.57	0.9	0.0387	0.0348			0.0348					
S15	GSEP	345000.9	5786353	14.53	1P	11	83.81	0.9	2.1934	1.9741	2.0909	477.5	1.2562	1.3331	383.5	477.5		477.5
					2I	7	103.57	0.9	0.0854	0.0769			0.0769					
MWS21	GSEP	344965.4	5786566	12.1	2I	7	103.57	0.9	0.0765	0.0688	0.0688	19.8	0.0688	0.0688	19.8	19.8		19.8
MWS22	GSEP	345025.7	5786559	13.02	2I	7	103.57	0.9	0.0898	0.0808	0.0808	23.3	0.0808	0.0808	23.3	23.3		23.3
MWS23	GSEP	345095.6	5786550	14.69	1I	18	64.5	0.9	14.0883	12.6795	12.6795	2271.7	12.6795	12.6795	2271.7	2271.7		2271.7
S17	GSEP	345023.7	5786544	13.05	1P	12	80.18	0.9	1.2743	1.1468	1.2235	272.5	0.669	0.7457	214.5	272.5		272.5
					2I	7	103.57	0.9	0.0852	0.0767			0.0767					
S16	GSEP	344963.5	5786551	12.24	2I	7	103.57	0.9	0.0757	0.0682	0.0682	19.6	0.0682	0.0682	19.6	19.6		19.6
S20	GSEP	344970.3	5786702	12.57	2I	7	103.57	0.9	0.0726	0.0653	0.0653	18.8	0.0653	0.0653	18.8	18.8		18.8
S19	GSEP	345028.3	5786694	13	2I	7	103.57	0.9	0.1666	0.1499	0.1499	43.1	0.1499	0.1499	43.1	43.1		43.1
S18	GSEP	345026.4	5786679	12.99	2I	7	103.57	0.9	0.1721	0.1549	0.1549	44.6	0.1549	0.1549	44.6	44.6		44.6
S18A	GP	345076.1	5786671	13.39														0

MINOR STORM EVENT HYDROLOGY REPORT

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B		MELBOURNE WATER ISSUE	15/01/16	TL
A		TENDER ISSUE	20/11/15	TL

DRAWN	J.CAPPELLARI 26/10/15 1241192	TENDER
DESIGNED	J.CAPPELLARI 1241213 26/10/15	PLAN REFERENCE 11600SCP03
VERIFIED	T.THAVENDRAN 25/11/15	MELWAY REFERENCE 128 H1
AUDITED	- -	WATER COMPANY FILE No. 0707/36
AUTHORISED BY	- -	

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MELBOURNE WATER
CITY OF GREATER DANDENONG
0707/36 RODDS DRAIN - SECTION 36
155 WESTERN PORT HIGHWAY, DANDENONG SOUTH
HYDRAULICS AND HYDROLOGY SHEET 02 OF 04

SCALE:
SHEET C03 of 18
DRAWING NO. 0707/36 (S1) C03
B A

A1
0 10 20 30 40 50 60 70 80 90 100 150mm

12D MODEL - HYDRAULIC DESIGN SHEET

Project: Drainage
Drainage Model: d drain Allen 20 yr Council June 2015
Rainfall File: AUS VIC DandenongCC.12dhydro
Rainfall Method: ARR 1977
Pipe Cover Limit: 1.1 m
Manning n Roughness: 0.013
Freeboard Limit: 0.3 m

Major 20 Year Storm Event

Pipe ID	Pipe Type	Pipe Length	Pipe Size	Full Pipe Area Af	Pipe Grade	Pipe Grade	Full-area Tct	Full-area I	Full-area Sum CA	Full-area Qc=CIA	Part-area Tct	Part-area I	Part-area Sum CA	Part-area Qc=CIA	Catchment Flow Qc	Direct Pit Flow Qdg	Direct Pipe Flow Qdp	Pipe Flow Q	Capacity Flow Qcap	Q/Qcap Ratio	Full Pipe Vel Vf=Q/Af	Norm Depth Vel Vn=Q/An	Crit Depth Vel Vc=Q/Ac	Capacity Vel Vcap=Qcap/Af	US Pit Grate RL	Pipe US IL	Pipe DS IL	DS Pit Grate RL	Cover Min	Pipe DS Bend	Pipe DS Drop	US Pit Ku	US Pit Kw	Pipe V'head	P'head Loss (Ku.V'head)	WSE Loss (Kw.V'head)	Pipe T'head Loss	US Pit HGL	Pipe US HGL	Pipe DS HGL	DS Pit HGL	HGL Grade	HGL Grade	Freeboard US
(-)	(-)	(m)	(mm)	(sq.m)	(%)	(1 in)	(min)	(mm/hr)	(ha)	(L/s)	(min)	(mm/hr)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(-)	(m/s)	(m/s)	(m/s)	(m/s)	(m)	(m)	(m)	(m)	(m)	(deg)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(%)	(1 in)	(m)
TP1 to MWS1	RCP	54.32	(2x)2250	7.952	0.2	501.1	24.69	53.85	53.5637	8011.7	23.62	55.25	52.7597	8097.3	8097.3	5962.8	1515.6	15575.7	18628.7	0.84	1.96	2.62	3.25	2.34	9.6	6.58	6.47	9.48	-1.34	0		0.2		0.2	0.04		0.49	8.87	8.83	8.27	8.27	1.03	97.3	0.74
TP2 to TP1	RCP	37.89	(2x)2250	7.952	0.24	419.6	24.46	54.13	53.5637	8054.4	23.39	55.56	52.7597	8142.1	8142.1	5962.8	1515.6	15620.5	20356.7	0.77	1.96	2.82	3.25	2.56	10.99	6.67	6.58	9.6	0.65	0.8	0	0.21		0.2	0.04		0.05	8.96	8.92	8.87	8.87	0.14	712.7	2.03
MWS2 to TP2	RCP	38.54	(2x)2250	7.952	0.21	471.2	24.22	54.44	53.5637	8100.5	23.16	55.89	52.7597	8190.6	8190.6	5962.8	1515.6	15669	19210.5	0.82	1.97	2.69	3.26	2.42	10.68	6.75	6.67	10.99	1.57	-3.2	0	0.22		0.2	0.04		0.05	9.06	9.02	8.96	8.96	0.14	708.3	1.62
MWS3 to MWS2	RCP	35.16	(2x)2250	7.952	0.21	468.2	24.01	54.73	53.5101	8134.9	22.94	56.19	52.7061	8227	8227	5962.8	1515.6	15705.4	19272.7	0.81	1.97	2.7	3.26	2.42	10.58	6.83	6.75	10.68	0.61	3.9	0	0.25		0.2	0.05		0.05	9.16	9.11	9.06	9.06	0.14	705	1.42
MWS4 to MWS3	RCP	74.72	(2x)2250	7.952	0.18	560.9	23.5	55.41	46.2907	7124.5	22.44	56.92	45.4866	7191.6	7191.6	5930.8	1515.6	14638	17606.8	0.83	1.84	2.48	3.18	2.21	10.75	6.96	6.83	10.58	1.4	-0.1	0	0.17		0.17	0.03		0.09	9.28	9.25	9.16	9.16	0.12	811.6	1.47
MWS5 to MWS4	RCP	101.69	(2x)2100	6.927	0.2	502.4	22.83	56.34	43.47	6803.6	21.76	57.92	42.6659	6864.6	6864.6	5896.6	1024.7	13785.9	15477.5	0.89	1.99	2.52	3.2	2.23	10.94	7.31	7.11	10.75	1.41	1.7	0.15	0.25		0.2	0.05		0.16	9.49	9.44	9.28	9.28	0.16	633.3	1.45
MWS6 to MWS5	RCP	43.2	(2x)2100	6.927	0.28	357.3	22.58	56.7	42.0561	6624.3	21.51	58.31	41.252	6681.3	6681.3	5868.2	552.9	13102.4	18354.2	0.71	1.89	2.88	3.14	2.65	11.22	7.43	7.31	10.94	1.43	7.3	0	0.22		0.18	0.04		0.06	9.59	9.55	9.49	9.49	0.14	701.1	1.62
MWS7 to MWS6	RCP	45.16	(2x)2100	6.927	0.22	448.6	22.3	57.12	42.0561	6673.2	21.23	58.76	41.252	6732.8	6732.8	5868.2	552.9	13153.9	16380.2	0.8	1.9	2.63	3.15	2.36	11.18	7.53	7.43	11.22	1.44	-6.7	0	0.14		0.18	0.03		0.06	9.69	9.66	9.59	9.59	0.14	695.6	1.5
MWS8 to MWS7	RCP	90	(2x)1950	5.973	0.29	350	21.77	57.91	40.1802	6463.9	20.7	59.61	39.3761	6519.5	6519.5	5841.4	248.3	12609.2	15217.9	0.83	2.11	2.85	3.2	2.55	11.33	7.94	7.68	11.18	1.33	-2.2	0.15	0.23		0.23	0.05		0.2	9.94	9.89	9.69	9.69	0.23	439.3	1.39
MWS9 to MWS8	RCP	85.67	(2x)1950	5.973	0.25	402.8	21.23	58.75	38.0332	6206.5	20.17	60.5	37.2291	6256.7	6256.7	5816		12072.7	14185.6	0.85	2.02	2.67	3.15	2.37	11.46	8.15	7.94	11.33	1.25	0	0	0.69		0.21	0.14		0.16	10.25	10.1	9.94	9.94	0.19	537	1.21
MWS10 to MWS9	RCP	57.6	(2x)1950	5.973	0.46	216.4	20.94	59.22	37.2774	6132.1	19.87	61.01	36.4733	6181.3	6181.3	3576		9757.3	19352.7	0.5	1.63	3.25	2.91	3.24	11.87	8.42	8.15	11.46	1.25	0	0	0.21		0.14	0.03		0.12	10.4	10.37	10.25	10.25	0.21	468.9	1.47
MWS11 to MWS10	RCP	80.63	(2x)1950	5.973	0.28	360.1	20.43	60.05	36.0705	6016.6	19.37	61.9	35.2665	6064.2	6064.2	3576		9640.2	15004.4	0.64	1.61	2.67	2.9	2.51	12.2	8.67	8.45	11.87	1.36	-3.2	0.03	1		0.13	0.13		0.23	10.76	10.62	10.4	10.4	0.28	357.7	1.45
MWS12 to MWS11	RCP	53.17	2100	3.464	0.32	309.6	20.15	60.53	35.927	6040.3	19.08	62.42	35.1229	6089.9	6089.9	1400		7489.9	9858.1	0.76	2.16	3.13	3.3	2.85	12.47	8.84	8.67	12.2	1.43	-6	0	0.45		0.24	0.11		0.19	11.05	10.94	10.76	10.76	0.36	281.6	1.42
MWS13 to MWS12	RCP	65.61	1800	2.545	0.2	494.4	19.67	61.37	20.2001	3443.4	12.42	78.79	14.742	3226.4	3443.4	700		4143.4	5171.8	0.8	1.63	2.26	2.83	2.03	12.8	9.28	9.15	12.47	1.48	0	0.303	0.07		0.14	0.01		0.09	11.15	11.14	11.05	11.05	0.13	770.3	1.65
MWS14 to MWS13	RCP	78.79	1650	2.138	0.45	224.7	19.24	62.14	19.4753	3361.6	11.98	80.24	14.0172	3124.2	3361.6	700		4061.6	6083.5	0.67	1.9	3.05	2.92	2.85	13.19	9.78	9.43	12.8	1.72	0	0.15	0.23		0.18	0.04		0.28	11.47	11.43	11.15	11.15	0.36	277.6	1.72
MWS15 to MWS14	RCP	47.31	1650	2.138	0.55	181	19	62.58	18.7363	3257	11.74	81.07	13.2783	2990.3	3257	700		3957	6778.3	0.58	1.85	3.29	2.89	3.17	13.43	10.06	9.8	13.19	1.71	0	0.02	0.75		0.17	0.13		0.24	11.84	11.71	11.47	11.47	0.5	198.5	1.59
MWS16 to MWS15	RCP	24.37	1650	2.138	0.5	200	18.86	62.82	16.4458	2870	11.61	81.54	10.9877	2488.7	2870	700		3570	6447.6	0.55	1.67	3.09	2.78	3.02	13.6	10.21	10.09	13.43	1.69	-19	0.03	0.99	1.03	0.14	0.14	0.15	0.04	12.03	11.88	11.84	11.84	0.15	652.4	1.58
MWS17 to MWS16	RCP	25.5	1650	2.138	0.5	200	18.73	63.08	16.4458	2881.8	11.48	82.03	10.9877	2503.8	2881.8	700		3581.8	6447.6	0.56	1.68	3.09	2.78	3.02	13.64	10.37	10.24	13.6	1.62	-54.7	0.03	0.8		0.14	0.11		0.04	12.17	12.06	12.02	12.03	0.15	648.1	1.46
MWS18 to MWS17	RCP	61.11	1650	2.138	0.5	200	18.38	63.76	15.6759	2776.2	11.12	83.33	10.2179	2365.3	2776.2			2776.2	6447.1	0.43	1.3	2.9	2.55	3.02	14.53	10.71	10.4	13.64	1.59	-16.3	0.03	0.28		0.09	0.02		0.18	12.38	12.36	12.17	12.17	0.3	334.8	2.15
MWS19 to MWS18	RCP	70.54	1500	1.767	0.67	150	18	64.5	13.5481	2427.3	18	64.5	13.5481	2427.3	2427.3			2427.3	5774.2	0.42	1.37	3.12	2.51	3.27	15.34	11.33	10.86	14.53	2.19	0.5	0.15	9.21		0.1	0.89		0.45	13.71	12.83	12.38	12.38	0.63	158	1.63
S1 to MWS3	RCP	21.65	1050	0.866	0.67	150	20	60.79	7.1251	1203.1	7	103.57	2.5996	747.9	1203.1		1203.1		2230.6	0.54	1.39	2.62	2.25	2.58	10.58	7.44	7.3	10.58	1.94	88.8	0.473	2		0.1	0.2		0.04	9.33	9.13	9.09	9.09	0.19	515.6	1.25
S2 to MWS4	RCP	18.32	900	0.636	0.56	180	12	80.18	2.6897	599.1	7	103.57	1.6281	468.4	599.1		599.1		1349.9	0.44	0.94	2.06	1.87	2.12	10.85	8.02	7.92	10.75	1.77	90.1	0.961	2		0.05	0.09		0.02	9.33	9.24	9.22	9.22	0.11	913.9	1.53
S3 to MWS5	RCP	17.7	825	0.535	0.5	200	7	103.57	1.3063	375.8	7	103.57	1.3063	375.8	375.8	14.2	471.8	861.8	1015.4	0.85	1.61	2.13	2.22	1.9	11.04	8.35	8.26	10.94	1.7	95.5	0.951	2		0.13	0.27		0.06	9.82	9.56	9.49	9.49	0.36	277.7	1.22
S4 to MWS7	RCP	15.52	825	0.535	0.33	300	7	103.57	1.7741	510.4	7	103.57	1.7741	510.4	510.4	13.4	304.6	828.4	829.1	1	1.55	1.77	2.19	1.55	11.18	8.38	8.33	11.18	1.82	87.2	0.8	2		0.12	0.25		0.05	9.98	9.74	9.69	9.69	0.33	300.5	1.2
S5 to MWS8	RCP	15.51	825	0.535	0.5	200	7	103.57	2.0504	589.9	7	103.57	2.0504	589.9	589.9	12.7	248.3	850.9	1015.4	0.84	1.59	2.13	2.21	1.9	11.33	8.39	8.31	11.33	1.97	89.4	0.373	2		0.13	0.26		0.05	10.26	10	9.94	9.94	0.35	284.8	1.07
S6 to MWS9	RCP	15.52	1200	1.131	0.5	200	7	103.57	0.6123	176.2	7	103.57	0.6123	176.2	176.2	1120		1296.2	2758	0.47	1.15	2.4	2.2	2.44	11.46	8.98	8.9	11.46	1.13	90.1	0.75	5		0.07	0.34		0.02	10.6	10.26	10.25	10.25	0.11	905.5	0.86
MWS20 to MWS11	RCP	21.5	1200	1.131	0.15	684.7	7	103.57	0.0797	22.9	7	103.57	0.0797	22.9	22.9	1086		1108.9	1490.6	0.74	0.98	1.44	2.09	1.32	12.2	9.45	9.42	12.2	1.41	83.9	0.75	5		0.05	0.25		0.02	11.02	10.77	10.76	10.76	0.08	1237.1	1.19
S7 to MWS12	RCP	21.5	525	0.216	0.33	300	7	103.57	0.635	182.7	7	103.57	0.635	182.7	182.7			182.7	248.4	0.74	0.84	1.25	1.51	1.15	12.47	10.49	10.42	12.47	1.32	90	1.574	8.46		0.04	0.31		0.04	11.4	11.09	11.05	11.05	0.18	554.6	1.07
S8 to MWS13	RCP	21.5	450	0.159	0.45	220	7	103.57	0.6214	178.8	7	103.57	0.6214	178.8	178.8			178.8	192.3	0.93	1.12	1.37	1.6	1.21	12.8	10.73	10.63	12.8	1.48	90	1.35	6.68		0.06	0.43		0.08	11.66	11.23	11.15	11.15	0.39	254.5	1.14
S9 to MWS14	RCP	21.49	450	0.159	0.5	200	7	103.57	0.6769	194.7	7	103.57	0.6769	194.7	194.7			194.7	201.7	0.97	1.22	1.44	1.66	1.27	13.19	11.09	10.98	13.19	1.52	90	1.2	6.34		0.08	0.48		0.1	12.06	11.57	11.47	11.47	0.47	214.5	1.13
S10 to MWS15	RCP	21.5	600	0.283	0.5	200	7	103.57	0.9124	262.5	7	103.57	0.9124	262.5	262.5			262.5	434.4	0.6	0.93	1.61	1.63	1.54	13.43	11.22	11.11	13.43	1.47	90	1.05	8.48		0.04	0.37		0.04	12.25	11.88	11.84	11.84	0.18	547.6	1.17
S14 to MWS17	RCP	15.7	600	0.283	1	100	7.73	99.13	0.701	193	7.49	100.58	0.6798	189.9	193	350		543	614.2	0.88	1.92	2.45	2.23	2.17	13.64	11.58	11.42	13.64	1.33	73.6	1.05	1.5		0.19	0.28		0.12	12.58	12.3	12.17	12.17	0.78	128	1.06
S13 to S14	RCP	25.15	525	0.216	0.5	200	7.45	100.81	0.6323	177.1	7.2	102.32	0.6111	173.7	177.1			177.1	304.2	0.58	0.82	1.46	1.49	1.41	13.61	11.85	11.73	13.64	1.24	81.1	0.15	1.01	1.05	0.03	0.03	0.04	0.04	12.66	12.62	12.58	12.58	0.17	590.4	0.96
S12 to S13	RCP	17.46	525	0.216	0.5	200	7.25	102.02	0.6323	179.2	7	103.57	0.6111	175.8	179.2			179.2	304.2	0.59	0.83	1.46	1.5	1.41	13.76	11.97	11.88	13.61	1.22	-55.3	0.03	1.48	1.6	0.03	0.05	0.06	0.03	12.74	12.69	12.66	12.66	0.17	576.5	1.01
S11 to S12	RCP	21.5	525	0.216	0.5	200	7	103.57	0.5981	172.1	7	103.57	0.5981	172.1	172.1			172.1	304.2	0.57	0.79	1.45	1.48	1.41	13.76	12.11	12	13.76	0.98	64.3	0.03	8.24		0.03	0.27		0.03	13.04	12.77	12.74	12.74	0.16	625.1	0.72
S15 to MWS18	RCP	15.5	675	0.358	0.67	150	11	83.81	2.0509	477.5	7	103.57	1.3331	383.5	477.5			477.5	686.6	0.7	1.33	2.07	1.94	1.92	14.53	11.78	11.68	14.53	1.93	90	0.975	7.18		0.09	0.65		0.08	13.11	12.46	12.38	12.38	0.51	195	1.42
MWS21 to MWS12	RCP	44.3	1500	1.767	0.43	230	18.82	62.9	14.1208	2467.4	12.49	78.56	9.6571	2107.4	2467.4	700		3167.4	4663.1	0.68	1.79	2.84	2.77	2.64	12.1	9.64	9.45	12.47	1.02	-47	0.603	1.1		0.16	0.18		0.09	11.32	11.14	11.05	11.05	0.2	498.5	0.78
MWS22 to MWS21	RCP	60.77	1500	1.767	0.5	199.1	18.46	63.59	13.9839	2470	12.13	79.75	9.5202	2109	2470			2470	5011.7	0.49	1.4	2.82	2.53	2.84	13.02	9.94	9.64	12.1	0.94	-43	0	0.28		0.1	0.03		0.12	11.47	11.44	11.32	11.32	0.21	487.7	1.55
MWS23 to MWS22	RCP	70.54	1500	1.767	0.4	251.5	18	64.5	12.6795	2271.7	18	64.5	12.6795	2271.7	2271.7			2271.7	4458.9	0.51	1.29	2.53	2.46	2.52	14.69	10.25	9.96	13.02	1.58	0.4	0.02	9.51		0.08	0.8		0.27	12.55	11.75	11.47	11.47	0.39	258.5	2.15
S17 to MWS22	RCP	15.57	450	0.159	1	100	12	80.18	1.2235	272.5	7	103.57	0.7457	214.5	272.5			272.5	285.2	0.96	1.71	2.04	1.97	1.79	13.05	11.15	10.99	13.02	1.3	90.5	1.05	4.69		0.15	0.7		0.14	12.32	11.61	11.47	11.47	0.91	109.5	0.73
S16 to MWS21	RCP	15.5	750	0.442	0.67	150	7	103.57	0.0682	19.6	7	103.57	0.0682	19.6	19.6	350		369.6	909.4	0.41	0.84	1.95	1.69	2.06	12.24	10.39	10.28	12.1	0.95	46.9	0.643	8.71		0.04	0.31		0.02	11.65	11.34	11.32	11.32	0.11	908	0.6
S20 to MWS10	RCP	69.86	525	0.216	1	100	7.82	98.64	1.2069	330.7	7.1	102.95	1.1796	337.3	337.3			337.3	430.2	0.78	1.56	2.2	1.94	1.99	12.57	10.54	9.84	11.87	1.5	0	1.425	1.55	1.68	0.12	0.19	0.21	0.67	11.28	11.07	10.4	10.4	0.96	104.3	1.29
S19 to S20	RCP	58.38	525	0.216	1	100	7.19	102.36	0.3048	86.7	7	103.57	0.3006	86.5	86.7			86.7	430.3	0.2	0.4	1.55	1.19	1.99	13	11.16	10.57	12.57	1.32	0	0.03	2.29	2.99	0.01	0.02	0.02	0.42	11.71	11.68	11.26	11.28	0.72	138.4	1.29
S18 to S19	RCP	15.5	300	0.071	1	100	7	103.57	0.1549	44.6	7	103.57	0.1549	44.6	44.6			44.6	96.7	0.46	0.63	1.34	1.13	1.37	12.99	11.54	11.38	13	1.04	90	0.225	9.08		0.02	0.18		0.14	12.02	11.84	11.7	11.71	0.88	113.7	0.97
S18A to S18	RCP	50.37	300	0.071	1	100												0	96.7	0	0	0	0	1.37	13.39	12.07	11.57	12.99	1.01	-88	0.03			0			0.05	12.07	12.07	12.02	12.02	0.1	1018.2	1.32

MAJOR STORM EVENT HYDRAULICS REPORT

NOT TO BE USED FOR CONSTRUCTION

REF	ZONE	REVISION	DATE	APP'D.
B		MELBOURNE WATER ISSUE	15/01/16	TL
A		TENDER ISSUE	20/11/15	TL

DRAWN	J.CAPPELLARI	26/10/15 1241192
DESIGNED	J.CAPPELLARI	1241214 26/10/15
VERIFIED	T.THAVENDRAN	25/11/15
AUDITED	-	-
AUTHORISED BY	-	-

TENDER

PLAN REFERENCE	11600SCP04
MELWAY REFERENCE	128 H1
WATER COMPANY FILE No.	0707/36

DALTON CONSULTING ENGINEERS
ABN 78 429 221 049
VICTORIA T 61 3 9888 6866
QUEENSLAND T 61 7 3367 1732
W dceng.com.au E info@dceng.com.au

MELBOURNE WATER
CITY OF GREATER DANDENONG
0707/36 RODDS DRAIN - SECTION 36
155 WESTERN PORT HIGHWAY, DANDENONG SOUTH
HYDRAULICS AND HYDROLOGY SHEET 03 OF 04

SCALE:
SHEET C04 of 18
DRAWING NO. 0707/36 (S1) C04
B A

Drawing File: G:\Designdata\11600\11600_15 225 Glasscks Rd- Stage 1 MW Drain\Acad\RD\11600_15CP01 South.dwg - 11600SCP04
Date/Time: Tue Jan 19, 2016 - 11:36am --Richard.Sasenko--

A1 150mm

12D MODEL - HYDROLOGICAL DESIGN SHEET

Project:	Drainage
Drainage Model:	d drain Allen 20 yr Council June 2015
Rainfall File:	AUS VIC DandenongCC.12dhydro
Tc Method:	Direct
Rainfall Method:	ARR 1977
Runoff C Method:	Direct

Major 20 Year Storm Event

Pit	Pit	Setout	Setout	Setout	Catch	Time	Intensity	Runoff	Area	Full	Full	Full	Partial	Partial	Partial	Catchment	Direct	Approach
Name	Type	Easting	Northing	RL	ID	Tc	I	C	A	CA	Sum CA	Qc=CIA	CA	Sum CA	Qc=CIA	Flow Qc	Flow Qdg	Flow Qa
(-)	(-)	(m)	(m)	(m)	(-)	(min)	(mm/hr)	(-)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)
MWS1	EW	344268.4	5786848	9.48														
TP1		344299.8	5786807	9.6														0
TP2		344335	5786786	10.99														0
MWS2	GSEP	344373.6	5786786	10.68	2I	7	103.57	0.9	0.0595	0.0536	0.0536	15.4	0.0536	0.0536	15.4	15.4		15.4
MWS3	GSEP	344408.5	5786781	10.58	2I	7	103.57	0.9	0.1048	0.0943	0.0943	27.1	0.0943	0.0943	27.1	27.1	17	44.1
MWS4	GSEP	344482.7	5786772	10.75	2I	7	103.57	0.9	0.1456	0.131	0.131	37.7	0.131	0.131	37.7	37.7	17.1	54.8
MWS5	GSEP	344583.3	5786757	10.94	2I	7	103.57	0.9	0.1196	0.1076	0.1076	31	0.1076	0.1076	31	31	14.2	45.2
MWS6	JP	344624.8	5786745	11.22														0
MWS7	GSEP	344669.4	5786738	11.18	2I	7	103.57	0.9	0.1131	0.1018	0.1018	29.3	0.1018	0.1018	29.3	29.3	13.4	42.7
MWS8	GSEP	344758.8	5786727	11.33	2I	7	103.57	0.9	0.1074	0.0966	0.0966	27.8	0.0966	0.0966	27.8	27.8	12.7	40.5
MWS9	GSEP	344843.8	5786717	11.46	2I	7	103.57	0.9	0.1595	0.1435	0.1435	41.3	0.1435	0.1435	41.3	41.3	1120	1161.3
MWS10	JP	344901	5786710	11.87														0
MWS11	GSEP	344943.3	5786653	12.2	2I	7	103.57	0.9	0.0709	0.0638	0.0638	18.4	0.0638	0.0638	18.4	18.4	1090	1108.4
MWS12	GSEP	344936.9	5786600	12.47	1P	7	103.57	0.9	0.888	0.7992	0.971	279.4	0.7992	0.971	279.4	279.4		279.4
					2I	7	103.57	0.9	0.1909	0.1718			0.1718					
MWS13	GSEP	344928.9	5786535	12.8	2I	7	103.57	0.9	0.1148	0.1034	0.1034	29.7	0.1034	0.1034	29.7	29.7		29.7
MWS14	GSEP	344919.4	5786457	13.19	2I	7	103.57	0.9	0.0689	0.062	0.062	17.8	0.062	0.062	17.8	17.8		17.8
MWS15	GSEP	344913.7	5786410	13.43	1P	7	103.57	0.9	1.3403	1.2063	1.3782	396.5	1.2063	1.3782	396.5	396.5		396.5
					2I	7	103.57	0.9	0.191	0.1719			0.1719					
MWS16	GSEP	344918.7	5786386	13.6														0
MWS17	GSEP	344942.2	5786376	13.64	2I	7	103.57	0.9	0.0765	0.0688	0.0688	19.8	0.0688	0.0688	19.8	19.8	350	369.8
MWS18	GSEP	345002.8	5786369	14.53	2I	7	103.57	0.9	0.0854	0.0769	0.0769	22.1	0.0769	0.0769	22.1	22.1		22.1
MWS19	GSEP	345072.8	5786360	15.34	1P	18	64.5	0.9	15.0535	13.5481	13.5481	2427.3	13.5481	13.5481	2427.3	2427.3		2427.3
S1	GSEP	344406.4	5786760	10.58	1P	7	103.57	0.9	7.7358	6.9622	7.1251	2049.9	6.9622	7.1251	2049.9	2049.9	15	2064.9
					2I	7	103.57	0.9	0.181	0.1629			0.1629					
S2	GSEP	344480.5	5786754	10.85	1P	7	103.57	0.9	2.831	2.5479	2.6897	773.8	2.5479	2.6897	773.8	773.8	17.1	790.9
					2I	7	103.57	0.9	0.1575	0.1418			0.1418					
S3	GSEP	344579	5786740	11.04	1P	7	103.57	0.9	1.3305	1.1975	1.3063	375.8	1.1975	1.3063	375.8	375.8	14.2	390
					2I	7	103.57	0.9	0.1209	0.1088			0.1088					
S4	GSEP	344667.7	5786723	11.18	1P	7	103.57	0.9	1.8598	1.6738	1.7741	510.4	1.6738	1.7741	510.4	510.4	13.4	523.8
					2I	7	103.57	0.9	0.1115	0.1003			0.1003					
S5	GSEP	344757	5786712	11.33	1P	7	103.57	0.9	2.1719	1.9547	2.0504	589.9	1.9547	2.0504	589.9	589.9	12.7	602.6
					2I	7	103.57	0.9	0.1063	0.0957			0.0957					
S6	GSEP	344841.9	5786702	11.46	1P	7	103.57	0.9	0.3997	0.3597	0.6123	176.2	0.3597	0.6123	176.2	176.2	1120	1296.2
					2I	7	103.57	0.9	0.2806	0.2525			0.2525					
MWS20	GSEP	344921.9	5786656	12.2	2I	7	103.57	0.9	0.0886	0.0797	0.0797	22.9	0.0797	0.0797	22.9	22.9	1086	1108.9
S7	GSEP	344915.5	5786603	12.47	1P	7	103.57	0.9	0.6072	0.5464	0.635	182.7	0.5464	0.635	182.7	182.7		182.7
					2I	7	103.57	0.9	0.0984	0.0886			0.0886					
S8	GSEP	344907.6	5786538	12.8	1P	7	103.57	0.9	0.5723	0.5151	0.6214	178.8	0.5151	0.6214	178.8	178.8		178.8
					2I	7	103.57	0.9	0.1182	0.1064			0.1064					
S9	GSEP	344898	5786460	13.19	1P	7	103.57	0.9	0.681	0.6129	0.6769	194.7	0.6129	0.6769	194.7	194.7		194.7
					2I	7	103.57	0.9	0.0711	0.064			0.064					
S10	GSEP	344892.3	5786413	13.43	1P	7	103.57	0.9	0.9155	0.8239	0.9124	262.5	0.8239	0.9124	262.5	262.5		262.5
					2I	7	103.57	0.9	0.0983	0.0885			0.0885					
S14	GSEP	344940.3	5786360	13.64	2I	7	103.57	0.9	0.0763	0.0687	0.0687	19.8	0.0687	0.0687	19.8	19.8	350	369.8
S13	GSEP	344915.2	5786360	13.61														0
S12	GSEP	344905.7	5786345	13.76	2I	7	103.57	0.9	0.038	0.0342	0.0342	9.8	0.0342	0.0342	9.8	9.8		9.8
S11	GSEP	344884.4	5786348	13.76	1P	7	103.57	0.9	0.6259	0.5633	0.5981	172.1	0.5633	0.5981	172.1	172.1		172.1
					2I	7	103.57	0.9	0.0387	0.0348			0.0348					
S15	GSEP	345000.9	5786353	14.53	1P	11	88.81	0.9	2.1934	1.9741	2.0509	477.5	1.2562	1.3331	383.5	477.5		477.5
					2I	7	103.57	0.9	0.0854	0.0769			0.0769					
MWS21	GSEP	344965.4	5786566	12.1	2I	7	103.57	0.9	0.0765	0.0688	0.0688	19.8	0.0688	0.0688	19.8	19.8	350	369.8
MWS22	GSEP	345025.7	5786559	13.02	2I	7	103.57	0.9	0.0898	0.0808	0.0808	23.3	0.0808	0.0808	23.3	23.3		23.3
MWS23	GSEP	345095.6	5786550	14.69	1I	18	64.5	0.9	14.0883	12.6795	12.6795	2271.7	12.6795	12.6795	2271.7	2271.7		2271.7
S17	GSEP	345023.7	5786544	13.05	1P	12	80.18	0.9	1.2743	1.1468	1.2235	272.5	0.669	0.7457	214.5	272.5		272.5
					2I	7	103.57	0.9	0.0852	0.0767			0.0767					
S16	GSEP	344963.5	5786551	12.24	2I	7	103.57	0.9	0.0757	0.0682	0.0682	19.6	0.0682	0.0682	19.6	19.6	350	369.6
S20	GSEP	344970.3	5786702	12.57	2I	7	103.57	0.9	0.0726	0.0653	0.0653	18.8	0.0653	0.0653	18.8	18.8		18.8
S19	GSEP	345028.3	5786694	13	2I	7	103.57	0.9	0.1666	0.1499	0.1499	43.1	0.1499	0.1499	43.1	43.1		43.1
S18	GSEP	345026.4	5786679	12.99	2I	7	103.57	0.9	0.1721	0.1549	0.1549	44.6	0.1549	0.1549	44.6	44.6		44.6
S18A	GP	345076.1	5786671	13.39														0

MAJOR STORM EVENT HYDROLOGY REPORT

NOT TO BE USED FOR CONSTRUCTION

REF	ZONE	REVISION	DATE	APP'D.
B		MELBOURNE WATER ISSUE	15/01/16	TL
A		TENDER ISSUE	20/11/15	TL

DRAWN	J.CAPPELLARI	26/10/15 1241192
DESIGNED	J.CAPPELLARI	1241215 26/10/15
VERIFIED	T.THAVENDRAN	25/11/15
AUDITED	-	-
AUTHORISED BY	-	-

TENDER

PLAN REFERENCE	11600SCP05
MELWAY REFERENCE	128 H1
WATER COMPANY FILE No.	0707/36

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MELBOURNE WATER

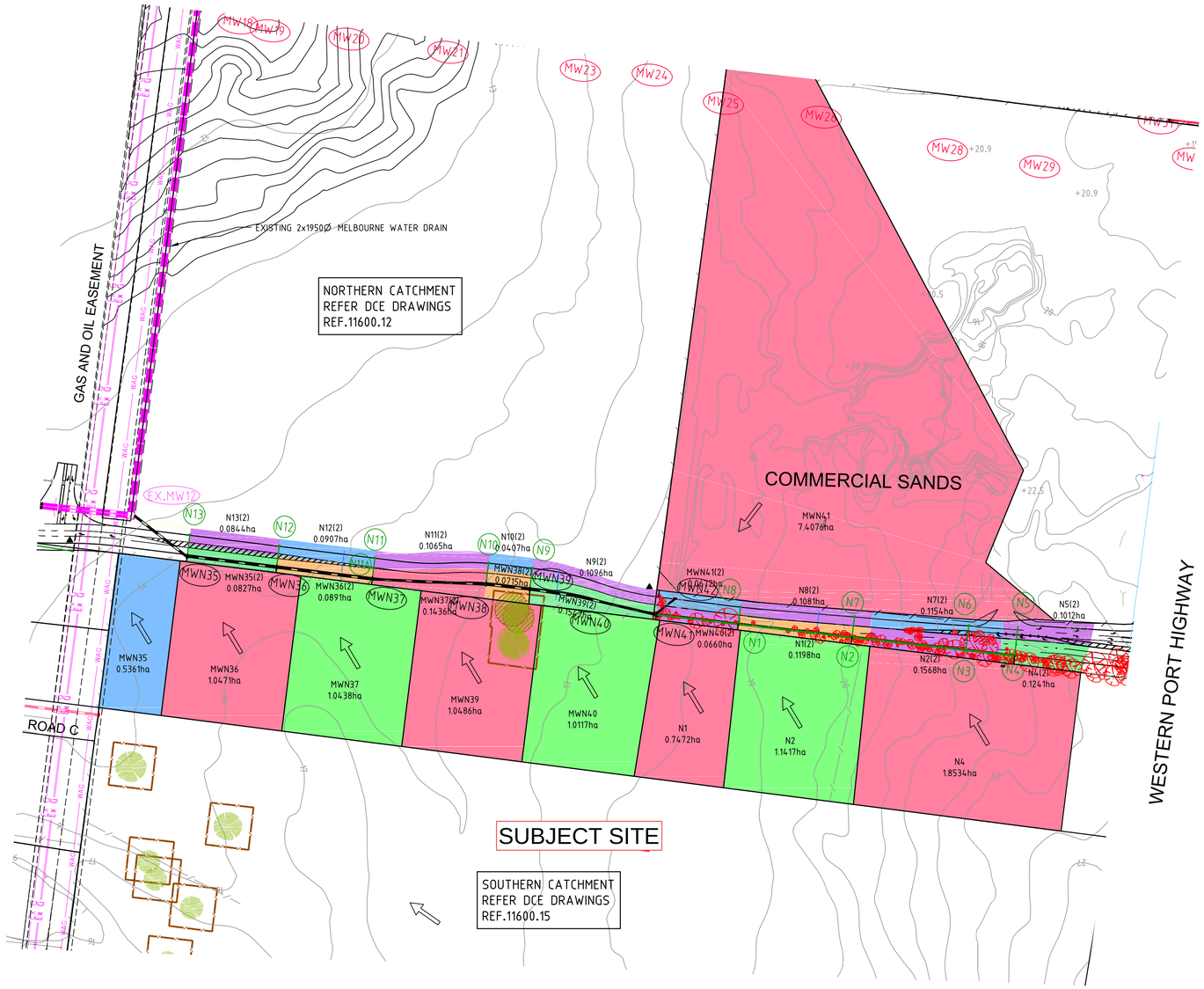
CITY OF GREATER DANDENONG
0707/36 RODDS DRAIN - SECTION 36
155 WESTERN PORT HIGHWAY, DANDENONG SOUTH
HYDRAULICS AND HYDROLOGY SHEET 04 OF 04

SCALE:
SHEET C05 of 18
DRAWING NO. 0707/36 (S1) C05
B
A

Drawing File: G:\Designdata\11600\11600_15 225 Glasscks Rd- Stage 1 MW Drain\Acad\RD\11600_15CP01 South.dwg - 11600SCP05
Date/Time: Tue Jan 19, 2016 - 11:36am --Richard.Sosenko--

A1
150mm

Appendix C: Rodds Drain Northern Catchment Plans



Hor 1:2500 0m 25m 50m 100m 150m

NOT TO BE USED FOR CONSTRUCTION

REF	ZONE	REVISION	DATE	APP'D.
A		COUNCIL ISSUE	20/11/15	TL

LEGEND

- COUNCIL STORMWATER DRAIN & PIT
- MELBOURNE WATER DRAIN & PIT
- S5 COUNCIL DRAIN SOUTHERN CATCHMENT
- FUTURE MELBOURNE WATER DRAIN & PIT
- FUTURE COUNCIL STORMWATER DRAIN & PIT
- MWN2 MELBOURNE WATER DRAIN NORTHERN CATCHMENT

DRAWN	J.CAPPELLARI 02/11/15 1241194	TENDER
DESIGNED	J.CAPPELLARI 1241222 02/11/15	PLAN REFERENCE 11600SCP01
VERIFIED	T.THAVENDRAN 24/11/15	MELWAY REFERENCE 128 J1
AUDITED	- -	WATER COMPANY FILE No. 0707/36
AUTHORISED BY	- -	

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MELBOURNE WATER

CITY OF GREATER DANDENONG
0707/36 RODDS DRAIN - SECTION 36
155 WESTERN PORT HIGHWAY, DANDENONG SOUTH
Q20 CATCHMENT PLAN

SCALE: 1:2500/1:5000
SHEET C1 of 07
DRAWING NO. 0707/36 (S2) C1
A

A1
0 10 20 30 40 50 60 70 80 90 100
150mm

12D MODEL - HYDRAULIC DESIGN SHEET

Project:	Drainage
Drainage Model:	d drain Allen 20 yr Council June 2015
Rainfall File:	AUS VIC DandenongCC.12dhydro
Rainfall Method:	ARR 1977
Pipe Cover Limit:	1.1 m
Manning n Roughness:	0.013
Freeboard Limit:	0.3 m

Minor 20 Year Storm Event

Pipe ID	Pipe Type	Pipe Length	Pipe Size	Full Pipe Area Af	Pipe Grade	Pipe Grade	Full-area Tct	Full-area I	Full-area Sum CA	Full-area Qc=CIA	Part-area Tct	Part-area I	Part-area Sum CA	Part-area Qc=CIA	Catchment Flow Qc	Direct Pit Flow Qdg	Peak Flow Qrat	Pipe Flow Q	Capacity Flow Qcap	Q/Qcap Ratio	Full Pipe Vel Vf=Q/Af	Norm Depth Vel Vn=Q/An	Crit Depth Vel Vc=Q/Ac	Capacity Vel Vcap=Qcap/Af	US Pit Grate RL	Pipe US IL	Pipe DS IL	DS Pit Grate RL	Cover Min	Pipe DS Bend	Pipe DS Drop	US Pit Ku	US Pit Kw	P'head Loss V'head	P'head Loss (Ku.V'head)	WSE Loss (Kw.V'head)	Pipe T'head Loss	US Pit HGL	Pipe US HGL	Pipe DS HGL	DS Pit HGL	HGL Grade	HGL Grade	F'board US
(-)	(-)	(m)	(mm)	(sq.m)	(%)	(1 in)	(min)	(mm/hr)	(ha)	(L/s)	(min)	(mm/hr)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(-)	(m/s)	(m/s)	(m/s)	(m/s)	(m)	(m)	(m)	(m)	(m)	(deg)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(%)	(1 in)	(m)
MWN35 to EX.MW12	RCP	51.3	1500	1.767	0.5	200.3	16.84	66.92	15.9353	2962.3	10.01	87.84	12.8932	3146	3146	582	3728	3728	4997.4	0.75	2.11	3.1	2.96	2.83	13.94	10.24	9.98	13.24	1.76	0	1.75	0.57		0.23	0.13	0.53	11.87	11.74	10.95	10.95	1.54	64.9	2.07
MWN36 to MWN35	RCP	66.95	1500	1.767	0.67	150	16.52	67.64	15.3024	2875.2	9.68	89.26	12.2603	3039.8	3039.8	582	3621.8	3621.8	5773.9	0.63	2.05	3.45	2.92	3.27	14.27	10.72	10.27	13.94	2.05	-28.2	0.03	0.58		0.21	0.12	0.35	12.34	12.22	11.87	11.87	0.52	192.5	1.93
MWN37 to MWN36	RCP	71.52	1500	1.767	0.67	150	16.17	68.44	14.1982	2699.3	9.33	90.86	11.1561	2815.6	2815.6	582	3397.6	3397.6	5774.4	0.59	1.92	3.4	2.85	3.27	14.63	11.24	10.77	14.27	1.88	0	0.05	0.63		0.19	0.12	0.4	12.86	12.74	12.34	12.34	0.56	177.2	1.77
MWN38 to MWN37	RCP	84.57	1500	1.767	0.67	150	15.74	69.44	13.0337	2514	8.91	92.88	9.9916	2577.8	2577.8	582	3159.8	3159.8	5774.2	0.55	1.79	3.34	2.77	3.27	15.21	11.86	11.29	14.63	1.64	-4.4	0.05	0.24		0.16	0.04	0.49	13.4	13.36	12.86	12.86	0.58	171.1	1.82
MWN39 to MWN38	RCP	32.65	1500	1.767	0.67	150	15.58	69.83	12.9328	2508.7	8.75	93.69	9.8907	2574	2574	582	3156	3156	5774.2	0.55	1.79	3.34	2.77	3.27	15.6	12.13	11.91	15.21	1.81	4	0.05	0.66		0.16	0.11	0.23	13.73	13.63	13.4	13.4	0.7	143.1	1.87
MWN40 to MWN39	RCP	35.12	1500	1.767	0.67	150	15.4	70.27	11.7513	2293.9	8.57	94.6	8.7092	2288.6	2293.9	582	2875.9	2875.9	5774.3	0.5	1.63	3.26	2.67	3.27	16.08	13.18	12.94	15.6	1.17	1.6	0.815	0.21		0.14	0.03	0.61	14.7	14.68	13.73	13.73	2.68	37.3	1.38
MWN41 to MWN40	RCP	60.79	1500	1.767	0.64	156.1	15.09	71.06	11.7513	2319.6	8.25	96.25	8.7092	2328.5	2328.5	582	2910.5	2910.5	5660.6	0.51	1.65	3.22	2.68	3.2	17.52	13.56	13.18	16.08	1.42	4.8	0	1.83	2.14	0.14	0.25	0.3	0.36	15.36	15.06	14.7	14.7	0.59	168.7	2.16
MWN42 to MWN41	RCP	12.9	1050	0.866	0.5	200	15	71.29	6.7274	1332.1	7	103.57	3.1717	912.5	1332.1	80	1412.1	1412.1	1931.7	0.73	1.63	2.43	2.4	2.23	17.51	14.98	14.91	17.52	1.35	-95.9	1.35	7.3		0.14	0.99	0.28	17.02	16.03	15.58	15.36	3.47	28.8	0.49
N1 to MWN41	RCP	61.23	900	0.636	1	100	8.18	96.63	4.054	1088.2	7.91	98.12	4.0502	1104	1104		1104	1104	1811	0.61	1.74	2.99	2.35	2.85	18.41	15.68	15.06	17.52	1.56	-5.9	1.5	1.01		0.15	0.16	0.7	16.73	16.58	15.57	15.36	1.64	60.9	1.68
N10 to MWN38	RCP	15.52	300	0.071	5	20	7	103.57	0.0366	10.5	7	103.57	0.0366	10.5	10.5		10.5	10.5	216.3	0.05	0.15	1.58	0.73	3.06	15.23	13.83	13.06	15.21	0.96	-85.7	1.2	9.7		0	0.01	0.74	14.15	14.13	13.4	13.4	4.75	21.1	1.08
N11 to MWN37	RCP	15.5	300	0.071	5	20	7	103.57	0.0958	27.6	7	103.57	0.0958	27.6	27.6		27.6	27.6	216.3	0.13	0.39	2.1	0.97	3.06	14.64	13.22	12.44	14.63	0.98	-90	1.2	9.7		0.01	0.08	0.66	13.59	13.52	12.86	12.86	4.23	23.6	1.05
N12 to MWN36	RCP	15.5	300	0.071	5	20	7	103.57	0.0816	23.5	7	103.57	0.0816	23.5	23.5		23.5	23.5	216.3	0.11	0.33	2	0.92	3.06	14.28	12.69	11.92	14.27	1.15	-90	1.2	9.7		0.01	0.05	0.65	13.05	12.99	12.34	12.34	4.2	23.8	1.24
N13 to MWN35	RCP	15.5	300	0.071	5	20	7	103.57	0.076	21.9	7	103.57	0.076	21.9	21.9		21.9	21.9	216.3	0.1	0.31	1.96	0.9	3.06	13.95	12.22	11.44	13.94	1.29	-118.2	1.2	9.7		0	0.05	0.65	12.56	12.52	11.87	11.87	4.17	24	1.38
N2 to N1	RCP	84.99	825	0.535	2	50	7.8	98.77	3.2033	878.9	7.53	100.35	3.1995	891.8	891.8		891.8	891.8	2030.9	0.44	1.67	3.67	2.26	3.8	19.95	17.43	15.73	18.41	1.38	-0.5	0.05	1.65		0.14	0.23	1.52	18.49	18.25	16.73	16.73	1.79	56	1.47
N3 to N2	RCP	85.02	750	0.442	5	20	7.48	100.59	1.9686	550.1	7.21	102.23	1.9648	558	558		558	558	2490.4	0.22	1.26	4.54	1.96	5.64	23.94	21.73	17.48	19.95	1.45	0	0.05	0.35		0.08	0.03	3.99	22.51	22.48	18.49	18.49	4.7	21.3	1.43
N4 to N3	RCP	36.46	750	0.442	1.43	70	7.27	101.88	1.8693	529	7	103.57	1.8658	536.8	536.8		536.8	536.8	1331.2	0.4	1.22	2.85	1.93	3.01	24.47	22.3	21.78	23.94	1.42	0	0.05	7.63	7.69	0.08	0.57	0.58	0.54	23.63	23.05	22.51	22.51	1.49	67.2	0.84
N5 to N4	RCP	21.56	300	0.071	1.43	70	7	103.57	0.0916	26.4	7	103.57	0.0916	26.4	26.4		26.4	26.4	115.6	0.23	0.37	1.32	0.96	1.64	24.55	23.06	22.75	24.47	1.06	-90	0.45	6.59		0.01	0.05	0.02	23.69	23.64	23.62	23.63	0.07	1347	0.86
N6 to N3	RCP	18.28	300	0.071	2	50	7	103.57	0.0409	11.8	7	103.57	0.0409	11.8	11.8		11.8	11.8	136.8	0.09	0.17	1.18	0.76	1.94	24.06	22.54	22.18	23.94	1.08	-89.5	0.45	9.7		0	0.01	0.34	22.86	22.84	22.51	22.51	1.84	54.2	1.2
N7 to N2	RCP	15.21	300	0.071	3.33	30	7	103.57	0.093	26.8	7	103.57	0.093	26.8	26.8		26.8	26.8	176.6	0.15	0.38	1.8	0.96	2.5	20.02	18.46	17.95	19.95	1.14	-89.5	0.525	9.7		0.01	0.07	0.27	18.83	18.76	18.49	18.49	1.8	55.7	1.2
N8 to N1	RCP	12.88	300	0.071	5	20	7	103.57	0.0878	25.3	7	103.57	0.0878	25.3	25.3		25.3	25.3	216.3	0.12	0.36	2.05	0.94	3.06	18.41	16.92	16.28	18.41	1.06	-90	0.6	9.7		0.01	0.06	0.49	17.28	17.22	16.73	16.73	3.79	26.4	1.12
N9 to MWN39	RCP	15.5	300	0.071	0.5	200	7	103.57	0.0986	28.4	7	103.57	0.0986	28.4	28.4		28.4	28.4	68.4	0.41	0.4	0.92	0.98	0.97	15.6	14.22	14.14	15.6	0.94	-89.5	2.015	9.7		0.01	0.08	0.21	14.6	14.52	14.27	13.73	1.6	62.3	1

MINOR STORM EVENT HYDRAULICS REPORT

NOT TO BE USED FOR CONSTRUCTION

REF	ZONE	REVISION	DATE	APP'D.
A		COUNCIL ISSUE	20/11/15	TL

DRAWN	J.CAPPELLARI 1241194	02/11/15
DESIGNED	J.CAPPELLARI 1241223	02/11/15
VERIFIED	T.THAVENDRAN	24/11/15
AUDITED	-	-
AUTHORISED BY	-	-

TENDER

PLAN REFERENCE	11600SCP02
MELWAY REFERENCE	128 J1
WATER COMPANY FILE No.	0707/36

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MELBOURNE WATER
CITY OF GREATER DANDENONG
0707/36 RODDS DRAIN - SECTION 36
155 WESTERN PORT HIGHWAY, DANDENONG SOUTH
HYDRAULICS AND HYDROLOGY SHEET 01 OF 02

SCALE:
SHEET C2 of 07
DRAWING NO. 0707/36 (S2) C2
A

12D MODEL - HYDROLOGICAL DESIGN SHEET

Project:	Drainage
Drainage Model:	d drain Allen 20 yr Council June 2015
Rainfall File:	AUS VIC DandenongCC.12dhydro
Tc Method:	Direct
Rainfall Method:	ARR 1977
Runoff C Method:	Direct

Minor 20 Year Storm Event

Pit Name	Pit Type	Setout Easting	Setout Northing	Setout RL	Catch ID	Time Tc	Intensity I	Runoff C	Area A	Full CA	Full Sum CA	Full Qc=CIA	Partial CA	Partial Sum CA	Partial Qc=CIA	Catchmen Flow Qc	Direct Flow Qdg	Approach Flow Qa	Choke Factor	Inlet Flow Qg	Bypass Flow Qb	Bypass Pit
(-)	(-)	(m)	(m)	(m)	(-)	(min)	(mm/hr)	(-)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(-)	(L/s)	(L/s)	(-)
EX.MW12	SEP	345119.7	5786698	13.24																		
MWN35	SEP	345161.6	5786668	13.94	1P	7	103.57	0.9	0.5361	0.4825	0.5569	160.2	0.4825	0.5569	160.2	160.2		160.2		160.2		-
					2I	7	103.57	0.9	0.0827	0.0744			0.0744									
MWN36	SEP	345228	5786660	14.27	1P	7	103.57	0.9	1.0471	0.9424	1.0226	294.2	0.9424	1.0226	294.2	294.2		294.2		294.2		-
					2I	7	103.57	0.9	0.0891	0.0802			0.0802									
MWN37	SEP	345299	5786651	14.63	1P	7	103.57	0.9	1.0438	0.9394	1.0687	307.5	0.9394	1.0687	307.5	307.5		307.5		307.5		-
					2I	7	103.57	0.9	0.1436	0.1293			0.1293									
MWN38	SEP	345383.5	5786647	15.21	2I	7	103.57	0.9	0.0715	0.0643	0.0643	18.5	0.0643	0.0643	18.5	18.5		18.5		18.5		-
MWN39	SEP	345415.9	5786644	15.6	1P	7	103.57	0.9	1.0486	0.9437	1.0829	311.5	0.9437	1.0829	311.5	311.5		311.5		311.5		-
					2I	7	103.57	0.9	0.1547	0.1392			0.1392									
MWN40	JP	345450.7	5786639	16.08														0		0		-
MWN41	SEP	345509.9	5786625	17.52	1P	7	103.57	0.9	1.0117	0.9105	0.9699	279	0.9105	0.9699	279	279	502	781		781		-
					2I	7	103.57	0.9	0.066	0.0594			0.0594									
N1	SEP	345570.7	5786617	18.41	1P	7	103.57	0.9	0.7472	0.6725	0.7629	219.5	0.6725	0.7629	219.5	219.5		219.5		219.5		-
					2I	7	103.57	0.9	0.1005	0.0905			0.0905									
N2	SEP	345655.1	5786608	19.95	1P	7	103.57	0.9	1.1417	1.0275	1.1416	328.4	1.0275	1.1416	328.4	328.4		328.4		328.4		-
					2I	7	103.57	0.9	0.1268	0.1141			0.1141									
N3	SEP	345739.6	5786598	23.94	2I	7	103.57	0.9	0.0649	0.0584	0.0584	16.8	0.0584	0.0584	16.8	16.8		16.8		16.8		-
N4	SEP	345775.8	5786594	24.47	1P	7	103.57	0.9	1.8534	1.668	1.7777	511.4	1.668	1.7777	511.4	511.4		511.4		511.4		-
					2I	7	103.57	0.9	0.1049	0.0944			0.0944									
					3P	7	103.57	0.2	0.076	0.0152			0.0152									
N5	SEP	345778.3	5786615	24.55	2I	7	103.57	0.9	0.0872	0.0785	0.0916	26.4	0.0785	0.0916	26.4	26.4		26.4		26.4		-
					3P	7	103.57	0.2	0.0659	0.0132			0.0132									
N6	SEP	345741.8	5786616	24.06	2I	7	103.57	0.9	0.0455	0.0409	0.0409	11.8	0.0409	0.0409	11.8	11.8		11.8		11.8		-
N7	SEP	345657	5786623	20.02	2I	7	103.57	0.9	0.1034	0.093	0.093	26.8	0.093	0.093	26.8	26.8		26.8		26.8		-
N8	SEP	345572.3	5786630	18.41	2I	7	103.57	0.9	0.0976	0.0878	0.0878	25.3	0.0878	0.0878	25.3	25.3		25.3		25.3		-
MWN42	SEP	345511.5	5786638	17.51	1P	15	71.29	0.9	7.4076	6.6669	6.7274	1332.1	3.1112	3.1717	912.5	1332.1	80	1412.1		1412.1		-
					2I	7	103.57	0.9	0.0672	0.0605			0.0605									
N9	SEP	345417.8	5786659	15.6	2I	7	103.57	0.9	0.1096	0.0986	0.0986	28.4	0.0986	0.0986	28.4	28.4		28.4		28.4		-
N10	SEP	345385.3	5786663	15.23	2I	7	103.57	0.9	0.0407	0.0366	0.0366	10.5	0.0366	0.0366	10.5	10.5		10.5		10.5		-
N11	SEP	345300.9	5786667	14.64	2I	7	103.57	0.9	0.1065	0.0958	0.0958	27.6	0.0958	0.0958	27.6	27.6		27.6		27.6		-
N12	SEP	345229.9	5786675	14.28	2I	7	103.57	0.9	0.0907	0.0816	0.0816	23.5	0.0816	0.0816	23.5	23.5		23.5		23.5		-
N13	SEP	345163.5	5786684	13.95	2I	7	103.57	0.9	0.0844	0.076	0.076	21.9	0.076	0.076	21.9	21.9		21.9		21.9		-

MINOR STORM EVENT HYDROLOGY REPORT

NOT TO BE USED FOR CONSTRUCTION

REF	ZONE	REVISION	DATE	APP'D.
A		COUNCIL ISSUE	20/11/15	TL

DRAWN	J.CAPPELLARI 1241194	02/11/15
DESIGNED	J.CAPPELLARI 1241224	02/11/15
VERIFIED	T.THAVENDRAN	24/11/15
AUDITED	-	-
AUTHORISED BY	-	-

TENDER

PLAN REFERENCE	11600SCP03
MELWAY REFERENCE	128 J1
WATER COMPANY FILE No.	0707/36

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MELBOURNE WATER

CITY OF GREATER DANDENONG
0707/36 RODDS DRAIN - SECTION 36
155 WESTERN PORT HIGHWAY, DANDENONG SOUTH
HYDRAULICS AND HYDROLOGY SHEET 02 OF 02

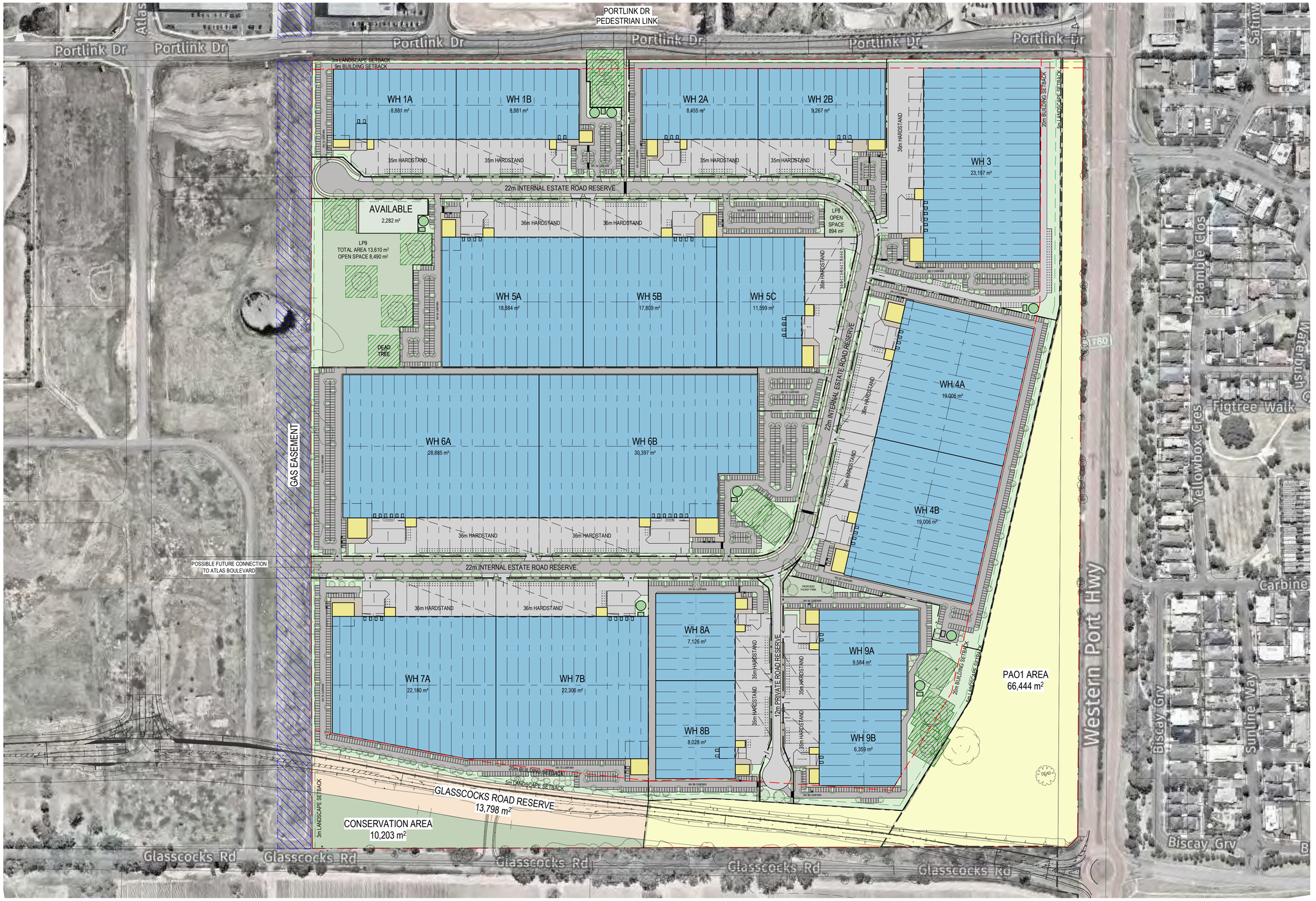
SCALE:

SHEET C3 of 07

DRAWING NO. 0707/36 (S2) C3 A

A1

Appendix D: Development Plan



DEVELOPMENT ANALYSIS

	WH	OFFICE	GLA	PARKING REGULAR	PARKING DEFERRED
WH 1A	8,881 m²	540 m²	9,420 m²	60	15
WH 1B	8,881 m²	541 m²	9,422 m²	64	11
WH 2A	8,455 m²	545 m²	9,000 m²	54	18
WH 2B	9,267 m²	553 m²	9,820 m²	59	20
WH 3	23,197 m²	1,386 m²	24,583 m²	150	46
WH 4A	19,006 m²	1,144 m²	20,150 m²	132	29
WH 4B	19,006 m²	1,144 m²	20,150 m²	136	25
WH 5A	18,884 m²	1,135 m²	20,020 m²	129	31
WH 5B	17,809 m²	1,066 m²	18,875 m²	132	19
WH 5C	11,599 m²	831 m²	12,430 m²	83	18
WH 6A	28,885 m²	1,731 m²	30,616 m²	201	44
WH 6B	30,397 m²	1,819 m²	32,217 m²	222	36
WH 7A	22,180 m²	1,336 m²	23,516 m²	159	29
WH 7B	22,306 m²	1,337 m²	23,643 m²	151	38
WH 8A	7,126 m²	497 m²	7,623 m²	50	12
WH 8B	8,028 m²	505 m²	8,533 m²	45	18
WH 9A	9,584 m²	585 m²	10,169 m²	62	19
WH 9B	6,359 m²	470 m²	6,828 m²	46	9
	279,850 m²	17,167 m²	297,016 m²	1935	437
			PARKING RATIO	0.65	0.15

TOTAL SITE AREA	623,260 m²	
PAO1 AREA	66,444 m²	
GLASSCOCKS ROAD RESERVE	13,798 m²	90,445 m²
CONSERVATION AREA	10,203 m²	
INTERNAL ROAD RESERVE	31,685 m²	35,666 m²
PRIVATE ROAD RESERVE	3,981 m²	
PEDESTRIAN LINK	400 m²	
TREE CONSERVATION AREA & OPEN SPACES	21,936 m²	
DEVELOPABLE AREA	474,813 m²	
SITE EFFICIENCY	62.55%	
LANDSCAPING AREA	37,132 m²	
LANDSCAPING % OF DEVELOPABLE AREA	7.82%	

LEGEND

- PAO1 AREA
- GLASSCOCKS ROAD RESERVE
- CONSERVATION AREA
- HARDSTAND
- CAR PARK
- INTERNAL ROAD
- AREA OF GRASS / LANDSCAPING
- WAREHOUSE
- OFFICE
- AVAILABLE SITE
- SITE BOUNDARY
- ESTATE BOUNDARY
- BUILDING SETBACK
- LANDSCAPE SETBACK

DRAWING REFERENCE:

- PAO1 AREA: *Definition Plan: 265 Dandenong-Hastings Road Dandenong South 3175 (Page from Vendor Statement PDF)*
- GLASSCOCKSS ROAD RESERVE: *GLASSCOCKSs - Taylors Road IFC Design Base_2017.01.19*
- DANDENONG SOUTH MASTERPLAN: *11600 XREF POS (MASTER)*
- GLASSCOCKSS ROAD WIDENING INTERSECTION: *GLASSCOCKSS RD IMP220350-SKT-02-A.dwg*

No.	DATE:	REVISION:	BY:	CHK:
P1	18-07-2023	PRELIMINARY ISSUE	JG	JF
P2	04-08-2023	PRELIMINARY ISSUE	JG	JG
P3	18-08-2023	PRELIMINARY ISSUE	JG	JG

All areas indicated are indicative for design and planning purposes only and should not be used for any contractual reasons without verification by a licensed surveyor or further design development being completed.

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PROJECT:
DHR
265 DANDENONG-HASTINGS ROAD
DANDENONG SOUTH, VIC

TITLE:
PROPOSED MASTERPLAN
ULTIMATE CONCEPT SITE PLAN

PROJECT NORTH

CLIENT:
Aliro

DATE: DECEMBER, 2022
DRAWN BY: JG
SCALE: 1:2000 @ A1
SCALE: 1:4000 @ A3

JOB NO: 22090
DRAWING NO: SK07
REVISION: P3

watson young

Appendix E: Drainage Calculations

DALTON CONSULTING ENGINEERS

Stormwater Calculations

265 DANDENONG-HASTINGS ROAD

REVISION C - 21/03/2024

Aliro

ISPT SUPER PROPERTY

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MAJOR STORM EVENT CATCHMENT PLAN

PROJECT DETAILS	
Job Description:	265 Dandenong Road
Job Number:	22086
Compiled by:	CV
Date:	17/01/2024

Paste Catchment Plan Here

MAJOR STORM EVENT HYDROLOGY COMPUTATIONS

PROJECT DETAILS	
Job Description:	265 Dandenong Road
Job Number:	22086
Compiled by:	CV
Date:	17/01/2024
Council:	OTHER
Minor Storm Frequency 1:	5% AEP
Minor Storm Frequency 2:	5% AEP
Major Storm Frequency:	1% AEP
Blockage Factor (%):	

C'10	0.11982852

RAINFALL DATA							
Source	Greater Dandenong Council Guidelines						
Latitude	-38.05814818	Longitude	145.238913	Zone	55	Date	21/03/2024

MINOR TIME OF CONCENTRATION

$$T_c = t_i + L/(v/60)$$

Where…
L = Length of flow path, (m)
v = Assumed Pipe Velocity
= 1.5 m/s

*based on 12d pipe flow downstream

MAJOR TIME OF CONCENTRATION

$$T_c = t_i + L/(v/60)$$

Where…
L = Length of flow path, (m)
v = Assumed Pipe Velocity
= 1 m/s

*Based on MW LDM overland flow req.
* 0.5m/s for pre-developed fows

PEAK FLOW
Based on the Rational Method:

$$Q = CIA$$

Where….
Q = Peak Flow (cu.m/s)
C = Co-Efficient of Runoff
I = Rainfall Intensity, (mm/hr)
A= Area (hectares)

CATCHMENT DETAILS (ALL AREAS IN HECTARES)						Minor 1/2?	Minor 1 Ae	Minor 2 Ae	Major Ae
	Sub-Catch 1	Sub-Catch 2	Sub-Catch 3	Sub-Catch 4	Sub-Catch 5				
Name	Industrial	Open Space	Local Roads	Lot <450sq.m	Lot <450sq.m				
Fraction Imp. (f)	0.9	0.2	0.8	0.8	0.8				
C'10	0.9	0.2	0.8	0.7	0.7				
C Minor 1	0.9	0.2	0.8	0.7	0.7				
C Minor 2	0.9	0.2	0.8	0.7	0.7				
C Major	0.9	0.2	0.8	0.9	0.9				
A		62.3				1.0	12.5	0.0	12.5
B	16.8	5.2	1.5			1.0	17.3	0.0	17.3
C	26.1	4.1	2.1			1.0	26.0	0.0	26.0
D	3.0	0.2				1.0	2.7	0.0	2.7
E		0.8	0.4			1.0	0.5	0.0	0.5

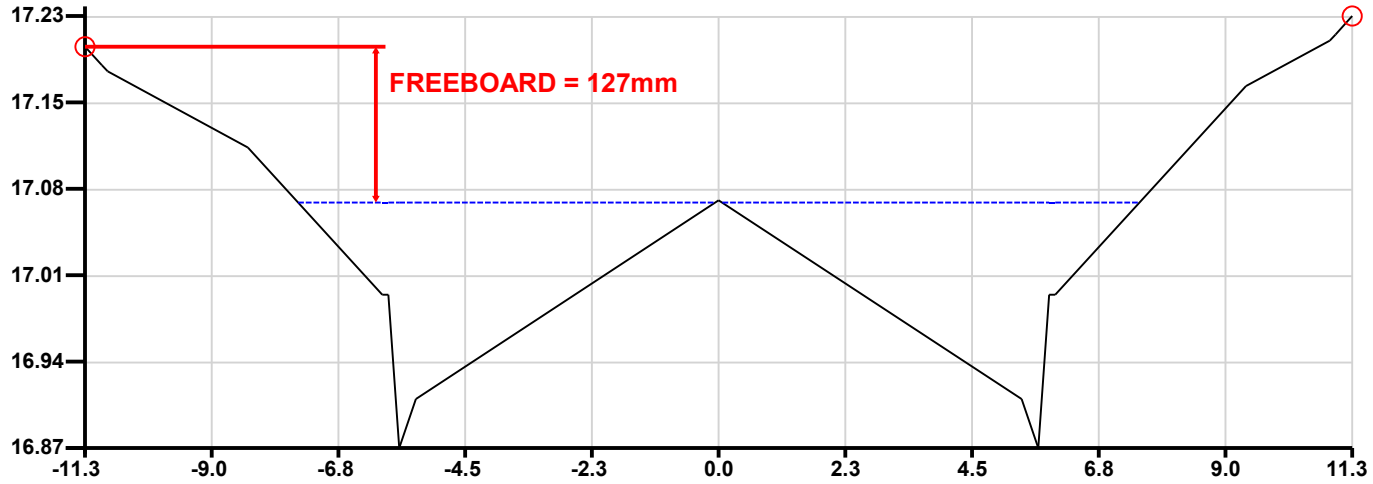
FLOW CALCULATIONS

Section	Contributing Catchments																				Length (m)	Initial T (min)	Surface	n	S = Slope (m/m)	Minor 1 ToC (min)	Minor 1 I (mm/hr)	Minor 1 Ae (ha)	Minor 1 Q (m3/s)	Minor 2 ToC (min)	Minor 2 1 (mm/hr)	Minor 2 Ae (ha)	Minor 2 Q (m3/s)	Major ToC (min)	Major I (mm/hr)	Major Ae (ha)	Major Q (m3/s)	Q Overland (m3/s)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T																			
EXIST	Y				Y																1100.0	0.0	Grass Channel	0.0350	0.013										36.67	60.84	12.93	2.18	2.18
1		Y			Y																980.0	7.0	Asphalt	0.0150	0.012	17.89	66.58	17.76	3.28					23.33	80.11	17.76	3.95	0.67
2			Y		Y																1100.0	7.0	Asphalt	0.0150	0.012	19.22	62.57	26.49	4.60					25.33	76.18	26.49	5.60	1.00
3				Y																	570.0	7.0	Asphalt	0.0150	0.005	13.33	76.92	2.70	0.58					16.50	99.11	2.70	0.74	0.17

Appendix F: PC Convey Results

PROJECT: SECTION 1
CH180
Print-out date: 07/02/2024 - Time: 4:01
Data File: Section 1.dat

1. CROSS-SECTION:



2. DISCHARGE INFORMATION:

100 year (1%) storm event

Total discharge = 0.7 cumecs

There is no pipe discharge
Overland / Channel / Watercourse discharge = 0.700 cumecs

3. RESULTS: Water surface elevation = 17.073m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.00	0.71	0.00	0.71
D(Max) = Max. Depth (m):	0.00	0.20	0.00	0.20
D(Ave) = Ave. Depth (m):	0.00	0.08	0.00	0.08
V = Ave. Velocity (m/s):	0.00	0.62	0.00	0.62
D(Max) x V (cumecs/m):	0.00	0.12	0.00	0.12
D(Ave) x V (cumecs/m):	0.00	0.05	0.00	0.05
Froude Number:	0.00	0.71	0.00	N/A
Area (m^2):	0.00	1.14	0.00	1.14
Wetted Perimeter (m):	0.00	14.96	0.00	14.96
Flow Width (m):	0.00	14.87	0.00	14.87
Hydraulic Radius (m):	0.00	0.08	0.00	0.08
Composite Manning's n:	0.000	0.021	0.000	N/A
Split Flow?	-	-	-	Yes

4. CROSS-SECTION DATA:

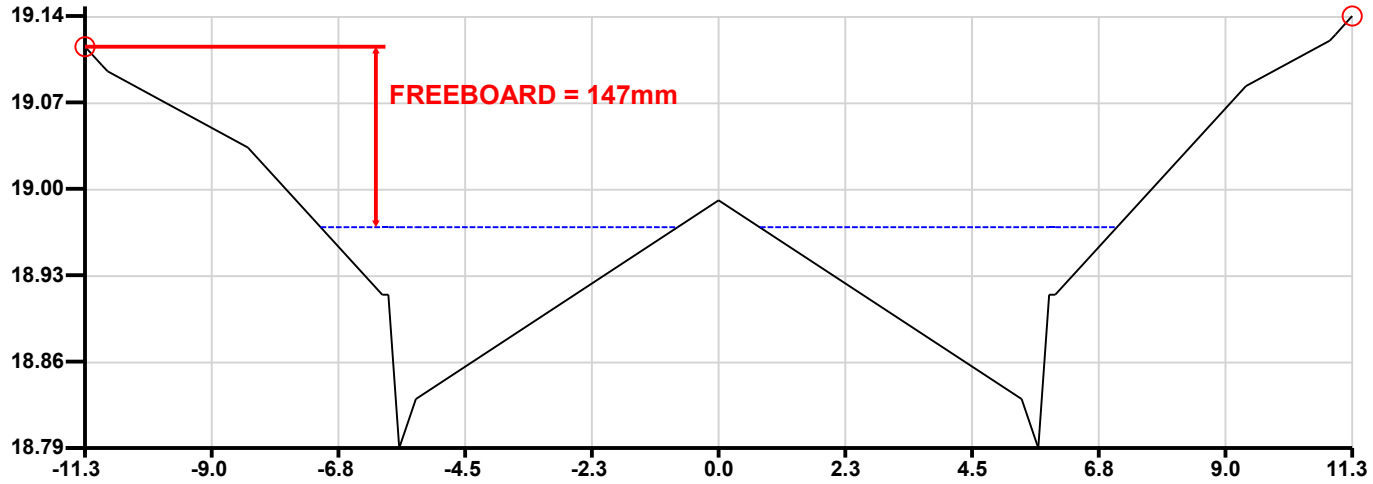
	LEFT HAND POINT		RIGHT HAND POINT		
SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-11.300	17.200	-11.000	17.185	0.035
2	-11.000	17.185	-10.900	17.180	0.035
3	-10.900	17.180	-8.400	17.118	0.013
4	-8.400	17.118	-6.000	16.998	0.035
5	-6.000	16.998	-5.890	16.998	0.013
6	-5.890	16.998	-5.700	16.873	0.013
7	-5.700	16.873	-5.400	16.913	0.013
8	-5.400	16.913	0.000	17.075	0.015
9	0.000	17.075	5.400	16.913	0.015
10	5.400	16.913	5.700	16.873	0.013
11	5.700	16.873	5.890	16.998	0.013
12	5.890	16.998	6.000	16.998	0.013

4. CROSS-SECTION DATA: (continued)

SEGMENT NO.	LEFT HAND POINT CHAINAGE (m)	LEFT HAND POINT R.L. (m)	RIGHT HAND POINT CHAINAGE (m)	RIGHT HAND POINT R.L. (m)	MANNING'S N
13	6.000	16.998	9.400	17.168	0.035
14	9.400	17.168	10.900	17.205	0.013
15	10.900	17.205	11.000	17.210	0.035
16	11.000	17.210	11.300	17.225	0.035

PROJECT: SECTION 2
CH960
Print-out date: 07/02/2024 - Time: 4:03
Data File: Section 2.dat

1. CROSS-SECTION:



2. DISCHARGE INFORMATION:

100 year (1%) storm event

Total discharge = 0.45 cumecs

There is no pipe discharge
Overland / Channel / Watercourse discharge = 0.450 cumecs

3. RESULTS: Water surface elevation = 18.969m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.00	0.51	0.00	0.51
D(Max) = Max. Depth (m):	0.00	0.18	0.00	0.18
D(Ave) = Ave. Depth (m):	0.00	0.07	0.00	0.07
V = Ave. Velocity (m/s):	0.00	0.59	0.00	0.59
D(Max) x V (cumecs/m):	0.00	0.11	0.00	0.11
D(Ave) x V (cumecs/m):	0.00	0.04	0.00	0.04
Froude Number:	0.00	0.73	0.00	N/A
Area (m^2):	0.00	0.87	0.00	0.87
Wetted Perimeter (m):	0.00	12.82	0.00	12.82
Flow Width (m):	0.00	12.73	0.00	12.73
Hydraulic Radius (m):	0.00	0.07	0.00	0.07
Composite Manning's n:	0.000	0.020	0.000	N/A
Split Flow?	-	-	-	Yes

4. CROSS-SECTION DATA:

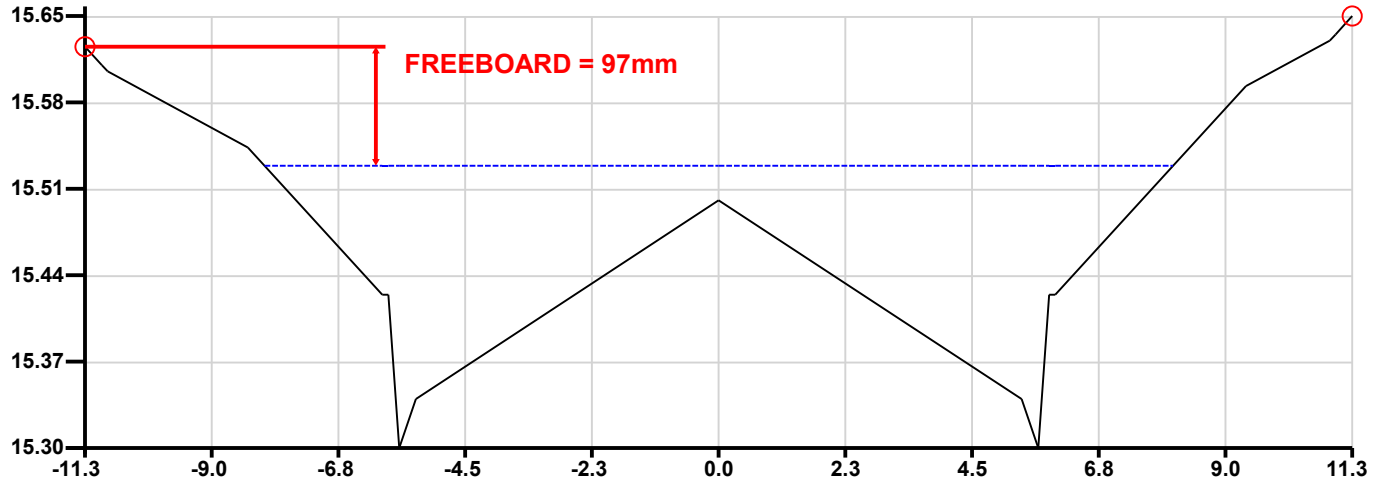
	LEFT HAND POINT		RIGHT HAND POINT		
SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-11.300	19.116	-11.000	19.101	0.035
2	-11.000	19.101	-10.900	19.096	0.035
3	-10.900	19.096	-8.400	19.034	0.013
4	-8.400	19.034	-6.000	18.914	0.035
5	-6.000	18.914	-5.890	18.914	0.013
6	-5.890	18.914	-5.700	18.789	0.013
7	-5.700	18.789	-5.400	18.829	0.013
8	-5.400	18.829	0.000	18.991	0.015
9	0.000	18.991	5.400	18.829	0.015
10	5.400	18.829	5.700	18.789	0.013
11	5.700	18.789	5.890	18.914	0.013
12	5.890	18.914	6.000	18.914	0.013

4. CROSS-SECTION DATA: (continued)

SEGMENT NO.	LEFT HAND POINT CHAINAGE (m)	LEFT HAND POINT R.L. (m)	RIGHT HAND POINT CHAINAGE (m)	RIGHT HAND POINT R.L. (m)	MANNING'S N
13	6.000	18.914	9.400	19.084	0.035
14	9.400	19.084	10.900	19.121	0.013
15	10.900	19.121	11.000	19.126	0.035
16	11.000	19.126	11.300	19.141	0.035

PROJECT: SECTION 3
CH1520
Print-out date: 07/02/2024 - Time: 4:03
Data File: Section 3.dat

1. CROSS-SECTION:



2. DISCHARGE INFORMATION:

100 year (1%) storm event

Total discharge = 0.98 cumecs

There is no pipe discharge
Overland / Channel / Watercourse discharge = 0.980 cumecs

3. RESULTS: Water surface elevation = 15.525m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.00	1.11	0.00	1.11
D(Max) = Max. Depth (m):	0.00	0.23	0.00	0.23
D(Ave) = Ave. Depth (m):	0.00	0.10	0.00	0.10
V = Ave. Velocity (m/s):	0.00	0.69	0.00	0.69
D(Max) x V (cumecs/m):	0.00	0.16	0.00	0.16
D(Ave) x V (cumecs/m):	0.00	0.07	0.00	0.07
Froude Number:	0.00	0.70	0.00	0.70
Area (m^2):	0.00	1.61	0.00	1.61
Wetted Perimeter (m):	0.00	16.29	0.00	16.29
Flow Width (m):	0.00	16.20	0.00	16.20
Hydraulic Radius (m):	0.00	0.10	0.00	0.10
Composite Manning's n:	0.000	0.022	0.000	0.022
Split Flow?	-	-	-	No

4. CROSS-SECTION DATA:

	LEFT HAND POINT		RIGHT HAND POINT		
SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-11.300	15.622	-11.000	15.607	0.035
2	-11.000	15.607	-10.900	15.602	0.035
3	-10.900	15.602	-8.400	15.540	0.013
4	-8.400	15.540	-6.000	15.420	0.035
5	-6.000	15.420	-5.890	15.420	0.013
6	-5.890	15.420	-5.700	15.295	0.013
7	-5.700	15.295	-5.400	15.335	0.013
8	-5.400	15.335	0.000	15.497	0.015
9	0.000	15.497	5.400	15.335	0.015
10	5.400	15.335	5.700	15.295	0.013
11	5.700	15.295	5.890	15.420	0.013
12	5.890	15.420	6.000	15.420	0.013

4. CROSS-SECTION DATA: (continued)

SEGMENT NO.	LEFT HAND POINT CHAINAGE (m)	LEFT HAND POINT R.L. (m)	RIGHT HAND POINT CHAINAGE (m)	RIGHT HAND POINT R.L. (m)	MANNING'S N
13	6.000	15.420	9.400	15.590	0.035
14	9.400	15.590	10.900	15.627	0.013
15	10.900	15.627	11.000	15.632	0.035
16	11.000	15.632	11.300	15.647	0.035

DALTON CONSULTING ENGINEERS

Appendix G : RORB memo

DALTON
CONSULTING
ENGINEERS

265 Dandenong-Hastings Road Memorandum

To:	Melbourne Water (MW)	
From:	Dalton Consulting Engineers (DCE)	
Subject:	Dandenong-Hastings Road, hydrological (RORB) modelling	
DCE Ref:	22086	
Date	February 2024	
Prepared	Chuong Vu	AN: 4511012
RPEV	Rebecca Saber	RPEV number: 0007117

DCE originally prepared a Stormwater Management Strategy (SWMS) for the subject site June 2023 which was submitted to Melbourne Water for review. Comments were received from Melbourne Water November 2023 which included a request for DCE to provide RORB modelling to supplement the rational calculations originally provided due to catchment size of the subject site. A meeting between DCE / MW took place 30-11-2023 to discuss the comments and it was agreed RORB modelling would be provided to MW.

This memo details the RORB modelling that was undertaken by DCE and addresses the comments by MW (November 2023) on the original DCE SWMS report June 2023. This memo is written as a supplement to the SWMS which has also been updated (February 2024) for the inclusion of this memo and the RORB modelling.

Post-Development RORB Modelling

RORB modelling has been undertaken for the proposed development to determine the post-development flows coming from the subject site.

The developed condition RORB catchment plan is shown in Figure 1, which indicates the catchments that are discharging from the site. Details of the catchments draining to each outlet are as follows.

- The catchment shaded in red (sub areas A-G for catchment 1 – DSS node F3) will discharge through the southwestern portion of the site through a proposed internal road. The approximate catchment area draining to this portion of the site is **24.6 ha**.
- The catchment shaded in blue (sub areas A-K for catchment 2 – DSS node E10) will discharge to the west of the site through a proposed internal road. The approximate catchment area draining to this portion of the site is **32.3 ha**.
- The catchment shaded in green (sub areas A-E for catchment 3 – DSS node I10) will discharge to the north-west of the site into Portlink Drive. The approximate catchment area draining to this portion of the site is **3.2 ha**.

The developed condition modelling has been undertaken using the following parameters and methodology:

- To model the fraction impervious in the development, subareas in the development were assigned a fraction impervious value based on the proposed usage. The values were adopted in accordance with Table 1 of MUSIC Guidelines (2018). Relevant sections are shown in Table 1.

Table 1: Effective Impervious Values for Source Nodes (MUSIC Guidelines Table 1)

Zone	Zone Code	Description	Normal Range	Typical Value
Industrial Zone 1	IN1Z	Main zone to be applied for most industrial areas	0.70-0.95	0.90
Rural Zone	RUZ	Main zone to be applied in most rural areas	0.05-0.20	0.10
Road Zone – Category 2	RDZ2	Secondary and local roads	0.50-0.80	0.60

- When developing the RORB model, sensitivity tests were conducted on catchment 1 to determine the difference between adopting a total impervious area (TIA) and effective impervious area (EIA) when calculating discharge from the site. The calculations resulted in TIA flows being more conservative than EIA flows which led to us adopting TIA for our RORB model.
- In accordance with the Benchmarking ARR 2019 for Victoria Technical Report, the **75th percentile pre-burst depths**, from ARR Data Hub, were modelled. The pre-burst depths were incorporated by modelling the complete storm using the default pre-burst temporal patterns in RORB (GSAM and Jordan et al). The approach of modelling the burst only, by varying initial loss to account for pre-burst, was not used. Since ARR Data Hub does not provide pre-burst depths for durations less than 1-hour, for storm durations between 10 minutes and 45 minutes, the 1-hour pre-burst depth was modelled.

- RORB modelling was undertaken with the initial and continuous loss values indicated in Table 2.

Table 2: Initial and Continuous Loss Modelled in RORB

Surface	Initial Loss (mm)	Continuous Loss (mm)	Source
Pervious Area	27.0	4.4	ARR Data Hub
Impervious Area	0	0	TIA method

- The RORB model for the site was developed by creating separate models for each catchment. The Kc values modelled for each catchment are shown in Table 3.

Table 3: Kc Values

Catchment	Kc Value	Source
1-DSS F3	1.0912	RORB V6 User Manual Equation 2-5
2-DSS E10	1.2445	RORB V6 User Manual Equation 2-5
3-DSS I10	0.3873	RORB V6 User Manual Equation 2-5

- Selection of Kc values was based on a combination of factors. To determine the peak development flows, we would first need to set calibration targets for the undeveloped model at each catchment based on the flows provided by RFFE, DNRE Rural and by using the thumb rule for rural. As shown in Table 4.

Table 4: Calibration Targets

Calibration method	Catchment 1 1% AEP Flow (m^3/s)	Catchment 2 1% AEP Flow (m^3/s)	Catchment 3 1% AEP Flow (m^3/s)
RFFE	1.21	1.44	0.26
DNRE Rural	1.60	1.95	0.33
Thumb Rule Rural	0.74	0.96	0.09

- For the calibration model, a fraction impervious of 0.1 was adopted for all 3 catchments. After running the RORB calibration model for all the regional equations for RORB routing parameter Kc, it was determined that the RORB V6 User Manual Equation 2-5 best fit our calibration targets. Results from running the calibration model for Kc can be seen in Table 5.

Table 5: Calibration Model Flows adopting RORB V6 User Manual Equation 2-5

Catchment	RORB 1% AEP Flow (m^3/s)
1-DSS F3	1.05
2-DSS E10	1.44
3-DSS I10	0.27

- This Kc value was then used to determine the flows in our developed RORB model at each catchment outlet as shown in Table 6. The results from our RORB model also aligned well with our previous methods to estimate the design flows coming from the site using the rational method.

Table 6: RORB and Rational Method 1% AEP Flows

Catchment	RORB 1% AEP Flow (m^3/s)	Rational Method 1% AEP Flow
1-DSS F3	3.78	3.95
2-DSS E10	4.99	5.60
3-DSS I10	0.79	0.74

- The process of identifying a design flow from the RORB modelling was by first calculating the median flow for each duration, and then the maximum of each of the median flows was selected as the RORB design flow.

-

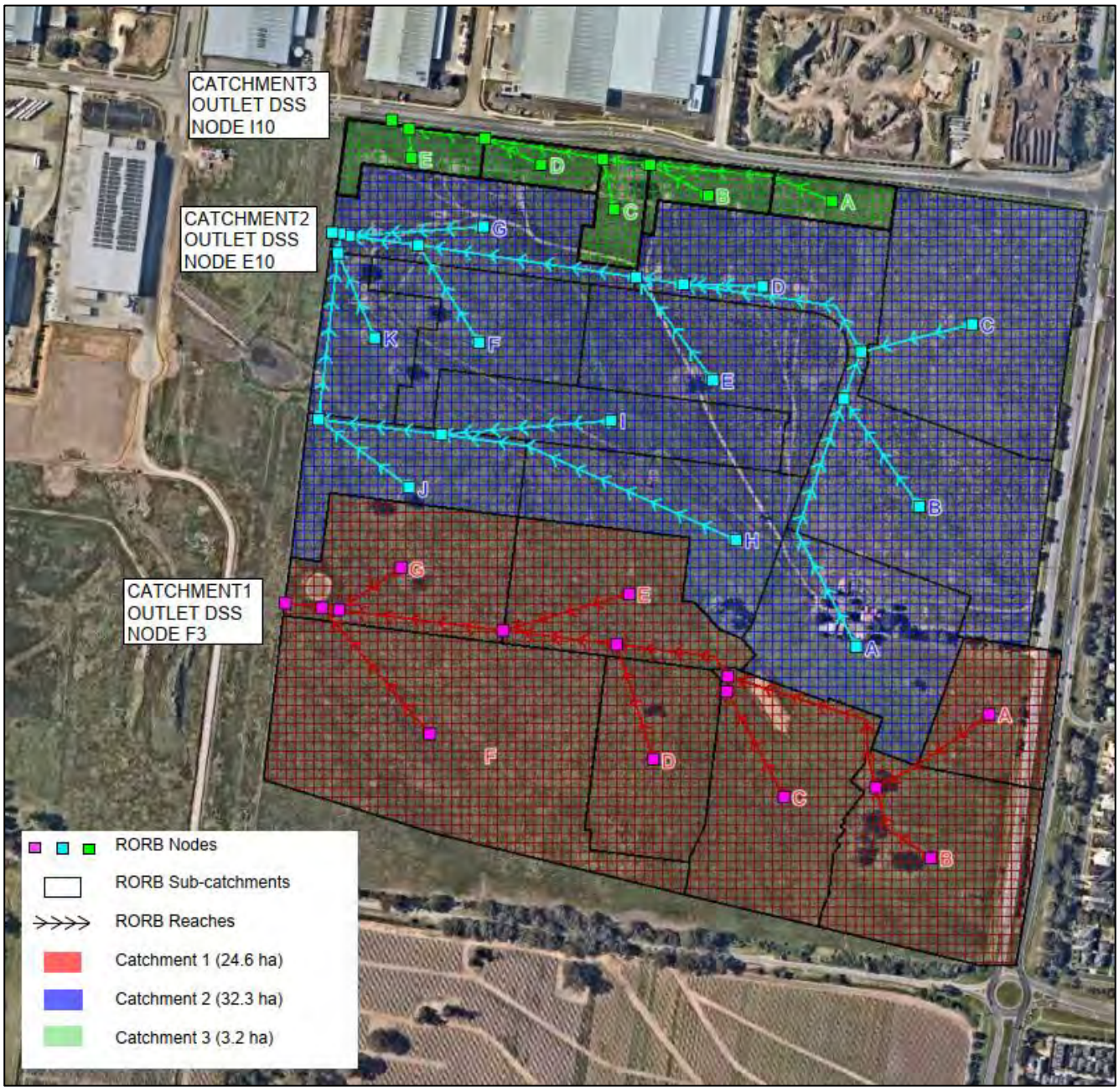


Figure 1: RORB Model Layout Plan

Appendix H: Functional Plans for MW DSS Drains

INDUSTRIAL SUBDIVISION SCHEME DRAIN

GLASSCOCKS ROAD DSS 0710 E10-B10
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
CITY OF GREATER DANDENONG

FOR

Melbourne Water

Aliro

ISPT SUPER PROPERTY

CIVIL DRAWINGS
MELBOURNE WATER SCHEME DRAINAGE

MELBOURNE WATER REF:
DCE REF: 22086.1AMW
MELWAY REF: 128 J2

NOT TO BE USED
FOR CONSTRUCTION

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dceng.com.au E info@dceng.com.au

FUNCTIONAL

1. GENERAL

1.1. ALL LEVELS ARE IN METRES TO AUSTRALIAN HEIGHT DATUM (AHD) AND COORDINATES FOR SETTING OUT ARE TO MAP GRID AUSTRALIA (MGA 94 Z55).
1.2. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARD DRAWINGS OF MELBOURNE WATER.
1.3. ALL CHAINAGES REFER TO THE DESIGN LINE AND/OR STRUCTURE CENTRELINE AS SHOWN ON THE DRAWINGS.
1.4. ALL PIPES ARE NOMINAL SIZE AND TO BE MIN. CLASS 2 REINFORCED CONCRETE WITH RUBBER RING JOINTS (RRJ) UNLESS SHOWN OTHERWISE.
1.5. THE CONTRACTOR SHALL GIVE MINIMUM 5 WORKING DAYS NOTICE OF THE COMMENCEMENT OF WORKS TO:
1.5.1. MW DEVELOPER WORKS.
1.5.2. COUNCIL SURVEILLANCE COORDINATOR.
1.5.3. DALTON CONSULTING ENGINEERS.
1.5.4. SERVICE AUTHORITIES AFFECTED BY THE WORKS.
1.6. THE CONTRACTOR IS CAUTIONED THAT EXISTING UNDERGROUND AND OVERHEAD UTILITY SERVICES ARE ADJACENT TO OR WITHIN THE CONSTRUCTION AREA AND THE RELEVANT "NO GO ZONE" SAFETY PROCEDURES MUST BE PREPARED AND APPROVED BY THE UTILITY COMPANY. ALL WORKS MUST COMPLY WITH THESE PROCEDURES.
1.7. THE LOCATION OF THE EXISTING SERVICES SHOWN ON THESE DRAWINGS ARE NOT GUARANTEED FOR THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL SERVICES AFFECTED BY THE WORKS TO HIS OWN SATISFACTION.
1.8. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGE TO ANY SERVICE, STRUCTURE OR EXISTING CONSTRUCTION RESULTING FROM HIS CONSTRUCTION WORKS AND SHALL COMPLY WITH THE MW CONSTRUCTION SPECIFICATION CLAUSE 6.4.
1.9. INSET PIT COVERS OR GRATES AND PIT WALLS SUPPORTING RAISED PIPE GRILLES TO MATCH FINISHED SURFACE LEVELS SHOWN ON THE PLANS.
1.10. WHERE HEAVILY LADEN TRUCKS (EG T44 OR W7 WHEEL LOADS) ARE REQUIRED TO TRAFFIC OVER INSTALLED PIPELINES, A MINIMUM COVER OF 1.00m ABOVE THE CROWN OF PIPE IS REQUIRED. WHERE THE CONTRACTOR REQUIRES TO CROSS ANY PIPELINE WITH CONSTRUCTION EQUIPMENT HAVING IN EXCESS OF THE ABOVE LOADS, THE SUPERINTENDENT MUST BE REFERRED TO.
1.11. TBM'S AND CONTROL POINTS ARE TO BE RE-ESTABLISHED BY THE LICENSED SURVEYOR IF FOUND TO BE MISSING AT THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR CARE AND MAINTENANCE OF ALL T.B.M.'S AND CONTROL POINTS THEREAFTER.
1.12. AT LEAST 3 DAYS BEFORE COMMENCING EXCAVATION OF TRENCHES IN EXCESS OF 1.5m DEEP, A COMPLETED 'NOTICE OF INTENTION TO COMMENCE TRENCHING OPERATIONS' FORM SHALL BE SENT TO WORKSAFE VICTORIA. THE NOMINATED SUPERVISOR SHALL BE SUITABLY QUALIFIED IN ACCORDANCE WITH THE VICTORIAN OHS ACT 2004, OCCUPATIONAL HEALTH AND SAFETY REGULATIONS 2017 AND COMMONWEALTH OHS CODES OF PRACTICE 2008.
1.13. ALL SERVICE AUTHORITIES SHALL BE NOTIFIED IN WRITING SEVEN DAYS PRIOR TO COMMENCEMENT OF THE WORKS.
1.14. THE LOCATION OF THE EXISTING SERVICES SHOWN ON THESE DRAWINGS ARE NOT GUARANTEED FOR THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL SERVICES AFFECTED BY THE WORKS TO HIS OWN SATISFACTION.
1.15. ALL EXISTING SURFACE LEVELS SHOWN ON THE ENGINEERING DRAWINGS HAVE BEEN INTERPOLATED FROM A DIGITAL TERRAIN MODEL. THESE LEVELS HAVE BEEN USED AS THE BASIS FOR ALL ENGINEERING DESIGN AND DETERMINATION OF QUANTITIES.
1.16. ALL WORKS TO COUNCIL ASSETS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL SPECIFICATIONS, STANDARD DRAWINGS AND TO THE SATISFACTION OF THE SURVEILLANCE CO-ORDINATOR OR HIS REPRESENTATIVE.
1.17. ALL TREES AND SHRUBS TO BE RETAINED UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT AUTHORITY BECAUSE CONSTRUCTION NECESSITATES THEIR REMOVAL, OR REMOVAL IS DIRECTED BY THE AUTHORISED ENGINEER. TREES TO BE REMOVED ARE TO BE SUITABLY LABELED. WHEN IT IS PROPOSED TO REMOVE EXISTING TREES IN ROAD RESERVES OR COUNCIL RESERVES, CONSULTATION IS TO OCCUR WITH COUNCILS PARKS AND GARDENS DEPARTMENT.
1.18. REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DETAILS.
1.19. ALL SERVICE TRENCHES UNDER ROAD CARRIAGEWAYS, FOOTPATHS, VEHICLE CROSSINGS AND OTHER ROAD STRUCTURES ARE TO BE BACKFILLED WITH 20mm CLASS 3 CRUSHED ROCK IN ACCORDANCE WITH COUNCIL'S STANDARD SPECIFICATION FOR ROADS AND DRAINAGE WORKS IN LAND DEVELOPMENTS.
1.20. SURFACE RESTORATION TO ROAD SURFACES TO COUNCILS REQUIREMENTS.
1.21. CONTRACTOR SHALL IMMEDIATELY ADVISE THE CONSULTANT OF ANY SERIOUS OR REPORTABLE INCIDENT:
1.21.1. THAT HAS TO BE NOTIFIED TO THE WORKCOVER AUTHORITY UNDER PART 5 OF THE OHS ACT 2004.
1.21.2. THAT HAS DETRIMENTALLY, OR THREATENS TO, AFFECT THE EXISTING ASSETS OF ANY AUTHORITY OR PROPERTY.
1.21.3. THE CONTRACTOR MUST ALSO ADVISE THE RELEVANT AUTHORITIES AND/OR OWNERS AFFECTED.
1.21.4. THE CONSULTANT SHALL CONFIRM WITH THE RELEVANT AUTHORITIES AND/OR OWNERS THAT THEY HAVE BEEN ADVISED OF THE INCIDENT.
1.22. THE CONTENTS OF ALL CONSTRUCTION ISSUE PLANS SHALL TAKE PRECEDENCE OVER ALL DIGITAL FILES ISSUED BY DCE TO THE CONTRACTOR AND IN PARTICULAR 3D ALIGNMENT STRINGS EXPORTED DIRECTLY FROM 3D CIVIL SOFTWARE. SHOULD ANY DISCREPANCIES BETWEEN CONSTRUCTION ISSUE PLANS AND DIGITAL FILES BE FOUND THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT IMMEDIATELY.

2. SITE SAFETY & ACCESS

2.1. THE WORKS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH MELBOURNE WATER'S OCCUPATIONAL HEALTH POLICY AND THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A PROJECT RISK ASSESSMENT, SITE SAFETY MANAGEMENT AND OTHER REQUIRED INFORMATION BEFORE COMMENCEMENT.
2.2. BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR SHALL ERECT ACCEPTABLE TEMPORARY SAFETY FENCES WHERE REQUIRED TO ISOLATE THE WORKS SITE FROM THE PUBLIC.
2.3. THE CONTRACTOR IS TO PREPARE A TRAFFIC MANAGEMENT PLAN TO THE SATISFACTION OF COUNCIL BEFORE COMMENCING WORKS.
2.4. THE CONTRACTOR IS REQUIRED TO CONFINE CONSTRUCTION VEHICLES TO THE DRAINAGE RESERVE UNLESS APPROVED OTHERWISE BY THE SUPERINTENDENT. ANY DAMAGE CAUSED TO ADJACENT PROPERTIES MUST BE MADE GOOD.
2.5. THE CONTRACTOR IS CAUTIONED THAT EXISTING UNDERGROUND AND OVERHEAD UTILITY SERVICES ARE ADJACENT TO OR WITHIN THE CONSTRUCTION AREA AND THE RELEVANT "NO GO ZONE" SAFETY PROCEDURES MUST BE PREPARED AND APPROVED BY THE UTILITY COMPANY. ALL WORKS MUST COMPLY WITH THESE PROCEDURES.

3. EARTHWORKS & SEDIMENTATION CONTROL

3.1. NO POLLUTED OR SEDIMENT LADEN RUNOFF IS TO BE DISCHARGED DIRECTLY OR INDIRECTLY INTO EXISTING DRAINAGE SYSTEM DURING OR AFTER THE WORKS.
3.2. CONTRACTOR TO PREPARE A SITE MANAGEMENT PLAN (SMP) AND FORWARD TO THE CONSULTANT 3 WEEKS PRIOR TO COMMENCING OF ANY WORKS. SMP IS TO BE PREPARED IN ACCORDANCE WITH THE MELBOURNE WATER SMP KIT PLAN SUBJECT TO COUNCIL AND MELBOURNE WATER APPROVAL.
3.3. CONTRACTOR MUST ENSURE THAT COMPACTION TESTING OF FILLED AREAS COMPLIES WITH LEVEL 1 GEOTECHNICAL SUPERVISION PER CLAUSE 8.2 OF AS 3798-2007 AND SHALL BE ARRANGED BY THE CONTRACTOR WITH CERTIFYING CONSULTANT AT CONTRACTORS EXPENSE.
3.4. FILLING DEPTHS IN EXCESS OF 200mm ARE TO BE STRIPPED OF TOPSOIL, FILLED AND TOPSOIL REPLACED TO OBTAIN FINAL SURFACE LEVELS SHOWN ON THE DRAWINGS.
3.5. STOCKPILING OF MATERIAL IS TO BE PLACED AS DIRECTED BY THE SUPERINTENDENT. NO TOPSOIL IS TO BE REMOVED FROM SITE.
3.6. DISTURBED AREAS WITHIN DESIGNATED GRASSED FLOODWAY ZONES MUST BE TOPSOILED AND HYDROMULCH SEEDED WITH APPROVED GRASSES AND FERTILIZER. TEMPORARY FENCING MUST BE ERECTED TO PREVENT ACCESS TO TREATED AREAS.
3.7. SURPLUS EXCAVATED SPOIL IS TO BE USED AS FILL ON THE ESTATE WHERE PRACTICAL AND IF NOT IS TO BE TAKEN OFF SITE TO A LOCATION SPECIFIED BY THE SUPERINTENDENT.

4. MELBOURNE WATER

4.1. ONLY MW REGISTERED CONTRACTORS ARE PERMITTED TO WORK ON OR ENTER MELBOURNE WATER CORPORATION LIVE ASSETS.
4.2. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ONLY SUCH REGISTERED CONTRACTORS ARE USED AND APPROPRIATE NOTIFICATION IS GIVEN TO MELBOURNE WATER.

5. REINFORCEMENT & CONCRETE

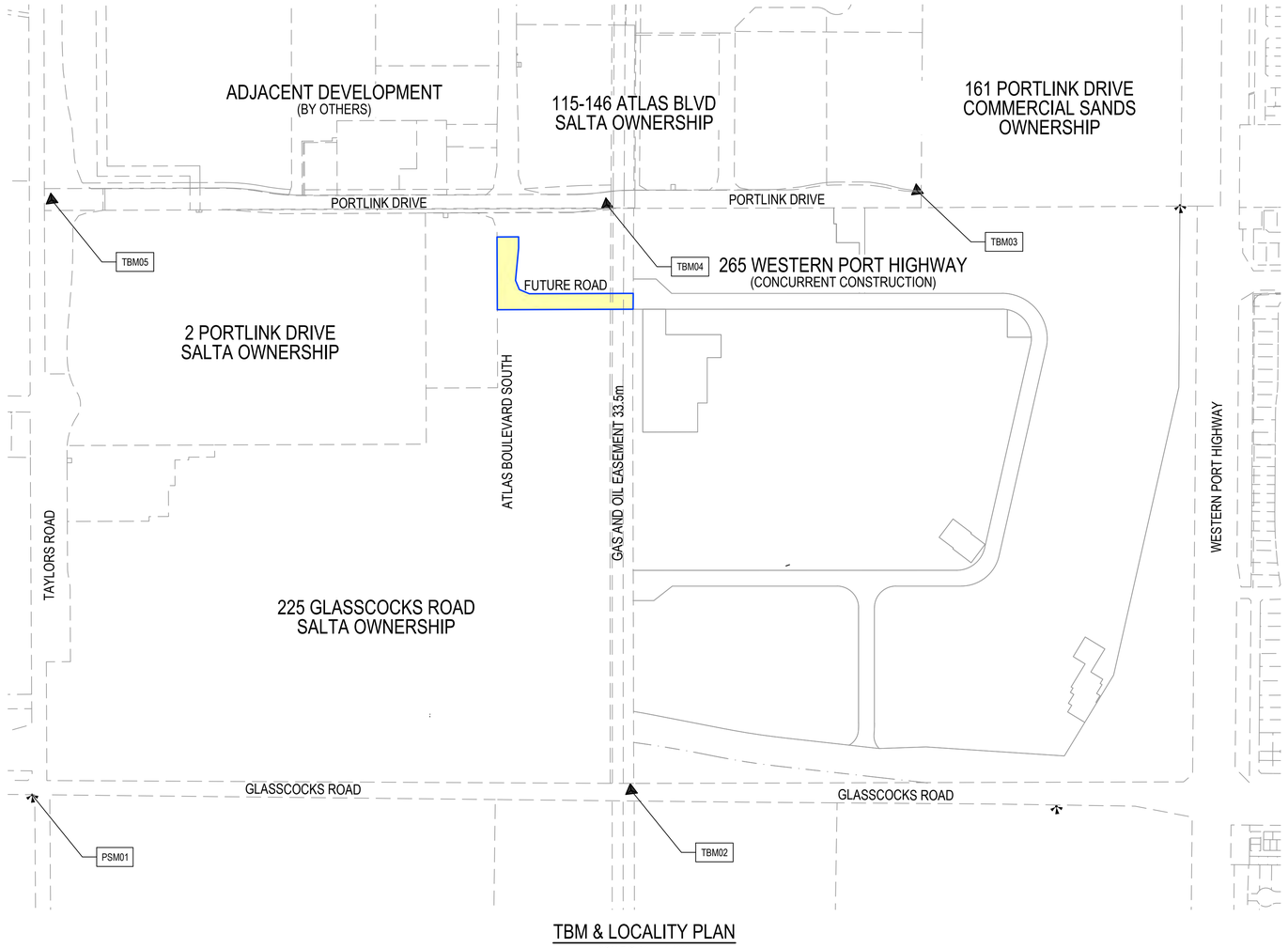
5.1. ALL CONCRETE, REINFORCEMENT, FORMWORK AND ASSOCIATED WORKS SHALL BE IN ACCORDANCE WITH MELBOURNE WATER STANDARD DRAWINGS AND SPECIFICATIONS.

6. TOPSOIL NOTES

6.1. MW TOPSOIL SPECIFICATIONS TO BE ADOPTED.
6.2. TOPSOIL USED (INSITU IMPORTED) MUST COMPLY WITH AS4419 SOILS FOR LANDSCAPING AND GARDEN USE. TESTING MUST BE CARRIED OUT BY A NATA ACCREDITED LABORATORY. IF REQUIRED, AMENDMENTS TO THE TOPSOIL MUST BE UNDERTAKEN TO ACHIEVE COMPLIANCE WITH AS4419.

DRAWING INDEX

DRAWING No.	SHEET No.	DCE REF.	DESCRIPTION
XXX/XXX/01	01	22086.1AMWLP01	LOCALITY PLAN, DRAWING INDEX AND NOTES
XXX/XXX/02	02	22086.1AMWTD01	TYPICAL SECTIONS
XXX/XXX/03-04	03-04	22086.1AMWDP01-02	DETAIL PLAN, SHEETS 01 TO 02
XXX/XXX/05	05	22086.1AMWPIT01	PIT SCHEDULE



TBM & LOCALITY PLAN

SCALE @ A1: 1:4000

TBM SCHEDULE

I.D.	TYPE	EASTING	NORTHING	LEVEL
01	PSM IN N/STRIP	344179.320	5785965.320	11.22
02	STEEL PICKET	345006.273	5785867.584	17.70
03	STEEL PICKET	345504.694	5786644.689	17.18
04	STEEL PICKET	345074.378	5786679.341	13.49
05	STEEL PICKET	344309.616	5786782.272	9.65

NOTE: FUTURE EXTENTIONS
ALL STUBS FOR FUTURE EXTENSIONS TO BE SOCKETED UPSTREAM AND BLANKED OFF.

NOTE: EXISTING SERVICES
ALL EXISTING SERVICES UNDER NEW AND PROPOSED ROAD PAVEMENT, FOOTPATH AND DRIVEWAYS TO BE FCR BACKFILLED.

NOTES: MELBOURNE WATER WORK COVER
1. THE CONTRACTOR SHALL IMMEDIATELY ADVISE THE CONSULTANT OF ANY SERIOUS OR REPORTABLE INCIDENT:
1.a. THAT HAS TO NOTIFIED TO BE THE WORKCOVER AUTHORITY UNDER PART 5 OF THE OHS ACT 2004.
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NOT TO BE USED FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AMEND	APP'D
A	MELBOURNE WATER ISSUE	05/12/23	JS	KP

DRAWN	R.GUTIERREZ 15/09/23 3401141	
DESIGNED	J.SIVERSEN 02/10/23 4031033	
CHECKED	K.PHAL 13/11/23 1871823	
REG. ENG.		

DCE PLAN REFERENCE	22086.1AMWLP01
MELWAY REFERENCE	128 J2
WATER AUTHORITY FILE No.	

Coordinates: MGA2020
Levels: AHD

BEFORE YOU DIG www.byda.com.au

LEGEND
AREA OF WORKS BOUNDARY
AREA OF WORKS
PSM | TBM

DALTON CONSULTING ENGINEERS
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geelong wadawurrung T +61 3 5246 1700
brisbane turrbal T +61 7 3374 9000
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FUNCTIONAL

MELBOURNE WATER
CITY OF GREATER DANDENONG

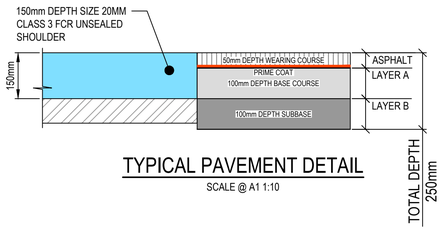
INDUSTRIAL SUBDIVISION SCHEME DRAIN
GLASSCOCKS ROAD DSS 0710 E10-B10
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
LOCALITY PLAN, DRAWING INDEX AND NOTES

SCALE @ A1/A3: As Shown
SHEET NO. 01 OF 04 A
DRAWING NO. /01

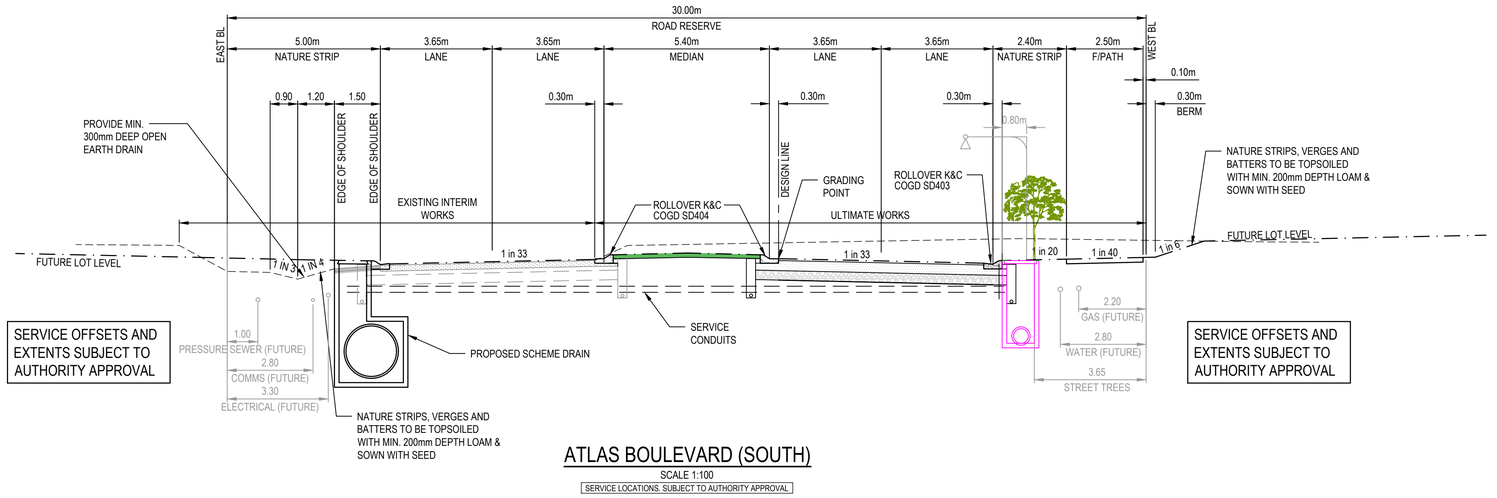
PAVEMENT DETAILS

INTERNAL ACCESS ROADS - INTERIM ATLAS BOULEVARD (SOUTH)	
ASPHALT	WEARING COURSE 50mm COMPACTED DEPTH OF 14mm NOMINAL SIZE ASPHALT PRIME COAT
LAYER A	BASE 100mm MINIMUM COMPACTED DEPTH OF 20mm CLASS 2 CRUSHED ROCK
LAYER B	SUBBASE 100mm MINIMUM COMPACTED DEPTH OF 20mm CLASS 3 CRUSHED ROCK
DEPTH TOTAL	250mm min.
SUBGRADE	SUBGRADE PREPARED SUBGRADE WITH CBR ≥ 3%

NOTE:
REFER CITY OF GREATER DANDENONG SD 014-A



TYPICAL PAVEMENT DETAIL
SCALE @ A1 1:10



SERVICE OFFSETS AND EXTENTS SUBJECT TO AUTHORITY APPROVAL

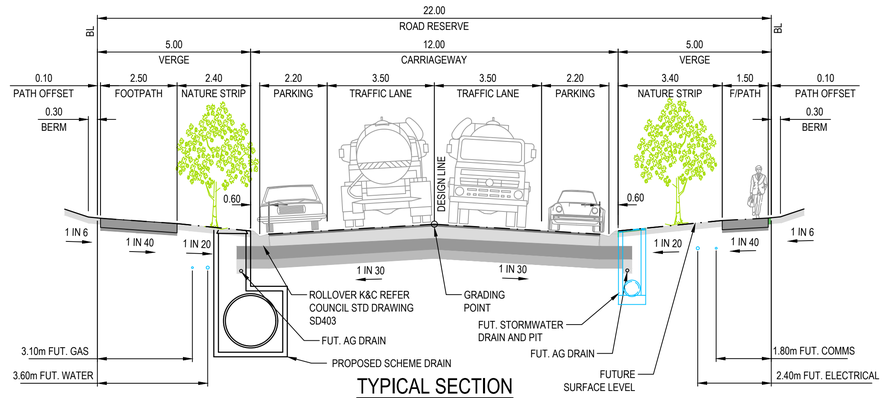
SERVICE OFFSETS AND EXTENTS SUBJECT TO AUTHORITY APPROVAL

ATLAS BOULEVARD (SOUTH)
SCALE 1:100
SERVICE LOCATIONS. SUBJECT TO AUTHORITY APPROVAL

TABLE OF SERVICE LOCATIONS

STREET NAME	SEW	GAS	DW	NDW	COMS	ELEC	POLES	BOK
FUTURE ROAD	-	3.10 S	3.60 S	-	1.80 N	2.40 N	*0.80	5.00 N/ 5.00 S
ATLAS BOULEVARD	1.00 E	2.20 W	2.80 W	-	2.80 E	3.30 E	*0.80	4.00 W/ 4.00 E

* FROM BACK OF KERB / EDGE OF PAVING



TYPICAL SECTION
FUTURE 22m INDUSTRIAL ROAD
SCALE @ A1 1:100H, 1:50V

NOTE: FUTURE EXTENTIONS
ALL STUBS FOR FUTURE EXTENSIONS TO BE SOCKETED UPSTREAM AND BLANKED OFF.

NOTE: TEMPORARY PIT TOPS
ALL PITS TO BE CONSTRUCTED WITH TEMPORARY TOPS, MATCHING TO EXISTING SURFACE FOR FUTURE GSEP/JP CONVERSION.

NOTE: EXISTING SERVICES
ALL EXISTING SERVICES UNDER NEW AND PROPOSED ROAD PAVEMENT, FOOTPATH AND DRIVEWAYS TO BE FCR BACKFILLED.

NOTE: OPEN EARTH DRAINS
SEDIMENT CONTROL INCLUDING HAY BALES AND SEDIMENT TRAP FENCING IS REQUIRED FOR ALL OPEN EARTH DRAINS IN ACCORDANCE WITH EPA 'CONSTRUCTION TECHNIQUES FOR SEDIMENT POLLUTION CONTROL'. SEDIMENT CONTROL MEASURES TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND MAINTENANCE PERIOD OF THE WORKS.

NOTES: MELBOURNE WATER WORK COVER
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DCE PLAN REFERENCE	22086.1AMWTD01
MELWAY REFERENCE	128 J2
WATER AUTHORITY FILE No.	

Coordinates: MGA2020
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FUNCTIONAL

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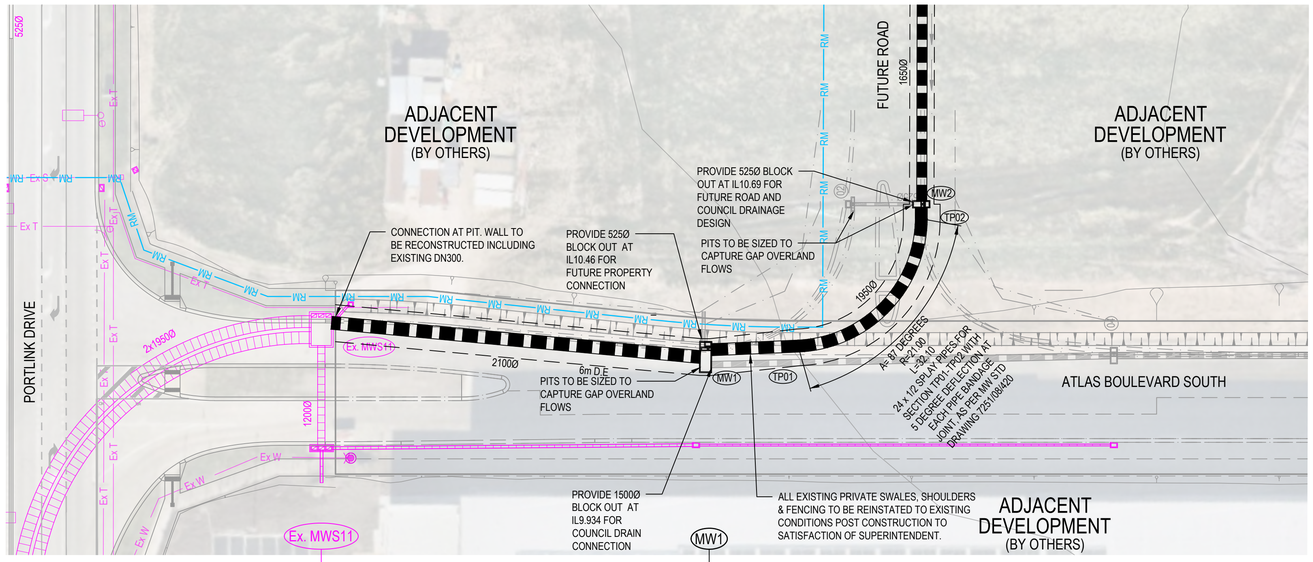
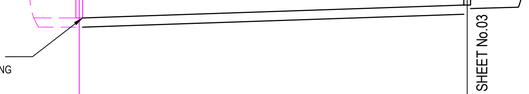
GLASSCOCKS ROAD DSS 0710 E10-B10
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
TYPICAL SECTIONS

SCALE @ A1/A3 As Shown
SHEET NO. 02 OF 04 A
DRAWING NO. /02

FOR CONTINUATION REFER TO SHEET No.03



PLAN



VELOCITY (m/s) (5%AEP / 1%AEP)		2.975 / 3.246	
PIPE GRADE VELOCITY		2.891	
PIPE GRADE %		0.333%	
PIPE FLOW (m3/s) (5%AEP / 1%AEP)		5.623 / 8.537	
PIPE CAPACITY AT GRADE		10.015	
PIPE SIZE (mm)		2100	
DATUM		5.000	
DEPTH TO INVERT	3.351	3.351	3.635
HYDRAULIC GRADE LINE (1% AEP)	10.072		10.369
HYDRAULIC GRADE LINE (5% AEP)	9.724		10.039
INVERT LEVEL	8.673	8.673	8.884
DESIGN FUTURE SURFACE LEVEL	12.470		12.519
EXISTING SURFACE LEVEL	12.203		12.375
CHAINAGE	0.000	63.326	63.326

FOR CONTINUATION REFER TO SHEET No.03

DRAINAGE LONGITUDINAL SECTION

TBM SCHEDULE

I.D.	TYPE	EASTING	NORTHING	LEVEL
01	PSM IN N/STRIP	344179.320	5785965.320	11.22
02	STEEL PICKET	345006.273	5785867.584	17.70
03	STEEL PICKET	345504.694	5786644.689	17.18
04	STEEL PICKET	345074.378	5786679.341	13.49
05	STEEL PICKET	344309.616	5786782.272	9.65
06	PSM235	345589.964	5785771.640	26.40
07	PSM251	345864.900	5786578.700	-

NOTE: TBM'S
TBM'S SHOWN IN THE TABLE ABOVE ARE OUTSIDE OF THE SCOPE OF THIS DRAWING. REFER TO SHEET 01 FOR LOCATION OF TBM'S USED FOR THE PROJECT 22086.1A WORKS.

NOTE: FUTURE EXTENTIONS
ALL STUBS FOR FUTURE EXTENSIONS TO BE SOCKETED UPSTREAM AND BLANKED OFF.

NOTE: EXISTING SERVICES
ALL EXISTING SERVICES UNDER NEW AND PROPOSED ROAD PAVEMENT, FOOTPATH AND DRIVEWAYS TO BE FCR BACKFILLED.

NOTES: MELBOURNE WATER WORK COVER
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CAUTION: EXISTING HIGH PRESSURE AND OIL
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2. A.P.A
3. VIVA
THESE UTILITY PIPELINES HAVE BEEN PHYSICALLY PROVEN BY E.L.S. REFER TO E.L.S PLANS FOR FURTHER DETAILS

CAUTION!
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REG. ENG.		
DCE PLAN REFERENCE	22086.1AMWDP01	
MELWAY REFERENCE	128 J2	
WATER AUTHORITY FILE No.		

Coordinates: MGA2020
Levels: AHD

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LEGEND

EX. MW DRAIN & PIT	Ex W	EX. WATER MAIN	EX. BATTER
PROP. MW DRAIN & PIT	Ex G	EX. GAS MAIN	FCR CLASS 3 BACKFILL
FUT. COUNCIL DRAIN & PIT	Ex E	EX. ELECTRICAL CABLE	ROAD PAVEMENT
ADJ. COUNCIL DRAIN & PIT	Ex T	EX. COMM. CABLE	EXISTING SURFACE
DRAINAGE EASEMENT	Ex OIL	EX. OIL PIPE	DESIGN FUTURE SURFACE LEVEL
	Ex S	EX. SEWER MAIN & MH	PROPOSED DRAIN
	GC	EX. W/G CONDUITS	HYDRAULIC GRADE LINE
			BOTTOM OF PAVEMENT

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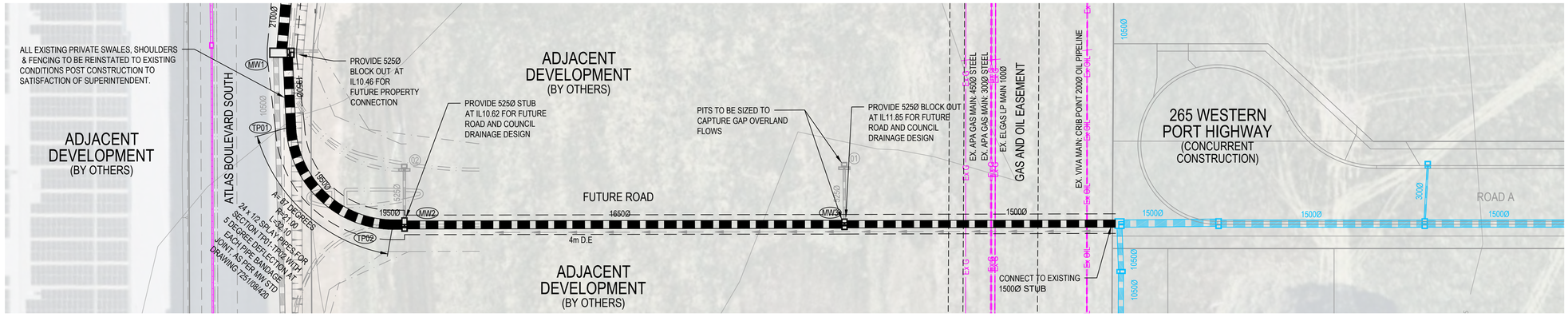
CITY OF GREATER DANDENONG

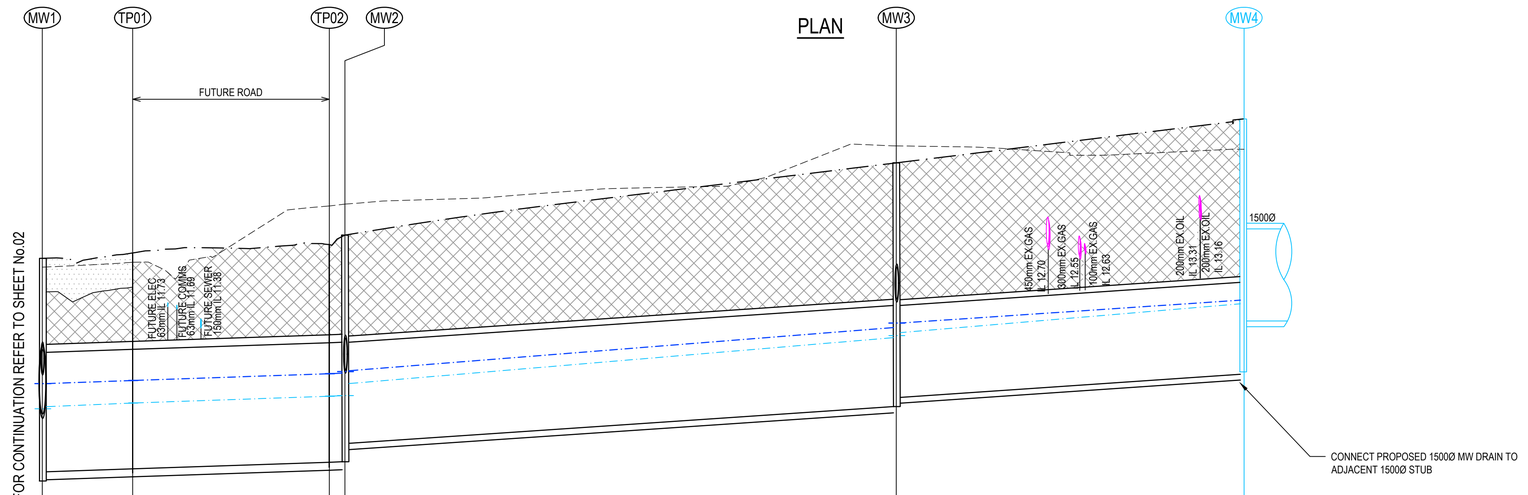
INDUSTRIAL SUBDIVISION SCHEME DRAIN GLASSCOCKS ROAD DSS 0710 E10-B10
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
DETAIL PLAN, SHEET 01 OF 02

0m 5m 10m 20m 30m
SCALE @ A1/A3 1:500 / 1:1000
SHEET NO. 03 OF 04 A
DRAWING NO. /03

FOR CONTINUATION REFER TO SHEET No.02



PLAN



	MW1	TP01	TP02	MW2	MW3	MW4
VELOCITY (m/s) (5%AEP / 1%AEP)	2.860 / 3.113	2.862 / 3.114	2.865 / 3.114		3.714 / 3.917	3.662 / 3.713
PIPE GRADE VELOCITY	2.752	2.752	2.752		3.482	3.268
PIPE GRADE %	0.333%	0.333%	0.333%		0.667%	0.667%
PIPE FLOW (m3/s) (5%AEP / 1%AEP)	4.822 / 7.385	4.851 / 7.412	4.853 / 7.414		4.888 / 6.439	4.874 / 5.424
PIPE CAPACITY AT GRADE	8.219	8.219	8.219		7.445	5.774
PIPE SIZE (mm)	1950	1950	1950		1650	1500
DATUM	5.000					
DEPTH TO INVERT	3.465	3.523 / 3.523	3.555 / 3.555	3.699 / 3.399	3.978	3.828 / 4.167
HYDRAULIC GRADE LINE (1% AEP)	10.430	10.465 / 10.511	10.579 / 10.626	10.631	11.233	11.307 / 11.793
HYDRAULIC GRADE LINE (5% AEP)	10.090	10.115 / 10.135	10.198 / 10.218	10.222 / 10.319	11.068	11.101 / 11.734
INVERT LEVEL	9.034	9.083 / 9.083	9.190 / 9.190	9.199 / 9.499	10.099	10.249 / 10.626
DESIGN FUTURE SURFACE LEVEL	12.519	12.666	12.745	12.888	14.077	14.793
EXISTING SURFACE LEVEL	12.375	12.454	13.373	13.404	14.354	14.302
CHAINAGE	63.326	14.751 / 78.077	32.097 / 110.173	2.554 / 112.728	90.002	202.730 / 56.636 / 259.366

DRAINAGE LONGITUDINAL SECTION

TBM SCHEDULE

I.D.	TYPE	EASTING	NORTHING	LEVEL
01	PSM IN N/STRIP	344179.320	5785965.320	11.22
02	STEEL PICKET	345006.273	5785867.584	17.70
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NOTE: FUTURE EXTENTIONS
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NOTE: EXISTING SERVICES
ALL EXISTING SERVICES UNDER NEW AND PROPOSED ROAD PAVEMENT, FOOTPATH AND DRIVEWAYS TO BE FOR BACKFILLED.

NOTE: EXISTING SERVICES
SERVICE DEPTHS WITHIN GAS AND OIL EASEMENT INDICATIVE. ACTUAL LOCATIONS TO BE PROVEN AND DESIGN TO SATISFY CLEARANCES FROM CONFIRMED DEPTHS.

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MELWAY REFERENCE	128 J2	
WATER AUTHORITY FILE No.		

Coordinates: MGA2020
Levels: AHD

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LEGEND
- EX. MW DRAIN & PIT
- PROP. MW DRAIN & PIT
- FUT. COUNCIL DRAIN & PIT
- ADJ. COUNCIL DRAIN & PIT
- DRAINAGE EASEMENT
- Ex W — EX. WATER MAIN
- Ex G — EX. GAS MAIN
- Ex E — EX. ELECTRICAL CABLE
- Ex T — EX. COMM. CABLE
- Ex OIL — EX. OIL PIPE
- Ex S — EX. SEWER MAIN & MH
- GC — EX. W/G CONDUITS
- EX. BATTER
- FCR CLASS 3 BACKFILL
- ROAD PAVEMENT
- EXISTING SURFACE
- DESIGN FUTURE SURFACE LEVEL
- PROPOSED DRAIN
- HYDRAULIC GRADE LINE
- BOTTOM OF PAVEMENT

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FUNCTIONAL

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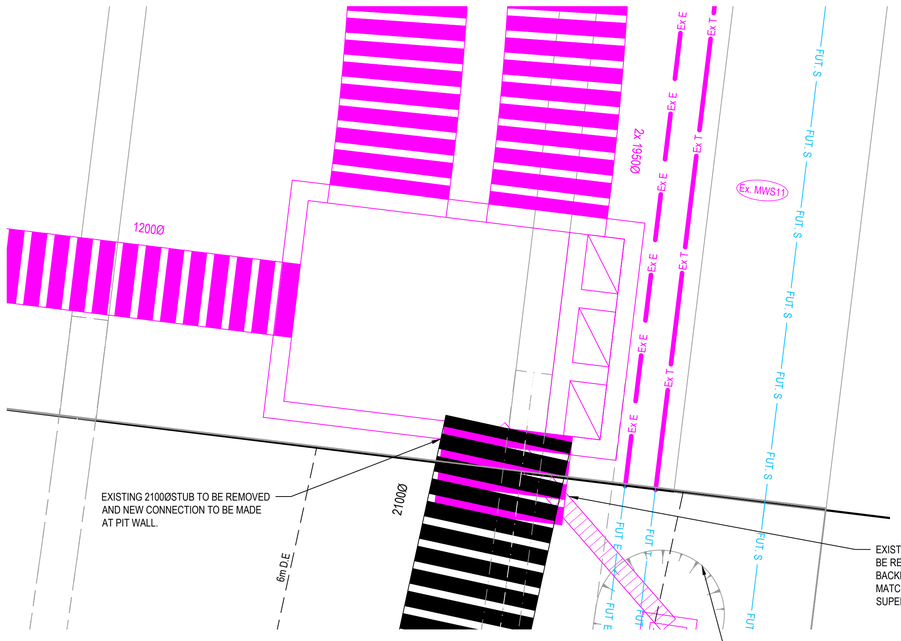
INDUSTRIAL SUBDIVISION SCHEME DRAIN
GLASSCOCKS ROAD DSS 0710 E10-B10
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
DETAIL PLAN, SHEET 02 OF 02

0m 5m 10m 20m 30m
SCALE @ A1/A3 1:500 / 1:1000
SHEET NO. 04 OF 04 A
DRAWING NO. /04

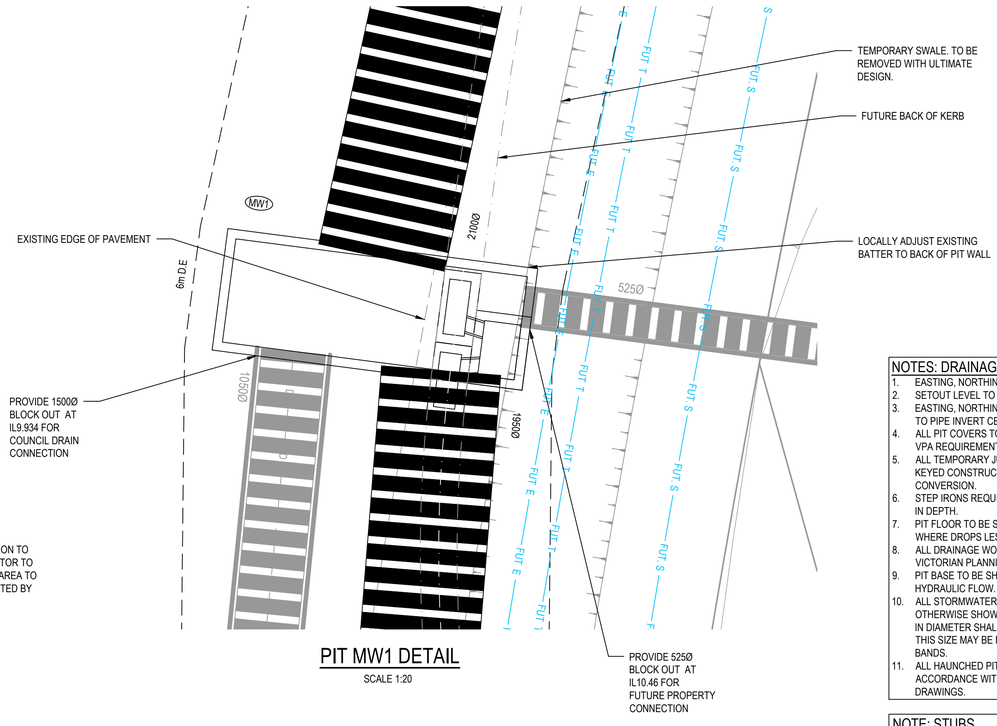
56.636

PIT SCHEDULE

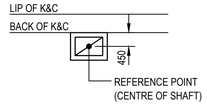
PIT NAME	PIT TYPE	PIT EASTING	PIT NORTHING	LID WIDTH	LID LENGTH	BASE WIDTH	BASE LENGTH	INLET DIA.	INLET INV LEV	OUTLET DIA.	OUTLET INV LEV	PIT SETOUT RL	PIT DEPTH	PIT DETAIL	HAUNCH DETAIL	STEP IRONS	HEAVY DUTY	FURTHER COMMENTS
Ex. MWS11	GSEP	344,943.43	5,786,653.05	600	900	5200	3300	2100	8.673	2x1950	8.673	12.47	3.797	SD441		-		CONNECTION AT PIT. WALL TO BE RECONSTRUCTED.
MW1	DGSEP	344,931.13	5,786,590.93	600	900	4800	1700	1950	9.034	2100	8.884	12.519	3.635	SD450	STRUCTURAL DRAWINGS TO BE PROVIDED	-		TEMPORARY GRATED PIT TOP. MAY BE ALTERED WITH FUTURE SURFACE LEVELS.
								525	10.459									
								1050	9.934									
TP01	TP	344,928.84	5,786,576.36	-	-			1950	9.083	1950	9.083	12.606	3.523	-	-	-		SPLAY PIPES
TP02	TP	344,947.22	5,786,553.85	-	-			1950	9.19	1950	9.19	13.373	4.183	-	-	-		SPLAY PIPES
MW2	DGSEP	344,949.49	5,786,552.66	600	900	2550	900	1650	9.499	1950	9.199	13.404	4.205	SD450	STRUCTURAL DRAWINGS TO BE PROVIDED	-		TEMPORARY GRATED PIT TOP. MAY BE ALTERED WITH FUTURE SURFACE LEVELS.
								525	10.624									
MW3	DGSEP	345,038.83	5,786,541.77	600	900	1950	900	1500	10.249	1650	10.099	14.354	4.255	SD450	STRUCTURAL DRAWINGS TO BE PROVIDED	-		TEMPORARY GRATED PIT TOP. MAY BE ALTERED WITH FUTURE SURFACE LEVELS.
								525	11.852									
MW4	GSEP	345,095.05	5,786,534.91	600	900	1800	1650			1500	10.626	14.793	4.166	SD475		-		PIT BUILT CONCURRENTLY. CONNECT TO 1350Ø STUB



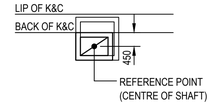
EX PIT MWS11 DETAIL
SCALE 1:20



PIT MW1 DETAIL
SCALE 1:20



PIT SETOUT POINT
NOT TO SCALE



HAUNCHED PIT SETOUT POINT
FOR HAUNCHED PITS WITH 150mm THICK WALLS
NOT TO SCALE

NOTES: DRAINAGE PITS

1. EASTING, NORTHING SETOUT TO CENTRE OF PIT COVER.
2. SETOUT LEVEL TO PIT COVER LEVEL.
3. EASTING, NORTHING FOR ENDWALL SETOUT POINTS QUOTED TO PIPE INVERT CENTRELINE.
4. ALL PIT COVERS TO BE IN ACCORDANCE WITH COUNCIL AND VPA REQUIREMENTS AND SPECIFICATIONS.
5. ALL TEMPORARY JUNCTION PITS (JP) TO BE PROVIDED WITH KEYED CONSTRUCTION JOINTS (K.C.J) FOR FUTURE SEP CONVERSION.
6. STEP IRONS REQUIRED FOR ALL PITS GREATER THAN 1000mm IN DEPTH.
7. PIT FLOOR TO BE SHAPED TO MATCH LOWER HALF OF PIPE WHERE DROPS LESS THAN 50mm.
8. ALL DRAINAGE WORKS ARE TO BE CONSTRUCTED AND IDM TO VICTORIAN PLANNING AUTHORITY (VPA) SPECIFICATIONS.
9. PIT BASE TO BE SHAPED WITH MASS CONCRETE FOR SMOOTH HYDRAULIC FLOW.
10. ALL STORMWATER DRAINS ARE TO BE CLASS '2' RC UNLESS OTHERWISE SHOWN. ALL PIPES UP TO AND INCLUDING 750mm IN DIAMETER SHALL BE RUBBER RING JOINTED. PIPES ABOVE THIS SIZE MAY BE FLUSH JOINTED WITH EXTERNAL SEALING BANDS.
11. ALL HAUNCHED PITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH VPA REQUIREMENTS AND IDM STD DRAWINGS.

NOTE: STUBS

ALL STUBS FOR FUTURE EXTENSIONS TO BE SOCKETED UPSTREAM AND BLANKED OFF.

NOTE: SEDIMENT CONTROL

SEDIMENT CONTROL INCLUDING HAY BALES AND SEDIMENT TRAP FENCING IS REQUIRED FOR ALL OPEN EARTH DRAINS IN ACCORDANCE WITH EPA 'CONSTRUCTION TECHNIQUES FOR SEDIMENT POLLUTION CONTROL'. SEDIMENT CONTROL MEASURES TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND MAINTENANCE PERIOD OF THE WORKS.

WARNING!

NO DRAINAGE WORKS SHALL COMMENCE UNTIL THE CONTRACTOR CONFIRMS THE I.L. OF ALL EXISTING DRAINS, AND CONFIRMS IN WRITING WITH THE ENGINEERING SUPERVISOR.

NOT TO BE USED FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AMEND	APP'D
A	MELBOURNE WATER ISSUE	05/12/23	JS	KP

DRAWN	R.GUTIERREZ	15/09/23
	3401141	
DESIGNED	J.SIVERSEN	02/10/23
	4031033	
CHECKED	K.PHAL	13/11/23
	1871823	
REG. ENG.		

DCE PLAN REFERENCE	22086.1AMWPIT01
MELWAY REFERENCE	128 J2
WATER AUTHORITY FILE No.	

Coordinates: MGA2020
Levels: AHD

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LEGEND

EX. MW DRAIN & PIT	Ex W — EX. WATER MAIN	FUT W — FUT. WATER MAIN
PROP. MW DRAIN & PIT	Ex G — EX. GAS MAIN	FUT G — FUT. GAS MAIN
FUT. COUNCIL DRAIN & PIT	Ex E — EX. ELECTRICAL CABLE	FUT E — FUT. ELECTRICAL CABLE
DRAINAGE EASEMENT	Ex T — EX. COMM. CABLE	
EX. BATTER	Ex S — EX. SEWER MAIN & MH	

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E info@dceng.com.au

FUNCTIONAL

MELBOURNE WATER
CITY OF GREATER DANDENONG

INDUSTRIAL SUBDIVISION SCHEME DRAIN
GLASSCOCKS ROAD DSS 0710 E10-B10
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
PIT SCHEDULE

SCALE @ A1/A3 As Shown
SHEET NO. 05 OF 04 A
DRAWING NO. /05

INDUSTRIAL SUBDIVISION SOUTH SCHEME DRAIN

GLASSCOCKS RD DSS 0710 F3-G3
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
CITY OF GREATER DANDENONG

FOR

Melbourne Water

Aliro

ISPT SUPER PROPERTY

CIVIL DRAWINGS
MELBOURNE WATER SCHEME DRAIN

MELBOURNE WATER REF: XXX/XXX
DCE REF: 22086.1BMW
MELWAY REF: 128 H2

NOT TO BE USED
FOR CONSTRUCTION

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FUNCTIONAL

1. GENERAL

1.1. ALL LEVELS ARE IN METRES TO AUSTRALIAN HEIGHT DATUM (AHD) AND COORDINATES FOR SETTING OUT ARE TO MAP GRID AUSTRALIA (MGA94 ZONE 55).
1.2. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARD DRAWINGS OF MELBOURNE WATER.
1.3. ALL CHAINAGES REFER TO THE DESIGN LINE AND/OR STRUCTURE CENTRELINE AS SHOWN ON THE DRAWINGS.
1.4. ALL PIPES ARE NOMINAL SIZE AND TO BE MIN. CLASS 2 REINFORCED CONCRETE WITH RUBBER RING JOINTS (RRJ) UNLESS SHOWN OTHERWISE.
1.5. THE CONTRACTOR SHALL GIVE MINIMUM 5 WORKING DAYS NOTICE OF THE COMMENCEMENT OF WORKS TO:
1.5.1. MW DEVELOPER WORKS.
1.5.2. COUNCIL SURVEILLANCE COORDINATOR.
1.5.3. DALTON CONSULTING ENGINEERS.
1.5.4. SERVICE AUTHORITIES AFFECTED BY THE WORKS.
1.6. THE CONTRACTOR IS CAUTIONED THAT EXISTING UNDERGROUND AND OVERHEAD UTILITY SERVICES ARE ADJACENT TO OR WITHIN THE CONSTRUCTION AREA AND THE RELEVANT "NO GO ZONE" SAFETY PROCEDURES MUST BE PREPARED AND APPROVED BY THE UTILITY COMPANY. ALL WORKS MUST COMPLY WITH THESE PROCEDURES.
1.7. THE LOCATION OF THE EXISTING SERVICES SHOWN ON THESE DRAWINGS ARE NOT GUARANTEED FOR THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL SERVICES AFFECTED BY THE WORKS TO HIS OWN SATISFACTION.
1.8. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGE TO ANY SERVICE, STRUCTURE OR EXISTING CONSTRUCTION RESULTING FROM HIS CONSTRUCTION WORKS AND SHALL COMPLY WITH THE MW CONSTRUCTION SPECIFICATION CLAUSE 6.4.
1.9. INSET PIT COVERS OR GRATES AND PIT WALLS SUPPORTING RAISED PIPE GRILLES TO MATCH FINISHED SURFACE LEVELS SHOWN ON THE PLANS.
1.10. WHERE HEAVILY LADEN TRUCKS (EG T44 OR W7 WHEEL LOADS) ARE REQUIRED TO TRAFFIC OVER INSTALLED PIPELINES, A MINIMUM COVER OF 1.00m ABOVE THE CROWN OF PIPE IS REQUIRED. WHERE THE CONTRACTOR REQUIRES TO CROSS ANY PIPELINE WITH CONSTRUCTION EQUIPMENT HAVING IN EXCESS OF THE ABOVE LOADS, THE SUPERINTENDENT MUST BE REFERRED TO.
1.11. TBM'S AND CONTROL POINTS ARE TO BE RE-ESTABLISHED BY THE LICENSED SURVEYOR IF FOUND TO BE MISSING AT THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR CARE AND MAINTENANCE OF ALL T.B.M.'S AND CONTROL POINTS THEREAFTER.
1.12. AT LEAST 3 DAYS BEFORE COMMENCING EXCAVATION OF TRENCHES IN EXCESS OF 1.5m DEEP, A COMPLETED 'NOTICE OF INTENTION TO COMMENCE TRENCHING OPERATIONS' FORM SHALL BE SENT TO WORKSAFE VICTORIA. THE NOMINATED SUPERVISOR SHALL BE SUITABLY QUALIFIED IN ACCORDANCE WITH THE VICTORIAN OHS ACT 2004, OCCUPATIONAL HEALTH AND SAFETY REGULATIONS 2017 AND COMMONWEALTH OHS CODES OF PRACTICE 2008.
1.13. ALL SERVICE AUTHORITIES SHALL BE NOTIFIED IN WRITING SEVEN DAYS PRIOR TO COMMENCEMENT OF THE WORKS.
1.14. THE LOCATION OF THE EXISTING SERVICES SHOWN ON THESE DRAWINGS ARE NOT GUARANTEED FOR THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL SERVICES AFFECTED BY THE WORKS TO HIS OWN SATISFACTION.
1.15. ALL EXISTING SURFACE LEVELS SHOWN ON THE ENGINEERING DRAWINGS HAVE BEEN INTERPOLATED FROM A DIGITAL TERRAIN MODEL. THESE LEVELS HAVE BEEN USED AS THE BASIS FOR ALL ENGINEERING DESIGN AND DETERMINATION OF QUANTITIES.
1.16. ALL WORKS TO COUNCIL ASSETS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL SPECIFICATIONS, STANDARD DRAWINGS AND TO THE SATISFACTION OF THE SURVEILLANCE CO-ORDINATOR OR HIS REPRESENTATIVE.
1.17. ALL TREES AND SHRUBS TO BE RETAINED UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT AUTHORITY BECAUSE CONSTRUCTION NECESSITATES THEIR REMOVAL, OR REMOVAL IS DIRECTED BY THE AUTHORISED ENGINEER. TREES TO BE REMOVED ARE TO BE SUITABLY LABELED. WHEN IT IS PROPOSED TO REMOVE EXISTING TREES IN ROAD RESERVES OR COUNCIL RESERVES, CONSULTATION IS TO OCCUR WITH COUNCILS PARKS AND GARDENS DEPARTMENT.
1.18. REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DETAILS.
1.19. ALL SERVICE TRENCHES UNDER ROAD CARRIAGEWAYS, FOOTPATHS, VEHICLE CROSSINGS AND OTHER ROAD STRUCTURES ARE TO BE BACKFILLED WITH 20mm CLASS 3 CRUSHED ROCK IN ACCORDANCE WITH COUNCIL'S STANDARD SPECIFICATION FOR ROADS AND DRAINAGE WORKS IN LAND DEVELOPMENTS.
1.20. SURFACE RESTORATION TO ROAD SURFACES TO COUNCILS REQUIREMENTS.
1.21. CONTRACTOR SHALL IMMEDIATELY ADVISE THE CONSULTANT OF ANY SERIOUS OR REPORTABLE INCIDENT:
1.21.1. THAT HAS TO BE NOTIFIED TO THE WORKCOVER AUTHORITY UNDER PART 5 OF THE OHS ACT 2004.
1.21.2. THAT HAS DETRIMENTALLY, OR THREATENS TO, AFFECT THE EXISTING ASSETS OF ANY AUTHORITY OR PROPERTY.
1.21.3. THE CONTRACTOR MUST ALSO ADVISE THE RELEVANT AUTHORITIES AND/OR OWNERS AFFECTED.
1.21.4. THE CONSULTANT SHALL CONFIRM WITH THE RELEVANT AUTHORITIES AND/OR OWNERS THAT THEY HAVE BEEN ADVISED OF THE INCIDENT.
1.22. THE CONTENTS OF ALL CONSTRUCTION ISSUE PLANS SHALL TAKE PRECEDENCE OVER ALL DIGITAL FILES ISSUED BY DCE TO THE CONTRACTOR AND IN PARTICULAR 3D ALIGNMENT STRINGS EXPORTED DIRECTLY FROM 3D CIVIL SOFTWARE. SHOULD ANY DISCREPANCIES BETWEEN CONSTRUCTION ISSUE PLANS AND DIGITAL FILES BE FOUND THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT IMMEDIATELY.

2. SITE SAFETY & ACCESS

2.1. THE WORKS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH MELBOURNE WATER'S OCCUPATIONAL HEALTH POLICY AND THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A PROJECT RISK ASSESSMENT, SITE SAFETY MANAGEMENT AND OTHER REQUIRED INFORMATION BEFORE COMMENCEMENT.
2.2. BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR SHALL ERECT ACCEPTABLE TEMPORARY SAFETY FENCES WHERE REQUIRED TO ISOLATE THE WORKS SITE FROM THE PUBLIC.
2.3. THE CONTRACTOR IS TO PREPARE A TRAFFIC MANAGEMENT PLAN TO THE SATISFACTION OF COUNCIL BEFORE COMMENCING WORKS.
2.4. THE CONTRACTOR IS REQUIRED TO CONFINE CONSTRUCTION VEHICLES TO THE DRAINAGE RESERVE UNLESS APPROVED OTHERWISE BY THE SUPERINTENDENT. ANY DAMAGE CAUSED TO ADJACENT PROPERTIES MUST BE MADE GOOD.
2.5. THE CONTRACTOR IS CAUTIONED THAT EXISTING UNDERGROUND AND OVERHEAD UTILITY SERVICES ARE ADJACENT TO OR WITHIN THE CONSTRUCTION AREA AND THE RELEVANT "NO GO ZONE" SAFETY PROCEDURES MUST BE PREPARED AND APPROVED BY THE UTILITY COMPANY. ALL WORKS MUST COMPLY WITH THESE PROCEDURES.

3. EARTHWORKS & SEDIMENTATION CONTROL

3.1. NO POLLUTED OR SEDIMENT LADEN RUNOFF IS TO BE DISCHARGED DIRECTLY OR INDIRECTLY INTO EXISTING DRAINAGE SYSTEM DURING OR AFTER THE WORKS.
3.2. CONTRACTOR TO PREPARE A SITE MANAGEMENT PLAN (SMP) AND FORWARD TO THE CONSULTANT 3 WEEKS PRIOR TO COMMENCING OF ANY WORKS. SMP IS TO BE PREPARED IN ACCORDANCE WITH THE MELBOURNE WATER SMP KIT PLAN SUBJECT TO COUNCIL AND MELBOURNE WATER APPROVAL.
3.3. CONTRACTOR MUST ENSURE THAT COMPACTION TESTING OF FILLED AREAS COMPLIES WITH LEVEL 1 GEOTECHNICAL SUPERVISION PER CLAUSE 8.2 OF AS 3798-2007 AND SHALL BE ARRANGED BY THE CONTRACTOR WITH CERTIFYING CONSULTANT AT CONTRACTORS EXPENSE.
3.4. FILLING DEPTHS IN EXCESS OF 200mm ARE TO BE STRIPPED OF TOPSOIL, FILLED AND TOPSOIL REPLACED TO OBTAIN FINAL SURFACE LEVELS SHOWN ON THE DRAWINGS.
3.5. STOCKPILING OF MATERIAL IS TO BE PLACED AS DIRECTED BY THE SUPERINTENDENT. NO TOPSOIL IS TO BE REMOVED FROM SITE.
3.6. DISTURBED AREAS WITHIN DESIGNATED GRASSED FLOODWAY ZONES MUST BE TOPSOILED AND HYDROMULCH SEEDED WITH APPROVED GRASSES AND FERTILIZER. TEMPORARY FENCING MUST BE ERECTED TO PREVENT ACCESS TO TREATED AREAS.
3.7. SURPLUS EXCAVATED SPOIL IS TO BE USED AS FILL ON THE ESTATE WHERE PRACTICAL AND IF NOT IS TO BE TAKEN OFF SITE TO A LOCATION SPECIFIED BY THE SUPERINTENDENT.

4. MELBOURNE WATER

4.1. ONLY MW REGISTERED CONTRACTORS ARE PERMITTED TO WORK ON OR ENTER MELBOURNE WATER CORPORATION LIVE ASSETS.
4.2. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ONLY SUCH REGISTERED CONTRACTORS ARE USED AND APPROPRIATE NOTIFICATION IS GIVEN TO MELBOURNE WATER.

5. REINFORCEMENT & CONCRETE

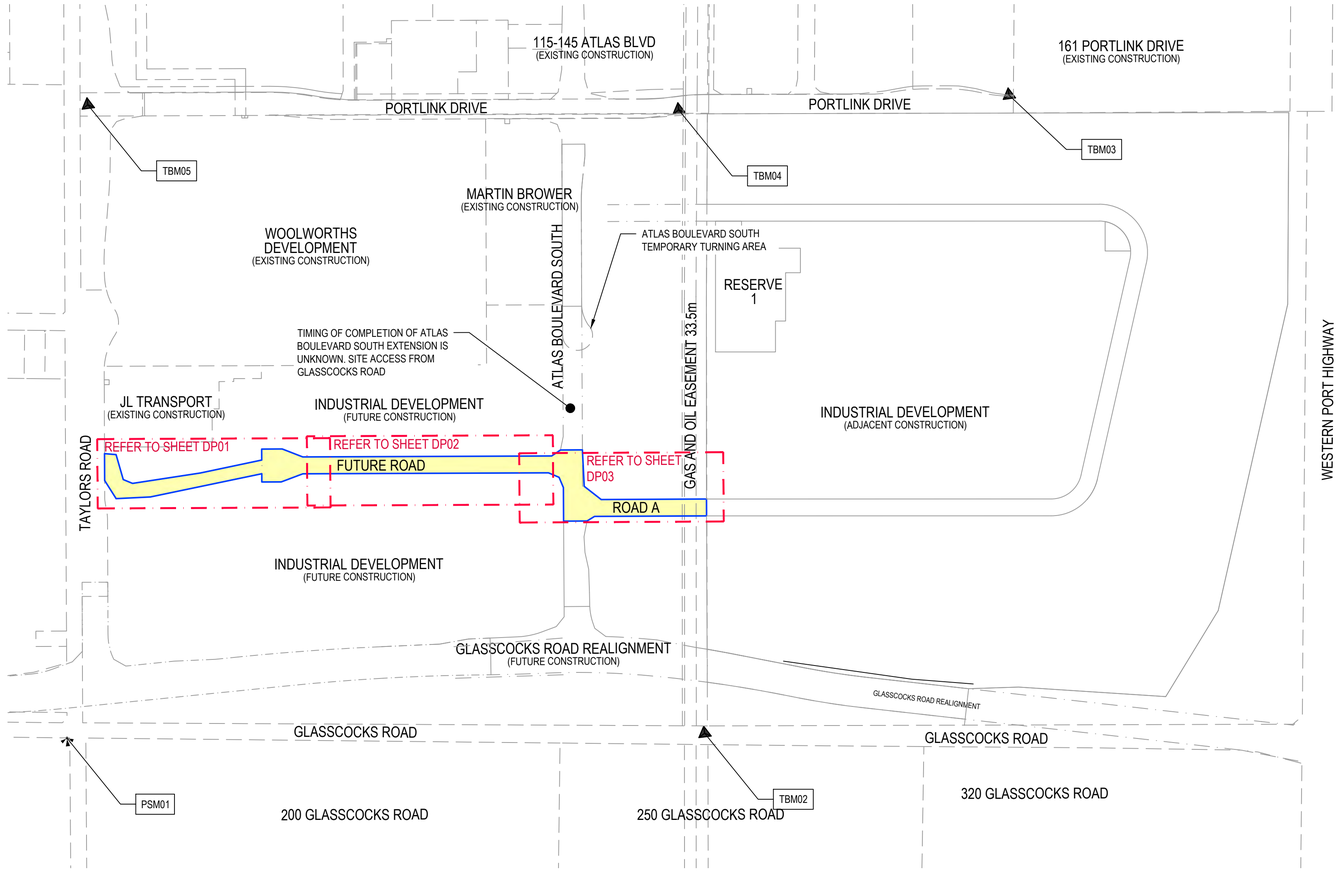
5.1. ALL CONCRETE, REINFORCEMENT, FORMWORK AND ASSOCIATED WORKS SHALL BE IN ACCORDANCE WITH MELBOURNE WATER STANDARD DRAWINGS AND SPECIFICATIONS.

6. TOPSOIL NOTES

6.1. MW TOPSOIL SPECIFICATIONS TO BE ADOPTED.
6.2. TOPSOIL USED (INSITU IMPORTED) MUST COMPLY WITH AS4419 SOILS FOR LANDSCAPING AND GARDEN USE. TESTING MUST BE CARRIED OUT BY A NATA ACCREDITED LABORATORY. IF REQUIRED, AMENDMENTS TO THE TOPSOIL MUST BE UNDERTAKEN TO ACHIEVE COMPLIANCE WITH AS4419.

DRAWING INDEX

DRAWING No.	SHEET No.	DCE REF.	DESCRIPTION
XXX/XXX/01	01	22086.1BMWLP01	LOCALITY PLAN, TYPICAL SECTIONS, DRAWING INDEX AND NOTES
XXX/XXX/02	02	22086.1BMWLP01	TYPICAL SECTIONS AND DETAILS
XXX/XXX/03-05	03-05	22086.1BMWDP01-03	DETAIL PLAN - SHEETS 01 TO 03
XXX/XXX/06	06	22086.1BMWPIT01	PIT SCHEDULE



TBM & LOCALITY PLAN

SCALE @ A1: 1:4000

TBM SCHEDULE

I.D.	TYPE	EASTING	NORTHING	LEVEL
01	PSM IN N/STRIP	344179.320	5785965.320	11.22
02	STEEL PICKET	345006.273	5785867.584	17.70
03	STEEL PICKET	345504.694	5786644.689	17.18
04	STEEL PICKET	345074.378	5786679.341	13.49
05	STEEL PICKET	344309.616	5786782.272	9.65

NOTE: FUTURE EXTENTIONS
ALL STUBS FOR FUTURE EXTENSIONS TO BE SOCKETED UPSTREAM AND BLANKED OFF.

NOTE: TEMPORARY PIT TOPS
ALL PITS TO BE CONSTRUCTED WITH TEMPORARY TOPS, MATCHING TO EXISTING SURFACE FOR FUTURE GSEP/JP CONVERSION.

NOTE: EXISTING SERVICES
ALL EXISTING SERVICES UNDER NEW AND PROPOSED ROAD PAVEMENT, FOOTPATH AND DRIVEWAYS TO BE FCR BACKFILLED.

NOTE: OPEN EARTH DRAINS
SEDIMENT CONTROL INCLUDING HAY BALES AND SEDIMENT TRAP FENCING IS REQUIRED FOR ALL OPEN EARTH DRAINS IN ACCORDANCE WITH EPA 'CONSTRUCTION TECHNIQUES FOR SEDIMENT POLLUTION CONTROL'. SEDIMENT CONTROL MEASURES TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND MAINTENANCE PERIOD OF THE WORKS.

NOTES: MELBOURNE WATER WORK COVER
1. THE CONTRACTOR SHALL IMMEDIATELY ADVISE THE CONSULTANT OF ANY SERIOUS OR REPORTABLE INCIDENT:
1.a. THAT HAS TO NOTIFIED TO BE THE WORKCOVER AUTHORITY UNDER PART 5 OF THE OHS ACT 2004.
1.b. THAT HAS DETRIMENTALLY, OR THREATENS TO, AFFECT THE EXISTING ASSETS OF ANY AUTHORITY OR PROPERTY.
2. THE CONTRACTOR MUST ALSO ADVISE THE RELEVANT AUTHORITIES AND/OR OWNERS AFFECTED.
3. THE CONSULTANT SHALL CONFIRM WITH THE RELEVANT AUTHORITIES AND/OR OWNERS THAT THEY HAVE BEEN ADVISED OF THE INCIDENT.

CAUTION!
33.50m GAS/OIL EASEMENT CROSSING
CAUTION: EXISTING HIGH PRESSURE GAS AND OIL MAINS. NO WORKS ARE PERMITTED WITHIN THE EXISTING EASEMENT WITHOUT THE APPROVAL OF:
1. ELGAS
2. A.P.A.
3. VIVA

WARNING!
THE LOCATION OF EXISTING SERVICES SHOWN ON THESE PLANS MUST BE PROVEN ON SITE, THE APPROPRIATE AUTHORITY MUST BE CONTACTED AND THE SERVICES LOCATED PRIOR TO COMMENCEMENT OF ANY WORKS.

WARNING!
NO DRAINAGE WORKS SHALL COMMENCE UNTIL THE CONTRACTOR CONFIRMS THE I.L. OF ALL EXISTING DRAINS, AND CONFIRMS IN WRITING WITH THE ENGINEERING SUPERVISOR.

NOT TO BE USED FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AMEND	APP'D
A	FUNCTIONAL ISSUE	8/12/23	SB/HM	RS

DRAWN	H.MINA 15/11/23 3581133
DESIGNED	S.BROWNE 14/11/23 3761034
CHECKED	K.PHAL 30/11/23 1871824
REG. ENG.	

DCE PLAN REFERENCE	22086.1BMWLP01
MELWAY REFERENCE	128 H2
WATER AUTHORITY FILE No.	XXX/XXX

Coordinates: MGA2020
Levels: AHD

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LEGEND
STAGE BOUNDARY
AREA OF WORKS
PSM | TBM

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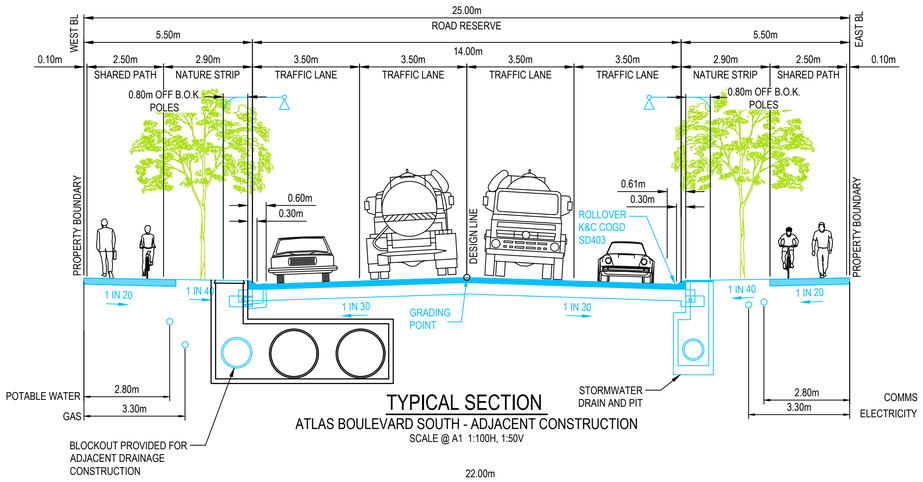
FUNCTIONAL

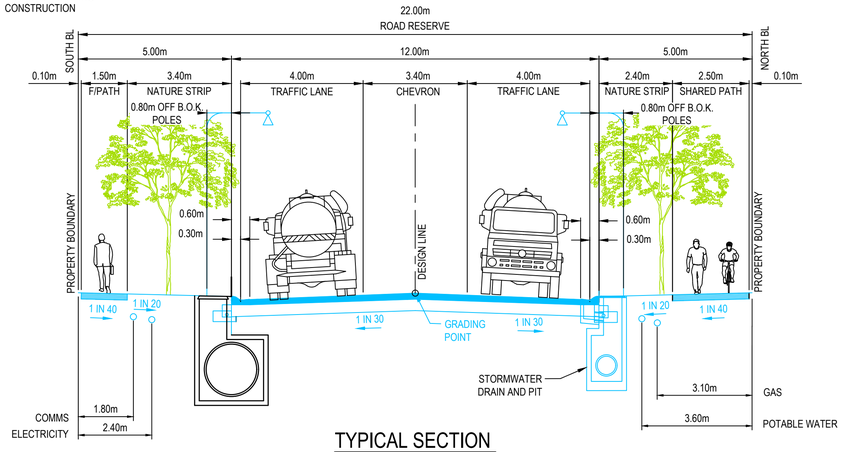
MELBOURNE WATER
CITY OF GREATER DANDENONG

INDUSTRIAL SUBDIVISION SOUTH SCHEME DRAIN
GLASSCOCKS RD DSS 0710 F3-G3
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
LOCALITY PLAN, TYPICAL SECTIONS, DRAWING INDEX AND NOTES

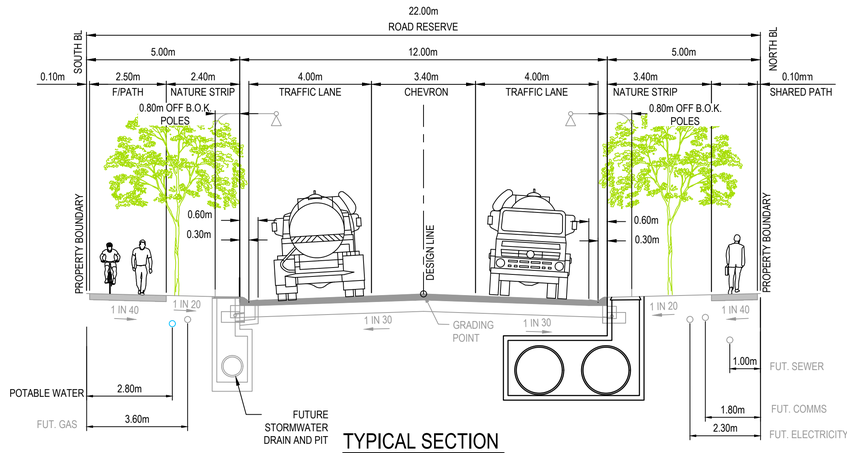
SCALE @ A1/A3: As Shown
SHEET NO. 01 OF 06 | A
DRAWING NO. XXX/XXX/01



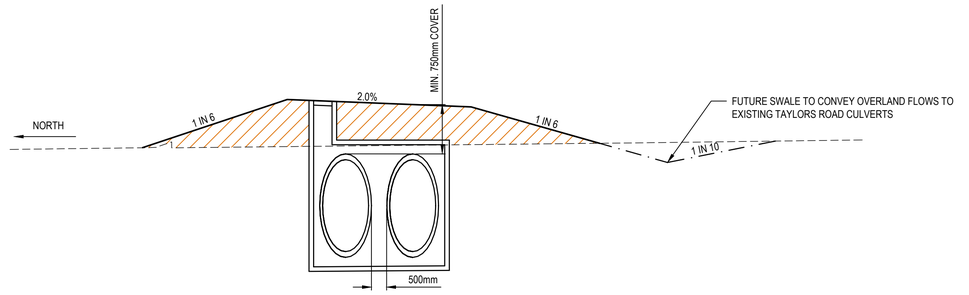
TYPICAL SECTION
ATLAS BOULEVARD SOUTH - ADJACENT CONSTRUCTION
SCALE @ A1 1:100H, 1:50V



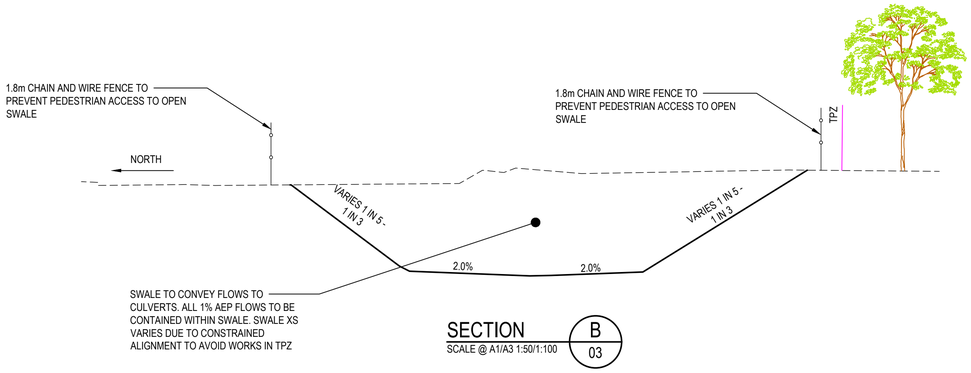
TYPICAL SECTION
22m ROAD A (WEST OF GAS EASEMENT) - ADJACENT CONSTRUCTION
SCALE @ A1 1:100H, 1:50V



TYPICAL SECTION
22m FUTURE ROAD - FUTURE CONSTRUCTION
SCALE @ A1 1:100H, 1:50V



SECTION A
SCALE @ A1/A3 1:50/1:100
03



SECTION B
SCALE @ A1/A3 1:50/1:100
03

NOT TO BE USED FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AMEND	APP'D
A	FUNCTIONAL ISSUE	8/12/23	SB/HM	RS

DRAWN	H.MINA 15/11/23 3581133	
DESIGNED	S.BROWNE 14/11/23 3761034	
CHECKED	K.PHAL 30/11/23 1871824	
REG. ENG.		

DCE PLAN REFERENCE	22086.1BMWTD01
MELWAY REFERENCE	128 H2
WATER AUTHORITY FILE No.	XXX/XXX

Coordinates: MGA2020
Levels: AHD
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LEGEND
- STAGE BOUNDARY
- AREA OF WORKS
- PSM | TBM

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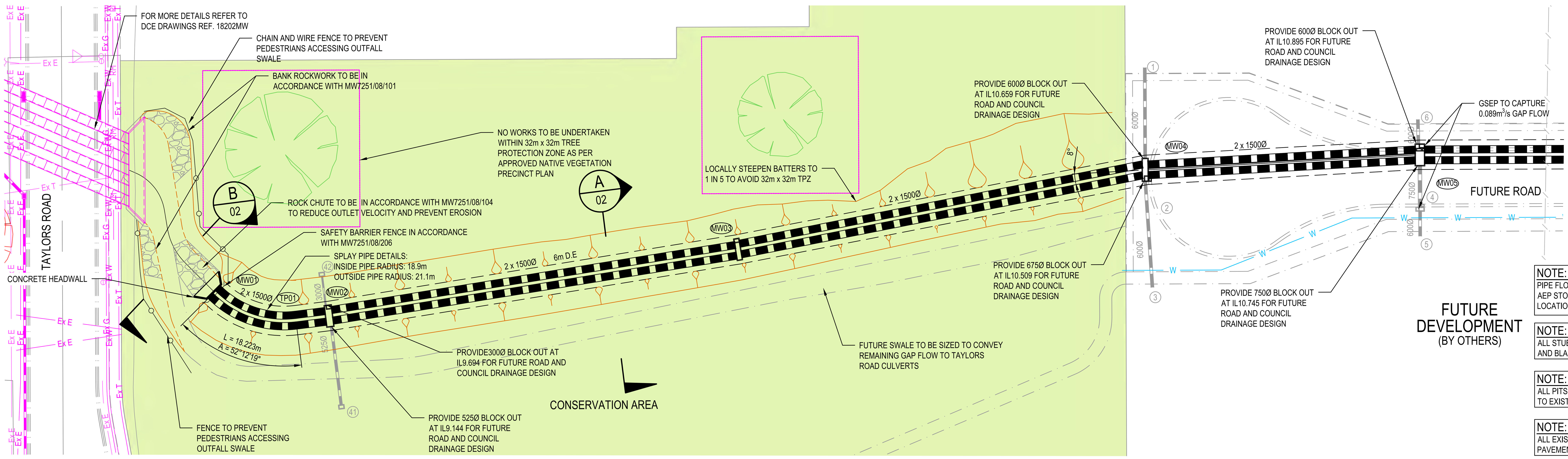
FUNCTIONAL

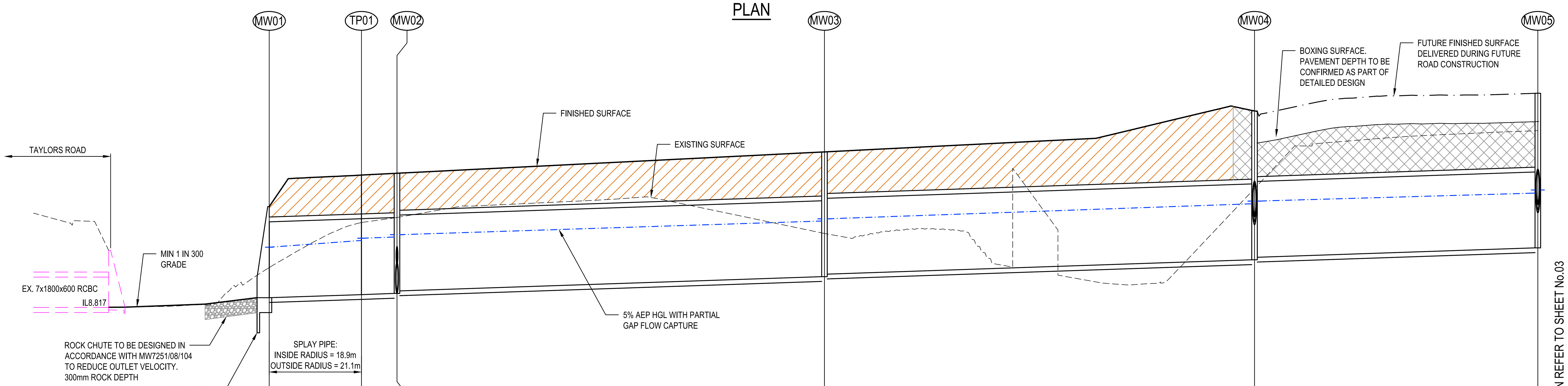
MELBOURNE WATER
CITY OF GREATER DANDENONG

INDUSTRIAL SUBDIVISION SOUTH SCHEME DRAIN
GLASSCOCKS RD DSS 0710 F3-G3
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
LOCALITY PLAN, TYPICAL SECTIONS, DRAWING INDEX AND NOTES

SCALE @ A1/A3 As Shown
SHEET NO. 02 OF 06 A
DRAWING NO. XXX/XXX/02



PLAN



	MW01–TP01	TP01–MW02	MW02–MW03	MW03–MW04	MW04–MW05
VELOCITY (m/s)	2.613	2.613	2.608	2.613	2.596
PIPE GRADE VELOCITY	2.319	2.310	2.310	2.310	2.310
PIPE GRADE %	0.333%	0.333%	0.333%	0.333%	0.333%
PIPE FLOW (m3/s)	7.336	7.343	7.230	7.324	6.997
PIPE CAPACITY AT GRADE	8.197	8.166	8.166	8.166	8.166
PIPE SIZE (mm)	(2x)1500	(2x)1500	(2x)1500	(2x)1500	(2x)1500

DATUM 5.000

	MW01	TP01	MW02	MW03	MW04	MW05
DEPTH TO INVERT	2.290 / 2.290	2.364 / 2.364	2.376 / 2.326	2.467 / 2.417	2.942 / 2.892	3.057
HYDRAULIC GRADE LINE	10.008	10.142 / 10.186	10.209 / 10.256	10.526 / 10.569	10.866 / 10.919	11.078 / 11.140
INVERT LEVEL	9.010 / 9.010	9.071 / 9.071	9.094 / 9.144	9.426 / 9.476	9.759 / 9.809	9.995
DESIGN / FUTURE SURFACE LEVEL	10.510	11.435	11.470	11.892	12.701	13.052
EXISTING SURFACE LEVEL	9.604	10.495	10.595	10.280	11.169	12.312
CHAINAGE	0.000	18.223	25.241	109.689	194.642	250.605

Chainage lengths: 18.223 (MW01–TP01), 7.018 (TP01–MW02), 84.448 (MW02–MW03), 84.953 (MW03–MW04), 55.963 (MW04–MW05)

NOTE: MW01 - TP01 SPLAY PIPE
SPLAY PIPES TO BE CONSTRUCTED IN ACCORDANCE WITH MW7251/08/420
SPLAY PIPE / BANDAGE JOINT DETAILS:
INSIDE: 7 x PIPE LENGTH WITH 8° DEFLECTION AT JOINTS
OUTSIDE: 8 x PIPE LENGTH WITH 7° DEFLECTION AT JOINTS

NOTE: PIPE FLOW
PIPE FLOW SHOWN IN DRAINAGE LONG SECTIONS CONSISTS OF 5% AEP STORM EVENT WITH PARTIAL GAP FLOW CAPTURE AT LOCATIONS SPECIFIED IN PLAN VIEW

NOTE: FUTURE EXTENTIONS
ALL STUBS FOR FUTURE EXTENSIONS TO BE SOCKETED UPSTREAM AND BLANKED OFF.

NOTE: TEMPORARY PIT TOPS
ALL PITS TO BE CONSTRUCTED WITH TEMPORARY TOPS, MATCHING TO EXISTING SURFACE FOR FUTURE GSEP/JP CONVERSION.

NOTE: EXISTING SERVICES
ALL EXISTING SERVICES UNDER NEW AND PROPOSED ROAD PAVEMENT, FOOTPATH AND DRIVEWAYS TO BE FCR BACKFILLED.

NOTE: OPEN EARTH DRAINS
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NOTES: MELBOURNE WATER WORK COVER
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CAUTION!
33.50m GAS/OIL EASEMENT CROSSING
CAUTION: EXISTING HIGH PRESSURE GAS AND OIL MAINS. NO WORKS ARE PERMITTED WITHIN THE EXISTING EASEMENT WITHOUT THE APPROVAL OF:
1. ELGAS
2. A.P.A.
3. VIVA

CAUTION!
ALL EXISTING SERVICES IN THE VICINITY OF WORKS SHALL BE PROTECTED AND KEPT IN FUNCTIONAL STATE AT ALL TIMES DURING WORKS.

WARNING!
NO DRAINAGE WORKS SHALL COMMENCE UNTIL THE CONTRACTOR CONFIRMS THE I.L. OF ALL EXISTING DRAINS, AND CONFIRMS IN WRITING WITH THE ENGINEERING SUPERVISOR.

WARNING!
THE LOCATION OF EXISTING SERVICES SHOWN ON THESE PLANS MUST BE PROVEN ON SITE, THE APPROPRIATE AUTHORITY MUST BE CONTACTED AND THE SERVICES LOCATED PRIOR TO COMMENCEMENT OF ANY WORKS.

NOT TO BE USED FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AMEND	APP'D
A	FUNCTIONAL ISSUE	8/12/23	SB/HM	RS

DRAWN	H.MINA 15/11/23 3581133	DCE PLAN REFERENCE	22086.1BMWDP01
DESIGNED	S.BROWNE 14/11/23 3761034	MELWAY REFERENCE	128 H2
CHECKED	K.PHAL 30/11/23 1871824	WATER AUTHORITY FILE No.	XXX/XXX
REG. ENG.			

Coordinates: MGA2020
Levels: AHD

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LEGEND
EX. MW DRAIN & PIT; PROP. MW DRAIN & PIT; ADJ. COUNCIL DRAIN & PIT; FUT. COUNCIL DRAIN; EX. TREE TO REMAIN; 32m x 32m TPZ; DRAINAGE EASEMENT; BOXING SURFACE; Ex W EX. WATER MAIN; Ex G EX. GAS MAIN; Ex E EX. ELECTRICAL CABLE; Ex T EX. COMM. CABLE; Ex OIL EX. OIL PIPE; CONSERVATION AREA; FILL; FCR CLASS 3 BACKFILL; TRENCHLESS CONSTRUCTION; EX. LINEWORK; FUT. LINEWORK; FINISHED SURFACE; HYDRAULIC GRADE LINE; EXISTING SURFACE; FUTURE SURFACE; CHAIN & WIRE FENCE; SAFETY BARRIER FENCE

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FUNCTIONAL

MELBOURNE WATER
CITY OF GREATER DANDENONG

INDUSTRIAL SUBDIVISION SOUTH SCHEME DRAIN GLASSCOCKS RD DSS 0710 F3-G3

265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
DETAIL PLAN, SHEET 01 OF 03

H 0m 5m 10m 20m 30m
V 0m 0.5m 1m 2m 3m
SCALE @ A1/A3 H1:500/1000 V1:50/100

SHEET NO. 03 OF 06 — A
DRAWING NO. XXX/XXX/03

NOTE: EXISTING SERVICES
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CAUTION!
33.50m GAS/OIL EASEMENT CROSSING
CAUTION: EXISTING HIGH PRESSURE GAS AND OIL MAINS. NO WORKS ARE PERMITTED WITHIN THE EXISTING EASEMENT WITHOUT THE APPROVAL OF:
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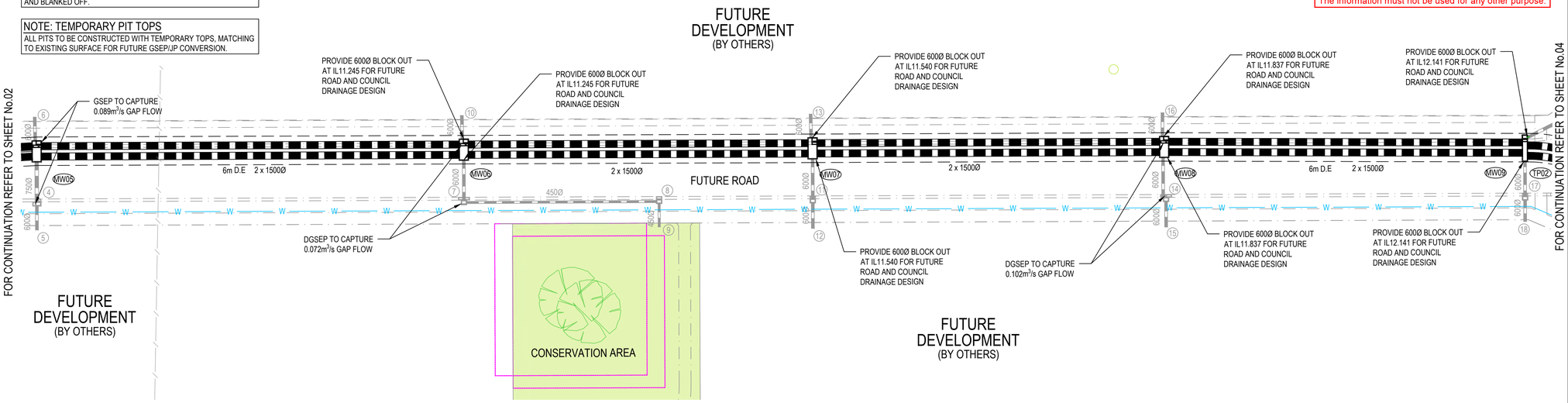
3. VIVA

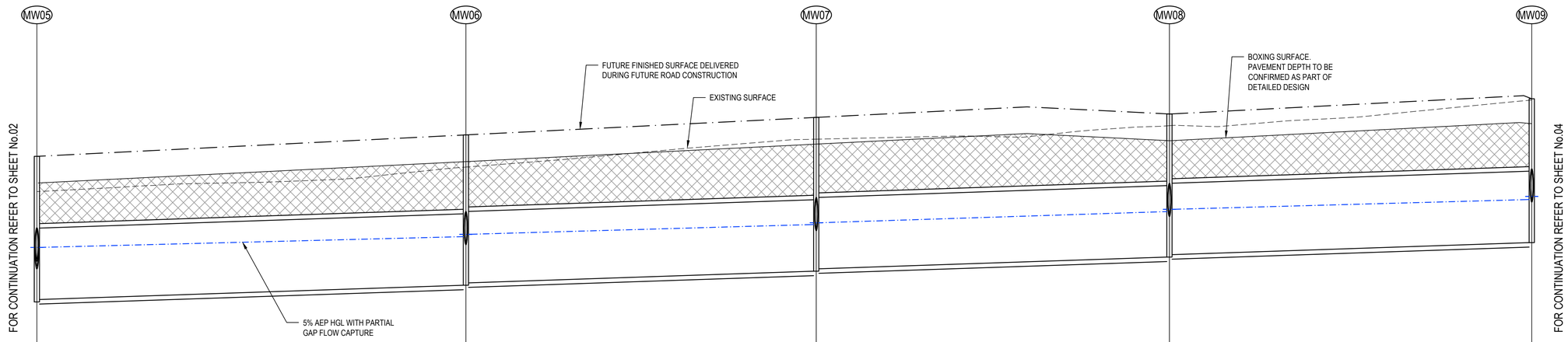
NOTE: PIPE FLOW
PIPE FLOW SHOWN IN DRAINAGE LONG SECTIONS CONSISTS OF 5% AEP STORM EVENT WITH PARTIAL GAP FLOW CAPTURE AT LOCATIONS SPECIFIED IN PLAN VIEW

NOTE: FUTURE EXTENTIONS
ALL STUBS FOR FUTURE EXTENSIONS TO BE SOCKETED UPSTREAM AND BLANKED OFF.

NOTE: TEMPORARY PIT TOPS
ALL PITS TO BE CONSTRUCTED WITH TEMPORARY TOPS, MATCHING TO EXISTING SURFACE FOR FUTURE GSEP/JP CONVERSION.



PLAN



	MW05	MW06	MW07	MW08	MW09
VELOCITY (m/s)		2.564	2.541	2.523	2.480
PIPE GRADE VELOCITY		2.310	2.310	2.310	2.310
PIPE GRADE %		0.333%	0.333%	0.333%	0.333%
PIPE FLOW (m3/s)		6.500	6.197	5.990	5.521
PIPE CAPACITY AT GRADE		8.166	8.166	8.166	8.166
PIPE SIZE (mm)		(2x)1500	(2x)1500	(2x)1500	(2x)1500
DATUM	7.000				
DEPTH TO INVERT	3.057 / 3.007	3.157 / 3.107	3.229 / 3.179	3.004 / 2.954	3.021 / 2.971
HYDRAULIC GRADE LINE	11.078 / 11.140	11.366 / 11.415	11.621 / 11.657	11.892 / 11.939	12.145 / 12.210
INVERT LEVEL	9.995 / 10.045	10.345 / 10.395	10.640 / 10.650	10.937 / 10.987	11.241 / 11.291
DESIGN / FUTURE SURFACE LEVEL	13.052	13.502	13.870	13.942	14.261
EXISTING SURFACE LEVEL	12.312	12.827	13.412	13.696	14.233
CHAINAGE	250.605	90.000 / 340.605	73.499 / 414.105	74.088 / 488.193	76.014 / 564.207

LEGEND
EX. MW DRAIN & PIT
PROP. MW DRAIN & PIT
ADJ. COUNCIL DRAIN & PIT
FUT. COUNCIL DRAIN
EX. TREE TO REMAIN
32m x 32m TPZ
DRAINAGE EASEMENT
BOXING SURFACE
EX. WATER MAIN
EX. GAS MAIN
EX. ELECTRICAL CABLE
EX. COMM. CABLE
EX. OIL PIPE
CONSERVATION AREA
FILL
FCR CLASS 3 BACKFILL
TRENCHLESS CONSTRUCTION
EX. LINEWORK
FUT. LINEWORK
FINISHED SURFACE
HYDRAULIC GRADE LINE
EXISTING SURFACE
FUTURE SURFACE
CHAIN & WIRE FENCE
SAFETY BARRIER FENCE

Coordinates: MGA2020
Levels: AHD
BEFORE YOU DIG www.byda.com.au

NOT TO BE USED FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AMEND	APP'D
A	FUNCTIONAL ISSUE	8/12/23	SB/HM	RS

DRAWN	H.MINA	15/11/23 3581133
DESIGNED	S.BROWNE	14/11/23 3761034
CHECKED	K.PHAL	30/11/23 1871824
REG. ENG.		

DCE PLAN REFERENCE	22086.1BMWDP02
MELWAY REFERENCE	128 H2
WATER AUTHORITY FILE No.	XXX/XXX

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brisbane turrbal T +61 7 3374 9000
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FUNCTIONAL

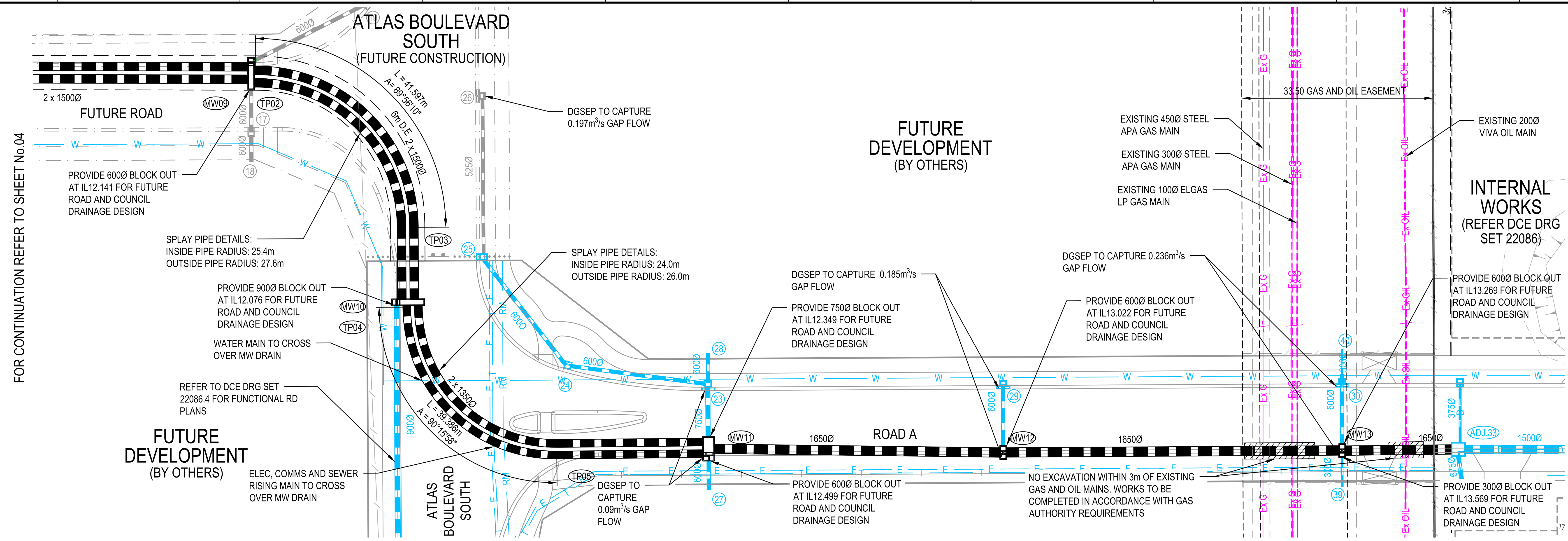
MELBOURNE WATER
CITY OF GREATER DANDENONG

INDUSTRIAL SUBDIVISION SOUTH SCHEME DRAIN
GLASSCOCKS RD DSS 0710 F3-G3
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
DETAIL PLAN, SHEET 02 OF 03

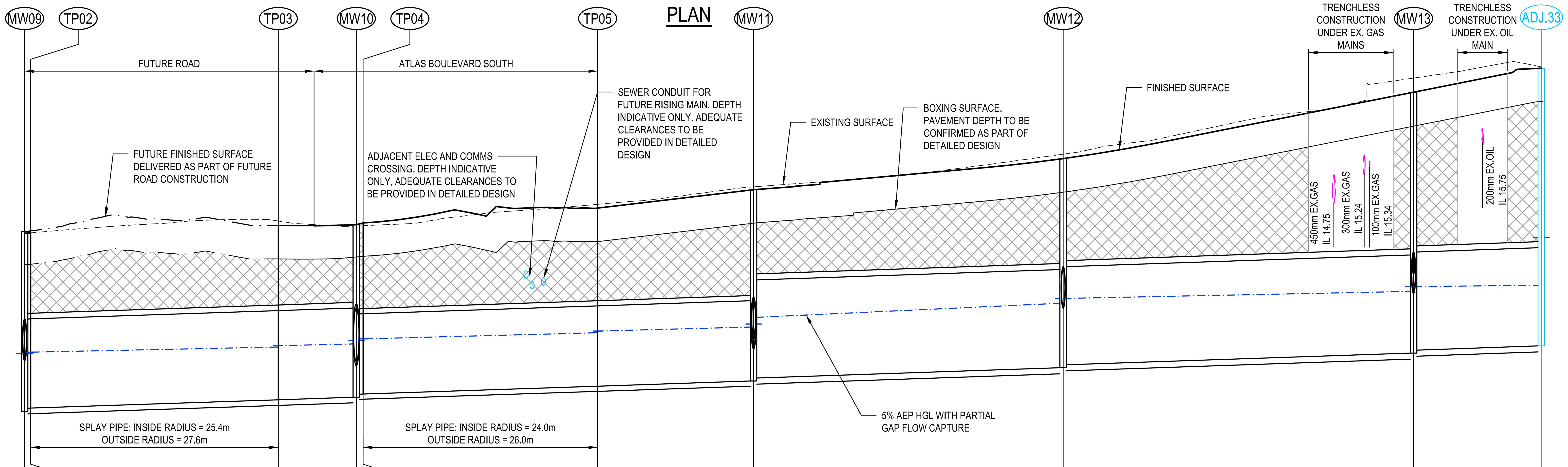
H 0m 5m 10m 20m 30m
V 0m 0.5m 1m 2m 3m
SCALE @ A1/A3 H1:500/1000 V1:50/100

SHEET NO. 04 OF 06 A

DRAWING NO.
XXX/XXX/04



PLAN



	MW09–TP02	TP02–TP03	TP03–MW10	MW10–TP04	TP04–TP05	TP05–MW11	MW11–MW12	MW12–MW13	MW13–ADJ.33
VELOCITY (m/s)	2.452	2.456	2.457	2.371	2.374	2.376	2.715	2.666	2.581
PIPE GRADE VELOCITY	2.310	2.310	2.310	2.154	2.154	2.154	2.462	2.462	2.462
PIPE GRADE %	0.333%	0.333%	0.333%	0.333%	0.333%	0.333%	0.333%	0.333%	0.333%
PIPE FLOW (m3/s)	5.238	5.278	5.292	4.701	4.737	4.761	4.053	3.707	3.202
PIPE CAPACITY AT GRADE	8.166	8.166	8.166	6.166	6.166	6.166	5.264	5.264	5.264
PIPE SIZE (mm)	(2x)1500	(2x)1500	(2x)1500	(2x)1350	(2x)1350	(2x)1350	1650	1650	1650

DATUM 8.000

	MW09	TP02	TP03	MW10	TP04	TP05	MW11	MW12	MW13	ADJ.33
DEPTH TO INVERT	3.021 / 2.971	2.981 / 2.981	3.231 / 3.231	3.357 / 3.307	3.330 / 3.330	3.058 / 3.058	3.265 / 3.215	3.591 / 3.541	4.624 / 4.574	4.668
HYDRAULIC GRADE LINE	12.145 / 12.210	12.212 / 12.234	12.321 / 12.343	12.373 / 12.427	12.430 / 12.457	12.561 / 12.589	12.657 / 12.707 / 12.820	13.056 / 13.138	13.255 / 13.338	13.359 / 14.159
INVERT LEVEL	11.241 / 11.291	11.294 / 11.294	11.433 / 11.433	11.476 / 11.526	11.530 / 11.530	11.662 / 11.662	11.749 / 11.799	11.972 / 12.022	12.219 / 12.269	12.340
DESIGN / FUTURE SURFACE LEVEL	14.261	14.276	14.363	14.378	14.408	14.656	14.966	15.489	16.605	17.009
EXISTING SURFACE LEVEL	14.233	14.239	14.439	14.356	14.362	14.720	15.014	15.563	16.843	17.031
CHAINAGE	564.207	565.234	606.831	619.938	621.085	660.471	686.680	738.696	797.557	819.022

Chainage segment lengths: 1.028 (MW09–TP02), 41.597 (TP02–TP03), 13.107 (TP03–MW10), 1.147 (MW10–TP04), 39.386 (TP04–TP05), 26.209 (TP05–MW11), 52.016 (MW11–MW12), 58.861 (MW12–MW13), 21.465 (MW13–ADJ.33)

NOTE: TP02 - TP03 SPLAY PIPE
SPLAY PIPES TO BE CONSTRUCTED IN ACCORDANCE WITH MW7251/08/420
SPLAY PIPE / BANDAGE JOINT DETAILS:
INSIDE: 16 x PIPE LENGTH WITH 6° DEFLECTION AT JOINTS
OUTSIDE: 17 x PIPE LENGTH WITH 5° DEFLECTION AT JOINTS

NOTE: TP04 - TP05 SPLAY PIPE
SPLAY PIPES TO BE CONSTRUCTED IN ACCORDANCE WITH MW7251/08/420
SPLAY PIPE / BANDAGE JOINT DETAILS:
INSIDE: 16 x PIPE LENGTH WITH 6° DEFLECTION AT JOINTS
OUTSIDE: 17 x PIPE LENGTH WITH 6° DEFLECTION AT JOINTS

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REV	DESCRIPTION	DATE	AMEND	APP'D
A	FUNCTIONAL ISSUE	8/12/23	SB/HM	RS

DRAWN	H.MINA 15/11/23 3581133	DCE PLAN REFERENCE	22086.1BMWDP03
DESIGNED	S.BROWNE 14/11/23 3761034	MELWAY REFERENCE	128 H2
CHECKED	K.PHAL 30/11/23 1871824	WATER AUTHORITY FILE No.	XXX/XXX
REG. ENG.			

Coordinates: MGA2020
Levels: AHD

BEFORE YOU DIG www.byda.com.au

LEGEND

EX. MW DRAIN & PIT	EX. WATER MAIN	EX. LINEWORK
PROP. MW DRAIN & PIT	EX. GAS MAIN	FUT. LINEWORK
ADJ. COUNCIL DRAIN & PIT	EX. ELECTRICAL CABLE	FINISHED SURFACE
FUT. COUNCIL DRAIN	EX. COMM. CABLE	HYDRAULIC GRADE LINE
EX. TREE TO REMAIN	EX. OIL PIPE	EXISTING SURFACE
32m x 32m TPZ	CONSERVATION AREA	FUTURE SURFACE
DRAINAGE EASEMENT	FILL	CHAIN & WIRE FENCE
BOXING SURFACE	FCR CLASS 3 BACKFILL	SAFETY BARRIER FENCE
	TRENCHLESS CONSTRUCTION	

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FUNCTIONAL

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CITY OF GREATER DANDENONG

INDUSTRIAL SUBDIVISION SOUTH SCHEME DRAIN
GLASSCOCKS RD DSS 0710 F3-G3
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
DETAIL PLAN, SHEET 03 OF 03

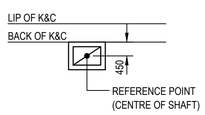
H 0m 5m 10m 20m 30m
V 0m 0.5m 1m 2m 3m
SCALE @ A1/A3 H1:500/1000 V1:50/100

SHEET NO. 05 OF 06 A

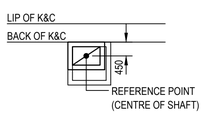
DRAWING NO. XXX/XXX/05

PIT SCHEDULE

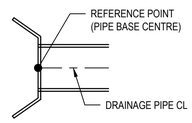
PIT NAME	PIT TYPE	PIT EASTING	PIT NORTHING	LID WIDTH	LID LENGTH	BASE WIDTH	BASE LENGTH	INLET DIA.	INLET INV LEV	OUTLET DIA.	OUTLET INV LEV	PIT SETOUT RL	PIT DEPTH	PIT DETAIL	HAUNCH DETAIL	STEP IRONS	HEAVY DUTY	FURTHER COMMENTS
MW01	EW	344288.591	5786286.922	-	-			(2x)1500	9.010			10.510	1.500	STRUCTURAL DRAWINGS TO BE PROVIDED	-	-		PROVIDE ROCK CHUTE IN ACCORDANCE WITH MW7251/08/104
TP01	TP	344304.396	5786279.179	-	-			(2x)1500	9.071	(2x)1500	9.071	11.435	2.364	-	-	-		SPLAY PIPES
MW02	JP	344311.414	5786279.179	600	900	4250	1300	(2x)1500 525 300	9.144 9.144 9.694	(2x)1500	9.094	11.470	2.376	COGD SD210-B	MW7251/08/409	COGD SD 228-A		PROVIDE 300 AND 525 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION
MW03	JP	344395.807	5786282.223	600	900	4250	900	(2x)1500	9.476	(2x)1500	9.426	11.892	2.467	COGD SD210-B	MW7251/08/409	COGD SD 228-A		-
MW04	JP	344480.569	5786287.912	600	900	4500	1050	(2x)1500 600 750	9.809 10.659 10.509	(2x)1500	9.759	12.701	2.942	COGD SD210-B	MW7251/08/409	COGD SD 228-A	YES	PROVIDE 600 AND 675 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION TEMPORARY JP WITH HD COVER (FUTURE DGSEP)
MW05	JP	344536.392	5786283.953	600	900	4250	1750	(2x)1500 750 600	10.045 10.745 10.895	(2x)1500	9.995	13.052	3.057	COGD SD210-B	MW7251/08/409	COGD SD 228-A	YES	PROVIDE 600 AND 750 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION TEMPORARY JP WITH HD COVER (FUTURE GSEP)
MW06	JP	344625.731	5786273.062	600	900	4250	1750	(2x)1500 600 600	10.395 11.245 11.245	(2x)1500	10.345	13.502	3.157	COGD SD210-B	MW7251/08/409	COGD SD 228-A	YES	PROVIDE 2 x 600 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION TEMPORARY JP WITH HD COVER (FUTURE DGSEP)
MW07	JP	344698.690	5786264.168	600	900	4250	1750	(2x)1500 600 600	10.690 11.540 11.540	(2x)1500	10.640	13.870	3.229	COGD SD210-B	MW7251/08/409	COGD SD 228-A	YES	PROVIDE 2 x 600 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION TEMPORARY JP WITH HD COVER (FUTURE GSEP)
MW08	JP	344772.233	5786255.202	600	900	4250	1750	(2x)1500 600 600	10.987 11.837 11.837	(2x)1500	10.937	13.942	3.004	COGD SD210-B	MW7251/08/409	COGD SD 228-A	YES	PROVIDE 2 x 600 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION TEMPORARY JP WITH HD COVER (FUTURE DGSEP)
MW09	JP	344847.633	5786245.557	600	900	5350	900	(2x)1500 600 600	11.291 12.141 12.141	(2x)1500	11.241	14.261	3.021	COGD SD210-B	MW7251/08/409	COGD SD 228-A	YES	PROVIDE 2 x 600 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION TEMPORARY JP WITH HD COVER (FUTURE GSEP)
TP02	TP	344848.357	5786244.827	-	-			(2x)1500	11.294	(2x)1500	11.294	14.276	2.981	-	-	-		SPLAY PIPES
TP03	TP	344871.459	5786215.345	-	-			(2x)1500	11.433	(2x)1500	11.433	14.363	2.930	-	-	-		SPLAY PIPES
MW10	GSEP	344869.890	5786202.332	600	900	5500	900	(2x)1350 900	11.526 12.076	(2x)1500	11.476	14.378	2.901	COGD SD206-A	MW7251/08/409	COGD SD 228-A		PROVIDE 900 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION
TP04	TP	344870.559	5786201.401	-	-			(2x)1350	11.530	(2x)1350	11.530	14.408	2.877	-	-	-		SPLAY PIPES
TP05	TP	344892.499	5786173.572	-	-			(2x)1350	11.662	(2x)1350	11.662	14.656	2.995	-	-	-		SPLAY PIPES
MW11	DGSEP	344918.255	5786168.720	600	900	3950	1800	1650 750 600	11.799 12.349 12.499	(2x)1350	11.749	14.966	3.217	COGD SD206-A & EDCM604	MW7251/08/409	COGD SD 228-A		PROVIDE 600 AND 750 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION
MW12	DGSEP	344969.899	5786162.508	600	900	2100	900	1650 600	12.022 13.022	1650	11.972	15.489	3.517	COGD SD206-A & EDCM604	MW7251/08/409	COGD SD 228-A		PROVIDE 600 BLOCKOUT FOR FUTURE DRAINAGE CONNECTION
MW13	DGSEP	345028.338	5786155.478	600	900	2100	900	1650 600 300	12.269 13.269 13.569	1650	12.219	16.605	4.387	COGD SD206-A & EDCM605	MW7251/08/411	COGD SD 228-A		PROVIDE 300 AND 600 BLOCKOUTS FOR FUTURE DRAINAGE CONNECTION
ADJ.33	GSEP	345049.654	5786152.948	600	900	2200	2200			1650	12.340	17.009	4.668	COGD SD206-A	MW7251/08/411	COGD SD 228-A		-



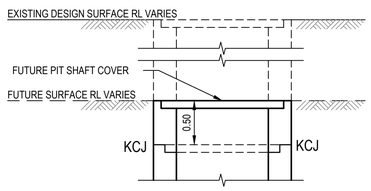
PIT SETOUT POINT
NOT TO SCALE



HAUNCHED PIT SETOUT POINT
FOR HAUNCHED PITS WITH 150mm THICK WALLS
NOT TO SCALE



ENDWALL SETOUT POINT
NOT TO SCALE



TEMPORARY PIT TOP DETAIL
NOT TO SCALE

NOTE: TEMPORARY JP's
TEMPORARY JUNCTION PITS TO BE CONSTRUCTED WITH HD LIDS, MATCHING TO FUTURE ROAD SURFACE FOR FUTURE GSEP/JP CONVERSION.

NOTES: DRAINAGE PITS
1. EASTING, NORTHING SETOUT TO CENTRE OF PIT COVER.
2. SETOUT LEVEL TO PIT COVER LEVEL.
3. EASTING, NORTHING FOR ENDWALL SETOUT POINTS QUOTED TO PIPE INVERT CENTRELINE.
4. ALL PIT COVERS TO BE IN ACCORDANCE WITH COUNCIL AND VPA REQUIREMENTS AND SPECIFICATIONS.
5. ALL TEMPORARY JUNCTION PITS (JP) TO BE PROVIDED WITH KEYED CONSTRUCTION JOINTS (K.C.J) FOR FUTURE SEP CONVERSION.
6. STEP IRONS REQUIRED FOR ALL PITS GREATER THAN 1000mm IN DEPTH.
7. PIT FLOOR TO BE SHAPED TO MATCH LOWER HALF OF PIPE WHERE DROPS LESS THAN 50mm.
8. ALL DRAINAGE WORKS ARE TO BE CONSTRUCTED AND EDCM TO VICTORIAN PLANNING AUTHORITY (VPA) SPECIFICATIONS.
9. PIT BASE TO BE SHAPED WITH MASS CONCRETE FOR SMOOTH HYDRAULIC FLOW.
10. ALL STORMWATER DRAINS ARE TO BE CLASS '2' RC UNLESS OTHERWISE SHOWN. ALL PIPES UP TO AND INCLUDING 750mm IN DIAMETER SHALL BE RUBBER RING JOINTED. PIPES ABOVE THIS SIZE MAY BE FLUSH JOINTED WITH EXTERNAL SEALING BANDS.
11. ALL HAUNCHED PITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH VPA REQUIREMENTS AND EDCM STD DRAWINGS.

NOTE: TEMPORARY PIT TOPS
ALL PITS TO BE CONSTRUCTED WITH TEMPORARY TOPS, MATCHING TO EXISTING SURFACE FOR FUTURE GSEP/JP CONVERSION.

NOTE: STUBS
ALL STUBS FOR FUTURE EXTENSIONS TO BE SOCKETED UPSTREAM AND BLANKED OFF.

NOTE: SEDIMENT CONTROL
SEDIMENT CONTROL INCLUDING HAY BALES AND SEDIMENT TRAP FENCING IS REQUIRED FOR ALL OPEN EARTH DRAINS IN ACCORDANCE WITH EPA 'CONSTRUCTION TECHNIQUES FOR SEDIMENT POLLUTION CONTROL'. SEDIMENT CONTROL MEASURES TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND MAINTENANCE PERIOD OF THE WORKS.

WARNING!
NO DRAINAGE WORKS SHALL COMMENCE UNTIL THE CONTRACTOR CONFIRMS THE I.L. OF ALL EXISTING DRAINS, AND CONFIRMS IN WRITING WITH THE ENGINEERING SUPERVISOR.

NOT TO BE USED FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AMEND	APP'D
A	FUNCTIONAL ISSUE	8/12/23	SB/HM	RS

DRAWN	H.MINA 15/11/23 3581133	
DESIGNED	S.BROWNE 14/11/23 3761034	
CHECKED	K.PHAL 30/11/23 1871824	
REG. ENG.		

DCE PLAN REFERENCE	22086.1BMWPIT01
MELWAY REFERENCE	128 H2
WATER AUTHORITY FILE No.	XXX/XXX

Coordinates: MGA2020
Levels: AHD

BEFORE YOU DIG www.byda.com.au

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melbourne wurundjeri T +61 3 9813 7400
geelong wadawurrung T +61 3 5246 1700
brisbane turrbal T +61 7 3374 9000
dceng.com.au E info@dceng.com.au

FUNCTIONAL

MELBOURNE WATER
CITY OF GREATER DANDENONG

INDUSTRIAL SUBDIVISION SOUTH SCHEME DRAIN
GLASSCOCKS RD DSS 0710 F3-G3
265 WESTERN PORT HIGHWAY, DANDENONG SOUTH
PIT SCHEDULE

SCALE @ A1/A3 As Shown
SHEET NO. 06 OF 06 A
DRAWING NO.
XXX/XXX/06

DALTON CONSULTING ENGINEERS

Appendix I: Roads and Drainage Infrastructure Plan (To Be Delivered And Constructed As A Part Of Proposed Works)

PROPOSED REFERS TO THE ASSET BEING DELIVERED AS PART OF THE 265 DANDENONG-HASTINGS ROAD PROJECT

FUTURE REFERES TO THE ASSET BEING DELIVERED AT A SEPERATE TIME AND NOT BY THE 265 DANDENONG-HASTINGS ROAD DEVELOPER)

ROADS

R1: PROPOSED GLASSCOCKS ROAD REALIGNMENT

R2: PROPOSED GLASSCOCKS ROAD REALIGNMENT LINK ROAD TO EXISTING GLASSCOCKS ROAD

R3: EXISTING GLASSCOCKS ROAD

R4: PROPOSED GLASSCOCKS ROAD REALIGNMENT AND ATLAS BLVD INTERSECTION AND LINK ROAD

R5: FUTURE GLASSCOCKS ROAD REALIGNMENT (TIMING NOT KNOWN)

R6: PROPOSED INTERNAL ROADS

R7: FUTURE LINK ROAD BY OTHERS (TIMING NOT KNOWN)

R8 EXISTING INTERIM ATLAS BLVD CONSTRUCTION BY OTHERS

R9: FUTURE ATLAS BLVD ROAD BY OTHERS BY OTHERS (TIMING NOT KNOWN)

R10: FUTURE ROAD BY OTHERS BY OTHERS (TIMING NOT KNOWN)

R11: EXISTING PORTLINK DRIVE

R12: EXISTING TAYLORS ROAD

DRAINAGE INFRASTRUCTURE

D1: PROPOSED PIPED MINOR FLOWS - ROAD CONVEYS GAP FLOWS. DRAINAGE LAYOUT

D2: PROPOSED PIPED MINOR FLOWS - GAP FLOW EXITS WEST AND SHEETS OVERLAND INTO TAYLORS ROAD EXISTING DRAINAGE INFRASTRUCTURE

D3: PROPOSED PIPED MINOR FLOWS - ROAD CONVEYS GAP FLOWS

D4: PROPOSED PIPED MINOR AND MAJOR FLOW. DSS CHEME DRAIN F3-G3 (INDUSTRIAL SUBDIVISION SOUTH SCHEME DRAIN)

D5: PROPOSED PIPED OUTLET INTO EXISTING TAYLORS ROAD CULVERT. MAJOR AND MINOR FLOWS TO BE CONVEYED INTO RODDS DRAIN (DCE REF 18169)

D6: EXISTING TAYLORS ROAD SCHEME DRAIN. CULVERTS AND OPEN DRAINS CONVEY MINOR AND MAJOR FLOWS (MW REF 0710/12, DCE REF 18202.2)

D7: PROPOSED PIPED MINOR FLOWS - ROAD CONVEYS GAP FLOWS

D8: PROPOSED PIPED MINOR FLOWS CONNECTION INTO EXISTING DRAINAGE - GAP FLOW CONVEYED INTO EXISTING PORTLINK DRIVE OVERLAND

D9: PROPOSED PIPED MINOR AND MAJOR FLOW DSS SCHEME DRAIN E10-B10 (INDUSTRIAL SUBDIVISION NORTH SCHEME DRAIN) OPEN EARTH DRAIN TO ALSO BE PROVIDED TO CONVEY GAP FLOWS FROM INTERNAL SITE INTO SCHEME DRAIN

D10: EXISTING PORTLINK DRIVE SCHEME DRAIN CONNECTING INTO RODDS DRAIN INLET. PIPES CONVEY MAJOR AND MINOR FLOWS (MW REF 0707/36, DCE REF 11600.15)

D11: EXISTING RODDS DRAIN PIPED OUTLET INTO EXISTING WETLAND

MAJOR FLOW PATH

RODDS DRAIN WETLAND / RETARDING BASIN

D11

EXISTING OPEN DRAIN

PORTLINK DRIVE

R11

D10

OPEN DRAIN TO BE PROVIDED TO CONVEY MAJOR FLOWS INTO D9

R11

D8

PORTLINK DRIVE

MAJOR AND MINOR FLOW TO BE PIPED FROM D9

D9

D6

R12

EXISTING CULVERT

TAYLORS ROAD

R8

R7

R6

D7

EXISTING CULVERT

MAJOR AND MINOR FLOW TO BE PIPED FROM D4

R9

GAS AND OIL EASEMENT

D5

R10

D4

EXISTING OPEN DRAIN

R4

R6

D3

WESTERN PORT HIGHWAY

OUTLET MINOR FLOWS INTO EXISTING OPEN DRAIN

R5

D2

D1

PROPOSED D2 DRAINAGE LAYOUT ALLIGNS WITH ULTIMATE GLASSCOCKS ROAD REALIGNMENT

MAJOR FLOW TO SHEET ACROSS EXISTING SURFACE WEST TOWARDS TAYLORS ROAD CULVERT FROM D2 TO D5

R3

GLASSCOCKS ROAD

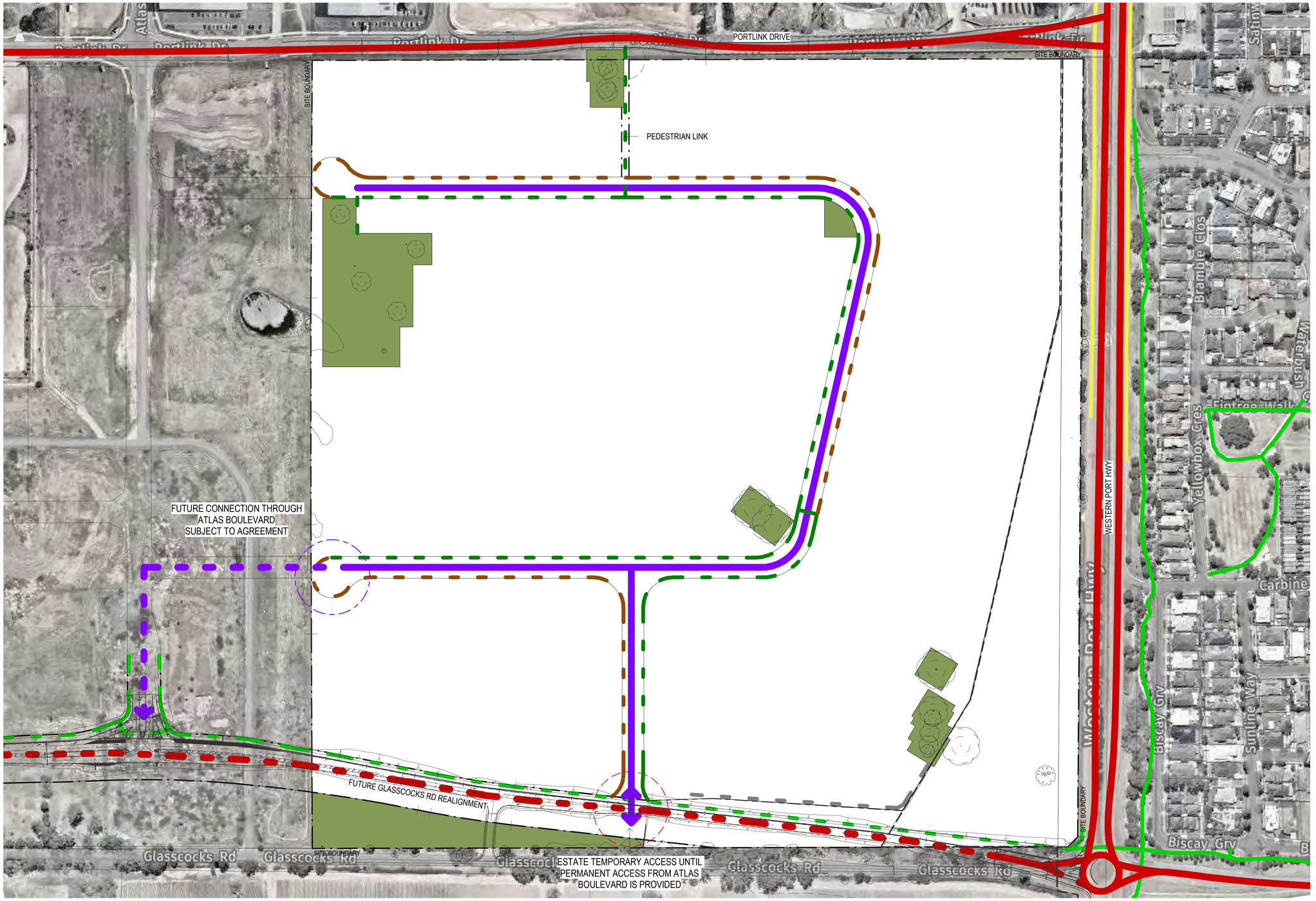
R2

R1

EXTERNAL FLOWS FROM SOUTH TO BE CONVEYED BY GLASSCOCKS ROAD REALIGNMENT

APPENDIX C

MASTERPLAN PACKAGE



LEGEND

- ESTATE BOUNDARY
- INTERNAL ROAD BOUNDARY
- MASTERPLAN - VEHICULAR ACCESS
- MASTERPLAN - POSSIBLE FUTURE CONNECTION
- MASTERPLAN - CYCLING AND WALKING SHARED PATH (2.5m)
- MASTERPLAN - PEDESTRIAN FOOTPATH (1.5m)
- MASTERPLAN - TPZ MAINTENANCE ACCESS EASEMENT (3m ZONE)
- MASTERPLAN - GLASSCOCKS ROAD TEMPORARY ACCESS (VEHICULAR, CYCLING AND WALKING)
- MASTERPLAN - PORTLINK DR CONNECTION (CYCLING AND WALKING)
- MASTERPLAN - FUTURE CONNECTION TO ATLAS BOULEVARD
- EXISTING VEHICULAR MAIN NETWORK (PORTLINK DR & WESTERN PORT HWY)
- EXISTING DEDICATED CYCLING PATH
- EXISTING CYCLING AND WALKING SHARED PATH
- FUTURE GLASSCOCKS RD VEHICULAR NETWORK
- FUTURE DEDICATED CYCLING PATH
- OPEN SPACES / CONSERVATION AREAS

No.	DATE:	REVISION:	BY:	CHK:
A	28-06-2023	FOR APPROVAL	JG	JF
B	16-08-2023	FOR APPROVAL	JG	JF
C	12-10-2023	FOR APPROVAL	JG	JF
D	06-02-2024	FOR APPROVAL	JG	JG

All areas indicated are indicative for design and planning purposes only and should not be used for any contractual reasons without verification by a licensed surveyor or further design development being completed.

Watson Young Architects P/L Melbourne | Perth | Sydney 03 9516 8555 ACN: 111398700
8 Grattan Street Prahran VIC 3181 | e: info@watsonyoung.com.au | w: watsonyoung.com.au

PROJECT:
DHR
265 DANDENONG-HASTINGS ROAD
DANDENONG SOUTH, VIC

TITLE:
PROPOSED MASTERPLAN
TEMPORARY ACCESS MASTERPLAN

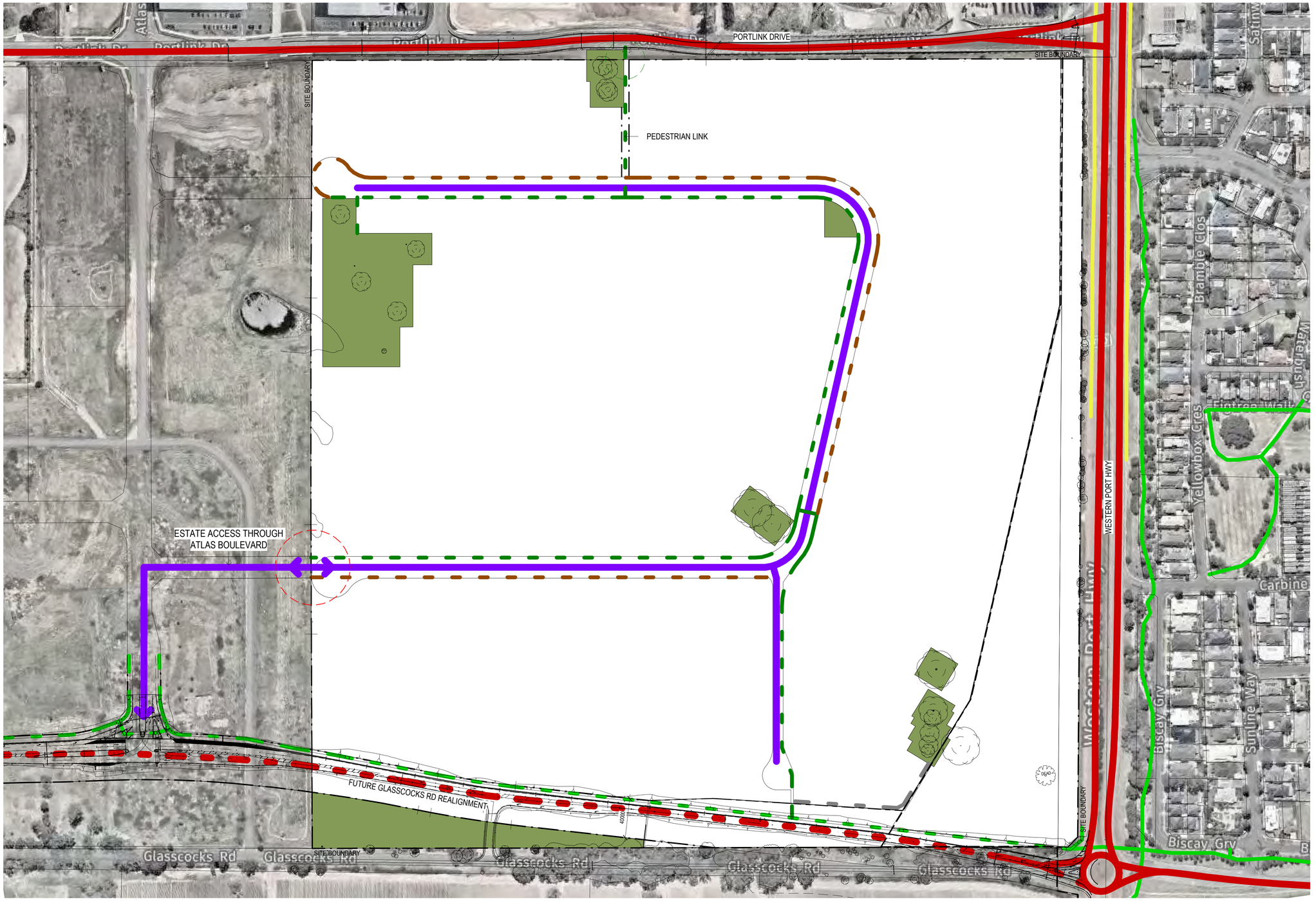
PROJECT NORTH

CLIENT:
Aliro

DATE: DECEMBER, 2022
DRAWN BY: JG
SCALE: 1:2000 @ A1
SCALE: 1:4000 @ A3

JOB NO: 22090
DRAWING NO: TP06
REVISION: D

watson young



LEGEND

- ESTATE BOUNDARY
- INTERNAL ROAD BOUNDARY
- MASTERPLAN - VEHICULAR ACCESS
- MASTERPLAN - CYCLING AND WALKING SHARED PATH (2.5m)
- MASTERPLAN - PEDESTRIAN FOOTPATH (1.5m)
- MASTERPLAN - TPZ MAINTENANCE ACCESS EASEMENT (3m ZONE)
- MASTERPLAN - ATLAS BOULEVARD ACCESS (VEHICULAR, CYCLING AND WALKING)
- MASTERPLAN - PORTLINK DR CONNECTION (CYCLING AND WALKING)
- EXISTING VEHICULAR MAIN NETWORK (PORTLINK DR & WESTERN PORT HWY)
- EXISTING DEDICATED CYCLING PATH
- EXISTING CYCLING AND WALKING SHARED PATH
- FUTURE GLASSCOCKS RD VEHICULAR NETWORK
- FUTURE DEDICATED CYCLING PATH
- OPEN SPACES / CONSERVATION AREAS

No.	DATE:	REVISION:	BY:	CHK:
A	16-08-2023	FOR APPROVAL	JG	JF
B	06-02-2024	FOR APPROVAL	JG	JG

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8 Grattan Street Prahran VIC 3181 | e: info@watsonyoung.com.au | w: watsonyoung.com.au

PROJECT:
DHR
265 DANDENONG-HASTINGS ROAD
DANDENONG SOUTH, VIC

TITLE:
PROPOSED MASTERPLAN
PERMANENT ACCESS MASTERPLAN

PROJECT NORTH

CLIENT:
Aliro

DATE: DECEMBER, 2022
DRAWN BY: JG
SCALE: 1:2000 @ A1
SCALE: 1:4000 @ A3

JOB NO. 22090
DRAWING NO. TP07
REVISION: B

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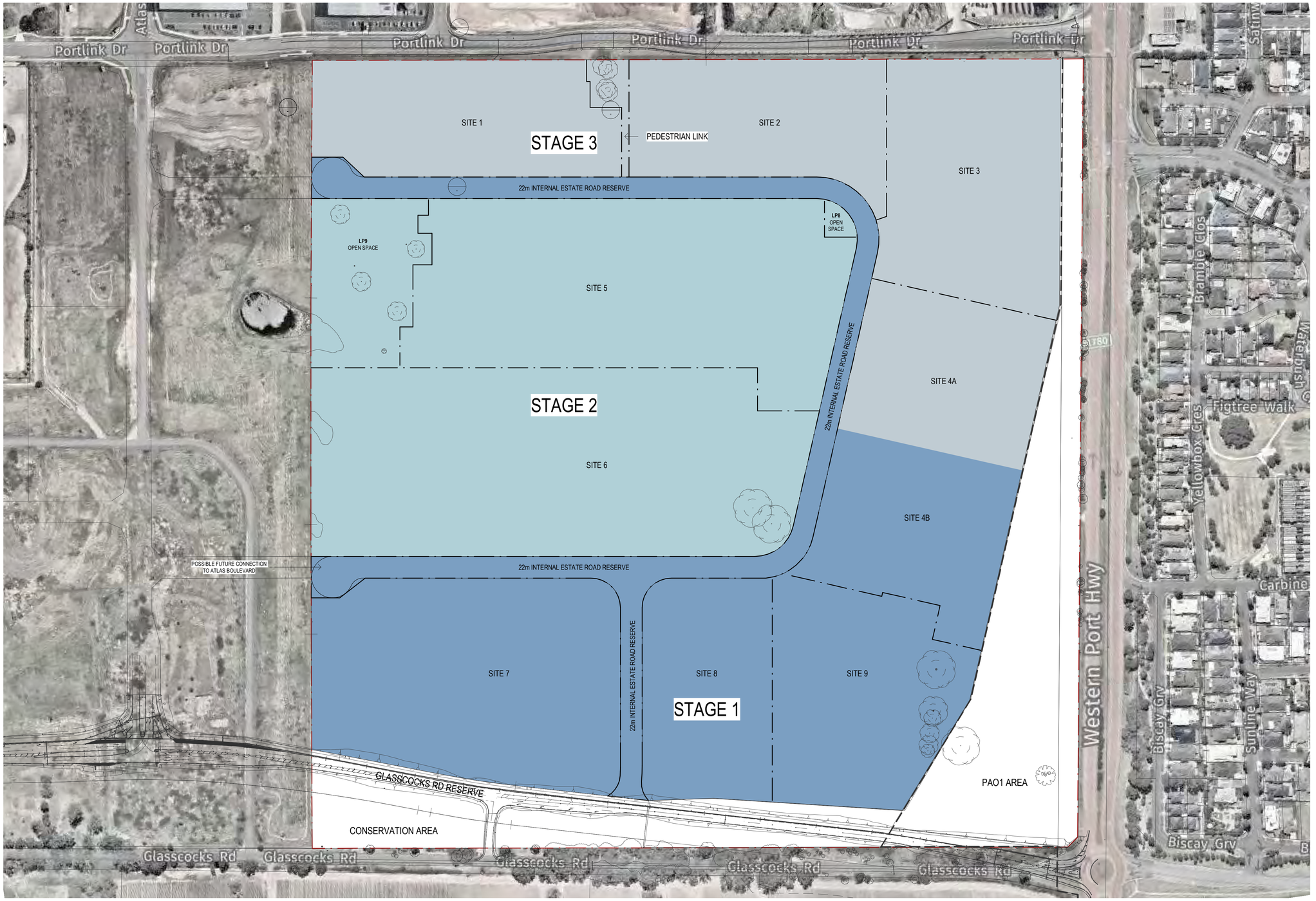

LEGEND

- STAGE 1
- STAGE 2
- STAGE 3
- SITE BOUNDARY
- ESTATE BOUNDARY

No.	DATE:	REVISION:	BY:	CHK:
A	28-06-2023	FOR APPROVAL	JG	JF
B	04-03-2024	FOR APPROVAL	JG	JG

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8 Grattan Street Prahran VIC 3181 | e: info@watsonyoung.com.au | w: watsonyoung.com.au

PROJECT:
DHR
265 DANDENONG-HASTINGS ROAD
DANDENONG SOUTH, VIC

TITLE:
PROPOSED MASTERPLAN
STAGING MASTERPLAN

PROJECT NORTH

CLIENT:
Aliro

DATE: DECEMBER, 2022
DRAWN BY: JG
SCALE: 1:2000 @ A1
SCALE: 1:4000 @ A3

JOB NO: 22090
DRAWING NO: TP05
REVISION: B

watson young

APPENDIX D

LANDSCAPE PACKAGE

265

DANDENONG-HASTINGS ROAD

DEVELOPMENT PLAN APPLICATION
LANDSCAPE ARCHITECTURE + PUBLIC REALM

ISPT / Aliro Group
MDG Landscape Architects

SITE + SURROUNDS

The existing site is defined by gentle undulating paddocks and a number of mature River Red Gums dotted throughout the precinct. River Red Gums can live to over 500 years old and they are a major asset to this site; providing shade, helping to soften the built form and enriching the character of the public realm and park areas.

Pocket parks and open spaces adjacent to this site typically include very modest shelter and picnic facilities. There is great potential to set a new precedent for public open spaces within this area with the provision of higher-quality amenity and people-focused spaces.

There is also a great opportunity to provide genuine tree canopy and screening of large built-forms within the precinct to reduce the urban heat island effect and create cooler, more pleasant spaces for people to work and rest.

PUBLIC REALM : PRINCIPLES

A sustainable and people focused approach to an industrial park, with a discernibly greener aesthetic.

Designing for the Human Dimension - creation of spaces and connections that are comfortable, intimate and 'pedestrian' in scale amongst the large warehouse buildings.

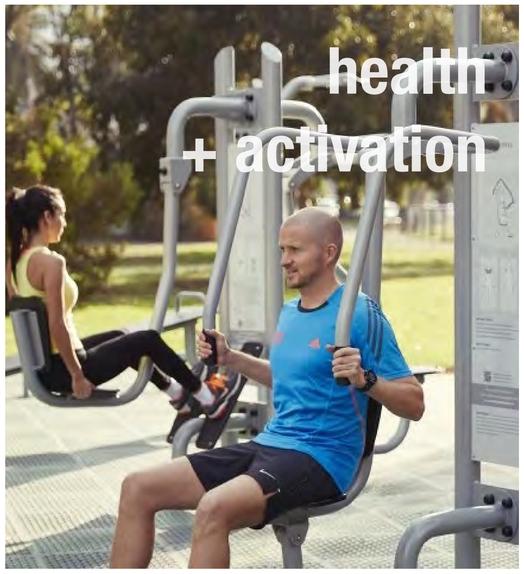
Sustainability and Industrial Greening - utilising best practice landscape approaches to provide lush, green and shaded streetscapes and public realm, to create the sense that the buildings are set within a park landscape, as opposed to the buildings dominating the landscape.

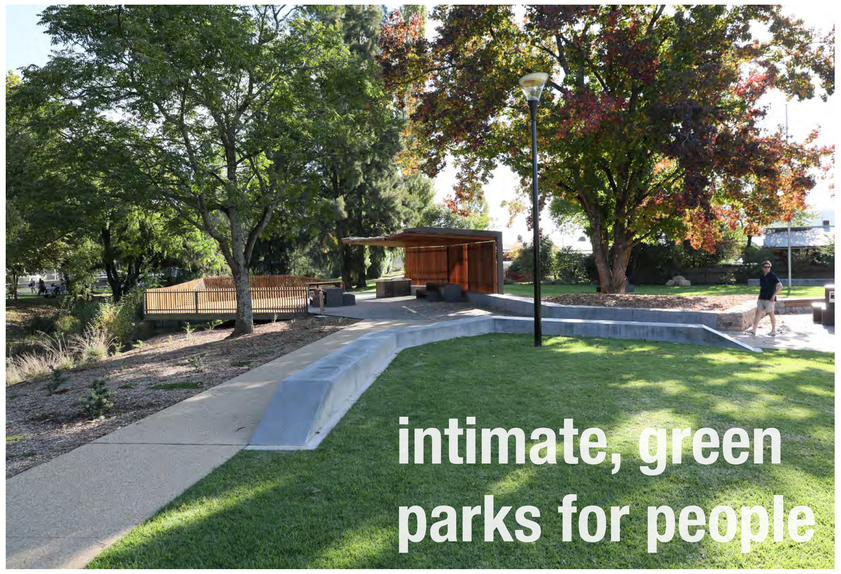
Activation and Invitation - provision of genuine public realm amenity and activation for people working in the area, as an invitation to encourage walking, exercise and recreation within these public spaces.

Flexible Gathering Spaces for all shapes and sizes - creation of flexible seating and gathering spaces, to allow for active and passive use by multiple user groups, including provision of all-weather shelters for outdoor workstations, small events and gatherings.

Informality and layering of planted areas - potential for landscape spaces to be less formal in their layout, geometries and planting as a pleasing counterpoint to the grid formation of the industrial park.

Celebrating the Industrial use of the area - potential for industrial forms and materials / stories to be weaved throughout the spaces to further define and enhance the meaning of the place.





SUSTAINABILITY UNDERPINNING

The landscape design response will be informed by Environmentally Sustainable Design principles with potential for implementation of the following initiatives during detailed design as follows:

Water Sensitive Urban Design - potential for stormwater run-off from building roofs, car-parks and roads to be re-used on site to passively irrigate the plants, trees and lawns. There is also potential for the storm-water to be cleaned and treated through WSUD raingardens and filter media before it enters the broader water catchment.

Biodiversity - focus on a diverse selection of plant species that will promote biodiversity and provide habitat throughout the precinct.

Recycle / Reuse / Source Local - potential to specify recycled and repurposed elements (e.g. timber, concrete sub-bases etc.) where possible to reduce the reliance on virgin materials.

Carbon Neutrality - potential to use low-embodied carbon materials and also to measure the embodied carbon within the proposed landscape designs and offset these as required to create carbon neutral landscapes.

Social Sustainability - provide opportunities for engagement with First Nations Peoples and businesses and also businesses who employ people living with disabilities.

Project Legacy - strong focus on the legacy of the project for current and future generations, including specification of environmentally responsible and robust materials that will last the test of time and also the creation of spaces that are flexible and adaptable and attempt to plan for the changing climate.

SIGNAGE + WAYFINDING

Signage + Lighting

Project address and way-finding throughout the site is key to the legibility and functionality of the precinct's public realm in addition to assisting with place making.

A clear signage and way-finding hierarchy is crucial to form a consistent message across the precinct. The signs (subject to detailed design) would have a common theme but would include variations in form and materiality depending on their purpose and where they are located.

The suite of signs could include:
+ Project address + Entry / Exit Points;
+ Park identification + Parks and facility amenity information;
+ Wayfinding signs, including fitness and walking; and
+ Interpretation / historical signs.

The signs would be complemented by lighting and associated landscape elements as necessary to assist in wayfinding and the usability of the spaces.

Lighting can also be implemented at key locations to define entry / exit points to the precinct and provide nuance within the streetscape character.

SIGNAGE + WAYFINDING

Threshold Treatments

Road pavement treatments are key to clarifying road hierarchy, slowing traffic speeds, creating a more pleasing pedestrian environment and strengthening the various landscape themes throughout the development.

These road pavement treatments would be combined with various other landscape elements such as signature street trees, understorey planting, feature fencing, lighting, signage, seating etc. to further enhance and activate the streetscape and create a pleasing environment for pedestrians and cyclists.

NOTE: Threshold treatment shown indicative only and subject to detailed design. Thresholds would typically be composed of heavy duty exposed aggregate paving with decorative saw-cuts - suitable for this type of industrial road environment.

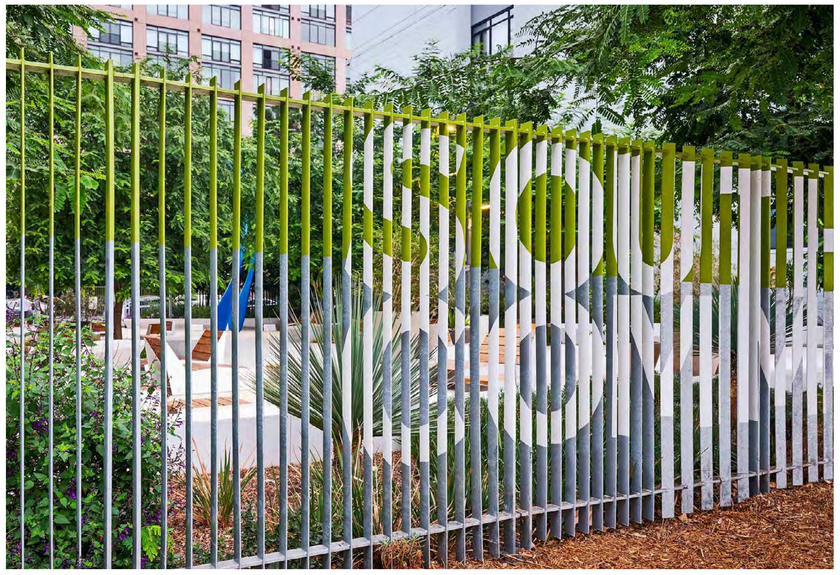
SIGNAGE + WAYFINDING

Fencing

Highlight fencing to tenant boundaries would be used at key locations to create further definition and interest in the streetscape.

The fencing will build on the landscape themes and materiality used elsewhere in the development to create a distinctive and integrated aesthetic. Highlight fencing would also be used at key locations to break up long stretches of what would traditionally be palisade / security fence to create interest and diversity in the streetscape character. Vehicle exclusion fencing would be implemented adjacent to the edges of parks and open space areas where required.

All fencing would be adequately designed to ensure the security of each tenancy.



STREETS + INDUSTRIAL GREENING

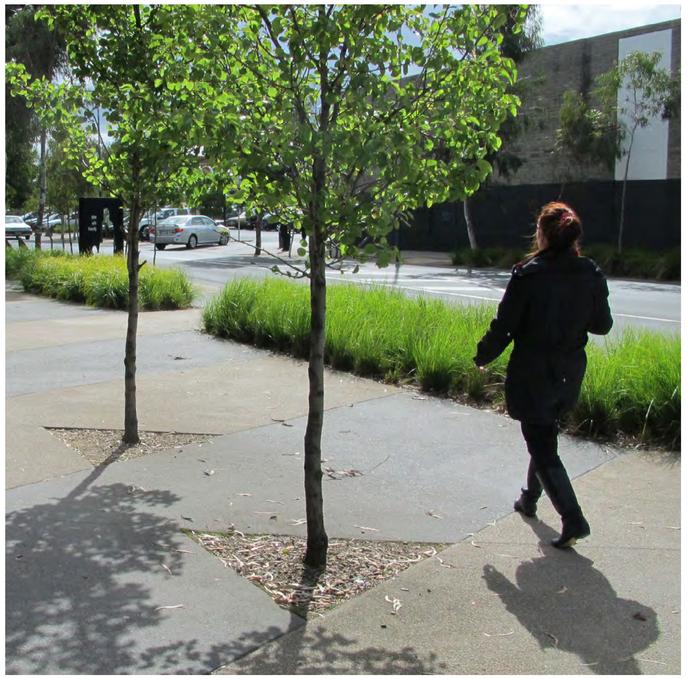
Streetscapes form a major part of the experience and functionality of the public realm in terms of wayfinding and circulation for pedestrians, motorists (including heavy vehicles) and cyclists. They are also crucial to the quality of the experience for all users including the provision of shade and urban cooling.

The landscape approach for the streetscapes is therefore to reinforce a hierarchy of street types and functions with strategic implementation of landscape elements. This will include defining the precinct with:

+ Tree plantings that will develop into canopy trees and provide a lush, green, welcoming and cool public realm;
+ Highlight species to assist in defining the various buildings within the precincts
+ Opportunities for vertical greening to buildings.

Understorey planting to nature strip areas and car-park setbacks also offers the opportunity to define and punctuate key points within the public realm streetscapes, to soften viewlines and create a sense of separation and respite from the street / large built form. The planting would typically be comprised of drought tolerant species that minimise the amount of water required for establishment irrigation.

Irrigation systems will be used where budget permits. The irrigation systems will be designed to function with the most water efficient setting, using zoning for areas with different application rate requirements so that runoff and wastage is avoided. The use of dripline emitters within garden beds will be maximised to reduce evaporation.



PUBLIC REALM AMENITY + ACTIVATION

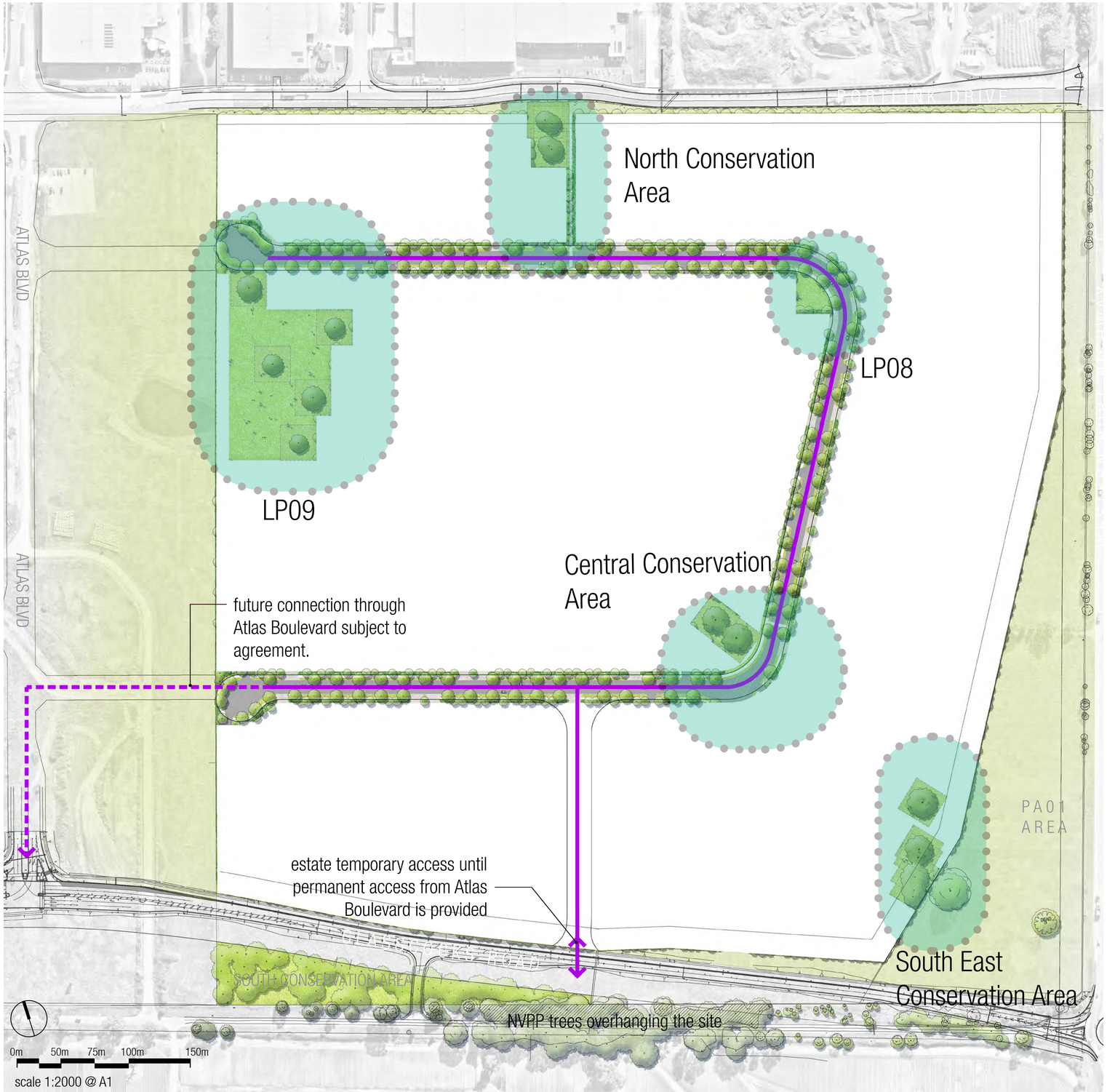
The Public Realm Amenity and Activation Strategy aims to create a cohesive and functional approach to the public realm, and a distinctive 'point of difference' to all other industrial parks in the area including:

+ A clear strategic vision for open space amenity, to know what will be provided for in each park and why.
+ A diverse range of facilities within each open space to cater for multiple age and user groups both now and into the future.
+ A considered mix of passive and active recreation areas.
+ Open space areas that can be used throughout the seasons allowing for appropriate shade and weather protection.
+ Strong and user-friendly links between open spaces areas and attractors to improve walkability and encourage frequent visititation to open space areas.
+ Activation in public spaces to provide opportunities for people to meet and interact.
+ Age and gender diverse spaces.

The fitness and walking circuits proposed within the development will be logical, safe and encourage less car use for workers on their lunch breaks.

Fitness stations are proposed to complement walking trails and are spaced at strategic intervals to tie in with natural running and fitness patterns. The function of each station will also be carefully considered to ensure its usability for all age groups.

Fitness stations and circuits would be combined with complementary landscape elements such as drinking fountains, bike racks, seating, open grass areas and shaded spots.

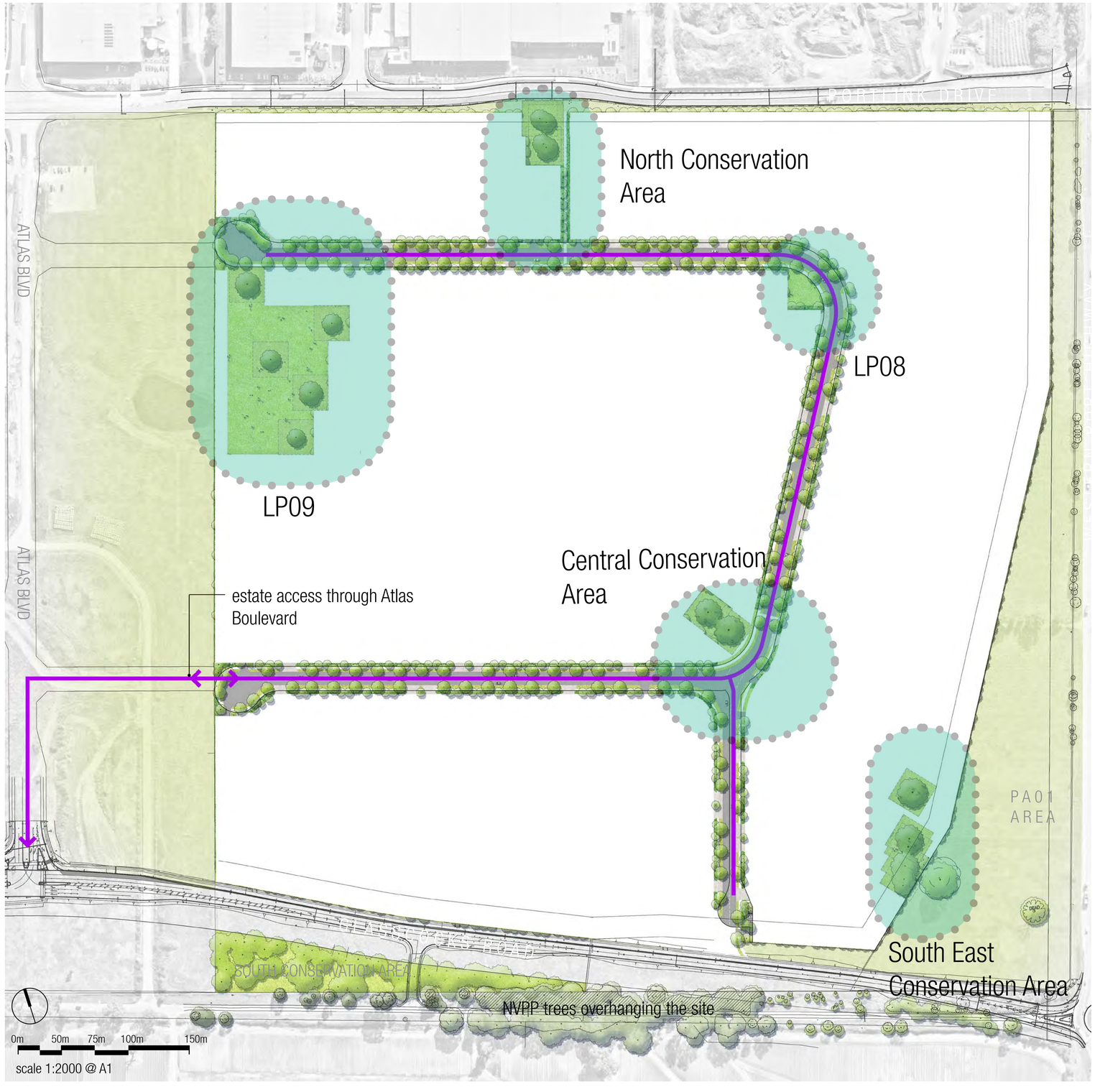


KEY OPEN SPACES
TEMPORARY ROAD NETWORK ACCESS

The public realm will provide for a vibrant, inclusive and well connected precinct with an inviting network of streets, and parks for easy pedestrian and cyclist movement.

The public realm will aim to:
+ Provide a network of accessible, inviting and quality open spaces;
+ Include a range of active and passive recreation opportunities for all age groups;
+ Include shared facilities within parks promoting interaction and engagement;
+ Support worker needs such as gathering, relaxing, fitness;
+ Prioritise user comfort by providing shade, enclosure and weather protection;
+ Use materials and express landforms which complement the existing natural features and topography of the site; and
+ Reference the site's industrial use through colour, interpretive artwork and signage,

A key landscape design principle for the development is to deliver a public realm that is safe, comfortable and welcoming that encourages people to engage with their surroundings and interact with each other.



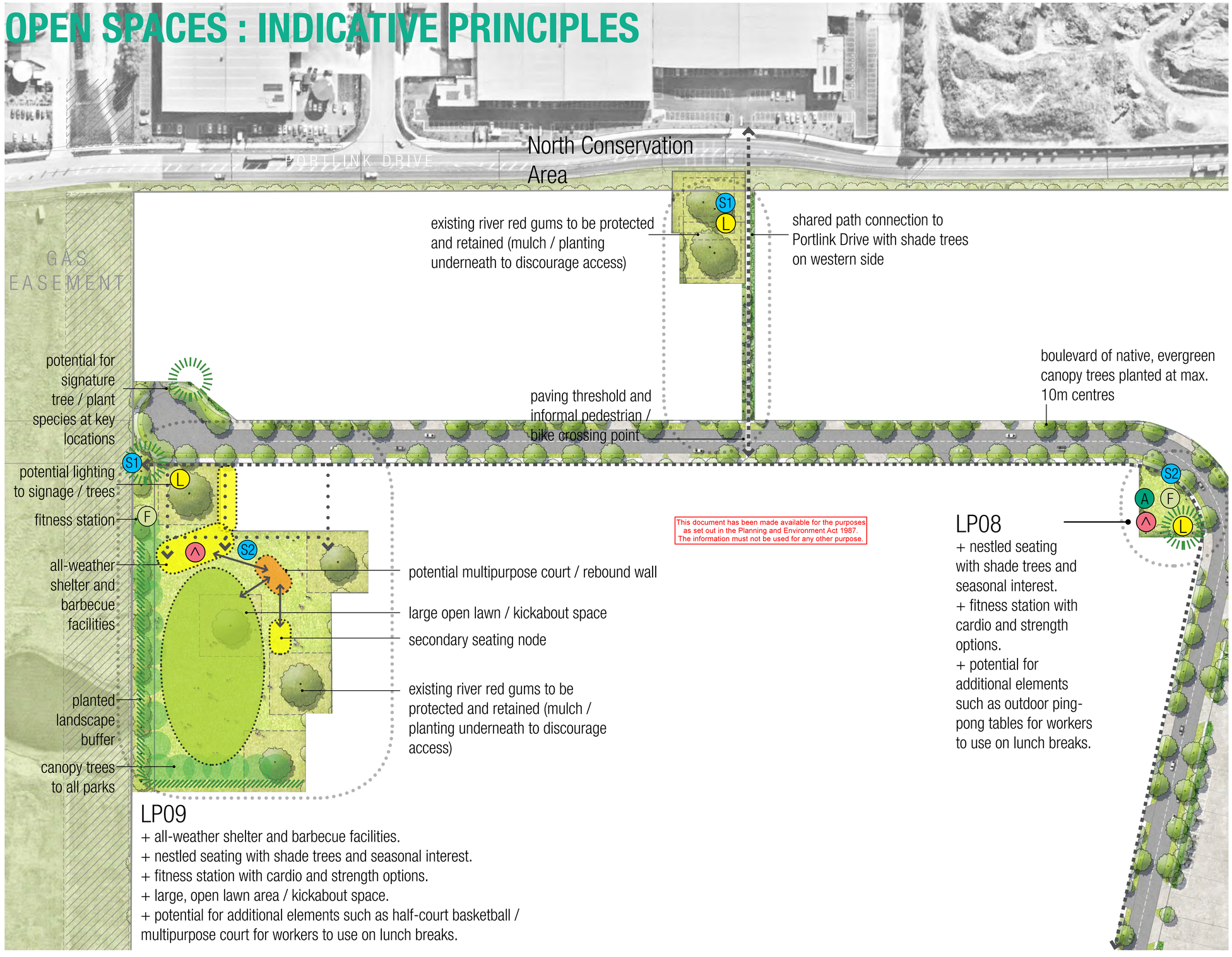
KEY OPEN SPACES
PERMANENT ROAD NETWORK ACCESS

The public realm will provide for a vibrant, inclusive and well connected precinct with an inviting network of streets, and parks for easy pedestrian and cyclist movement.

The public realm will aim to:
+ Provide a network of accessible, inviting and quality open spaces;
+ Include a range of active and passive recreation opportunities for all age groups;
+ Include shared facilities within parks promoting interaction and engagement;
+ Support worker needs such as gathering, relaxing, fitness;
+ Prioritise user comfort by providing shade, enclosure and weather protection;
+ Use materials and express landforms which complement the existing natural features and topography of the site; and
+ Reference the site's industrial use through colour, interpretive artwork and signage,

A key landscape design principle for the development is to deliver a public realm that is safe, comfortable and welcoming that encourages people to engage with their surroundings and interact with each other.

OPEN SPACES : INDICATIVE PRINCIPLES



LP09

+ all-weather shelter and barbecue facilities.
+ nestled seating with shade trees and seasonal interest.
+ fitness station with cardio and strength options.
+ large, open lawn area / kickabout space.
+ potential for additional elements such as half-court basketball / multipurpose court for workers to use on lunch breaks.

LP08

+ nestled seating with shade trees and seasonal interest.
+ fitness station with cardio and strength options.
+ potential for additional elements such as outdoor ping-pong tables for workers to use on lunch breaks.

- S1 Key Entry Signage / Landscape Element / Public Art
- S2 Secondary Park / Interpretive Signage
- L Feature Lighting
- Park Activation
- A Park Amenity
- F Fitness Station
- Shared Path Circulation
- Pedestrian Circulation
- Pedestrian Crossing Point

0m 25m 50m 75m

scale 1:1000 @ A1

INDICATIVE PLANT SPECIES

Tree and understorey plant species would typically be selected for their ability to successfully establish in this area and with these particular site conditions (heat and reflectivity of hard paved surfaces etc.), with minimal maintenance.

A strong emphasis will be placed on maximising tree canopies to create cool and shaded streetscapes as well as providing layered, planted set-backs.

The indicative plant species list would continue to be refined throughout the master planning and design development process and typically include a large number of native and indigenous species to the relevant EVC where possible.

Note: E = evergreen, D = deciduous, EX= exotic, N = Australian native, I = Indigenous (EVC 55)

	BOTANICAL NAME	COMMON NAME	APPROX. MATURE SIZE (H x W)	D/E	I/N/Ex
TREES					
	Acacia melanoxylon	Blackwood	15 x 8	E	I
	Acacia mearnsii	Black Wattle	10 x 4	E	I
	Acer buergerianum	Trident Maple	8 x 5	D	EX
	Allocasuarina littoralis	Black Sheoak	10 x 5	E	I
	Callistemon viminalis	Weeping Bottlebrush	6 x 4	E	N
	Corymbia citriodora 'Scentuous'	Dwarf Lemon Scented Gum	7 x 3	E	N
	Corymbia citriodora	Lemon Scented Gum	20 x 12	E	N
	Corymbia eximia 'Nana'	Dwarf Yellow Bloodbwood	15 x 8	E	N
	Corymbia maculata	Spotted Gum	15 x 8	E	N
	Eleaocarpus reticulatus	Blueberry Ash	8 x 4	E	N
	Eucalyptus camuldulensis	River Red Gum	30 x 15	E	N
	Eucalyptus leucoxylon ssp.megalocarpa	Large Fruit Yellow Gum	9 x 5	E	N
	Eucalyptus leucoxylon 'Rosea'	Pink-flowering Yellow Gum	10 x 6	E	N
	Eucalyptus radiata	Narrow-leaved peppermint	15 x 10	E	N
	Eucalyptus sideroxylon	Ironbark	15 x 10	E	N
	Fraxinus pensylvanica 'Urbanite'	Urban Ash	11 x 8	D	EX
	Melia azedarach 'Elite'	White Cedar	12 x 7	D	EX
	Pistacia chinensis	Chinese Pistachio	8 x 6	D	EX
	Pyrus calleryana 'Bradford'	Ornamental Pear	12 x 9	D	EX
	Quercus canariensis	Algerian Oak	20 x 20	D	EX
	Quercus palustris	Pin Oak	15 x 8	D	EX
	Waterhousia floribunda	Lilly Pilly	20 x 10	E	N
	Zelkova serrata 'Green Vase'	Japanese keaki tree 'Green Vase'	14 x 10	D	EX
SHRUBS					
	Acacia cognata 'Limelight'	Dwarf Acacia	1 x 1	E	N
	Acmena smithii var 'Minipily'	Minor Lilly Pilly	5 x 2	E	N
	Amena smithii 'Green Screen'	Green Screen Lilly Pilly	3 x 1.5	E	N
	Acmena smithii var. minor 'Hot Flush'	Lilly Pilly dwarf	3 x 2	E	N
	Callistemon 'Green John'	Dwarf Bottlebrush	1 x 1	E	N
	Callistemon viminalis 'Slim'	Slim Bottlebrush	3 x 1.5	E	N
	Correa glabra 'Ivory Lantern'	Correa 'Ivory Lantern'	1 x 1	E	N
	Correa reflexa var. reflexa	Common Correa	1 x 1	E	N
	Goodenia ovata	Hop Goodenia	1 x 2	E	N
	Grevillea 'Scarlet Sprite'	Scarlet Sprite	1 .5 x 1.5	E	N
	Indigofera australis	Australian Indigo	3 x 2	E	N
	Myoporum parvifolium	Creeping Boobialla	0.3 x 2	E	EX
	Rosmarinus officinalis	Rosemary	1-1.5 x 1.5	E	EX
	Syzygium paniculatum 'Elite'	Lily Pily	5 x 3	E	N
	Syzygium 'Big Red'	Big Red Brush Cherry	4 x 2.5	E	N
	Syzygium paniculatum 'Pinnacle'	Lily Pily	6 x 2	E	N
	Westringia longifolia	Long leafed Westringia	2 x 2	E	N
	Westringia 'Wynyabbie Gem'	Wynyabbie Westringia	1.5 x 1-1.25	E	N
	Westringia 'Naringa'	Westringia Naringa	1.5 x 1-1.25	E	N
GRASSES & STRAPPY-LEAFED PLANTS					
	Austrostipa stipodes	Prickly Spear-grass	1 x1	E	EX
	Austrodanthonia setacea	Bristle Wallaby Grass	0.6 x 0.6	E	N
	Correa 'Dusky Bells'	Dusky Bells Correa	0.5 x 1	E	N
	Dianella caerulea 'Lucia'	Lucia Flax Lily	0.6 x 0.6	E	N
	Ficinia nodosa	Knobby Club-rush	0.7 x 0.7	E	N
	Lomandra filiformis	Wattle Mat Rush	0.6 x 0.6	E	I
	Lomandra longifolia 'Tanika'	Dwarf Lomandra	0.6 x 0.6	E	N
	Lomandra longifolia 'Katrinus'	Cumberland Plain Lomandra	0.9 x 0.9	E	N
	Themeda tiandra	Kangaroo Grass	1.5 x 0.5	E	EX
	Microleana stipiodes	Weeping Grass	0.5 x 0.5	E	N
	Patersonia occidentalis	Purple Flag	0.5 x 0.5	E	N
	Poa labillardieri	Common Tussock Grass	0.8 x 0.6	E	N
	Themeda triandra	Kangaroo Grass	0.6 x 0.6	E	I
GROUNDCOVERS & CLIMBERS					
	Carpobrotus rossii	Pigface	0.2 X spreading	E	N
	Myoporum parvifolium 'Broad Leaf Form'	Creeping Boobialla	0.2 x spreading	E	N
	Pandorea pandorana	Wonga Wonga Vine	climbing	E	N
	Trachelospermum jasminoides	Chinese Star Jasmine	0.4 x spreading	E	EX

For the NVPP areas, plant species are to be strictly indigenous to the area (part of the relevant EVCs).

APPENDIX E

CIVIL PLANS

INDUSTRIAL SUBDIVISION

265 WESTERN PORT HIGHWAY
DANDENONG SOUTH
CITY OF GREATER DANDENONG

FOR

Aliro

ISPT SUPER PROPERTY

CIVIL DRAWINGS
MASTERPLANS

DCE REF: 22086MP

NOT TO BE USED
FOR CONSTRUCTION

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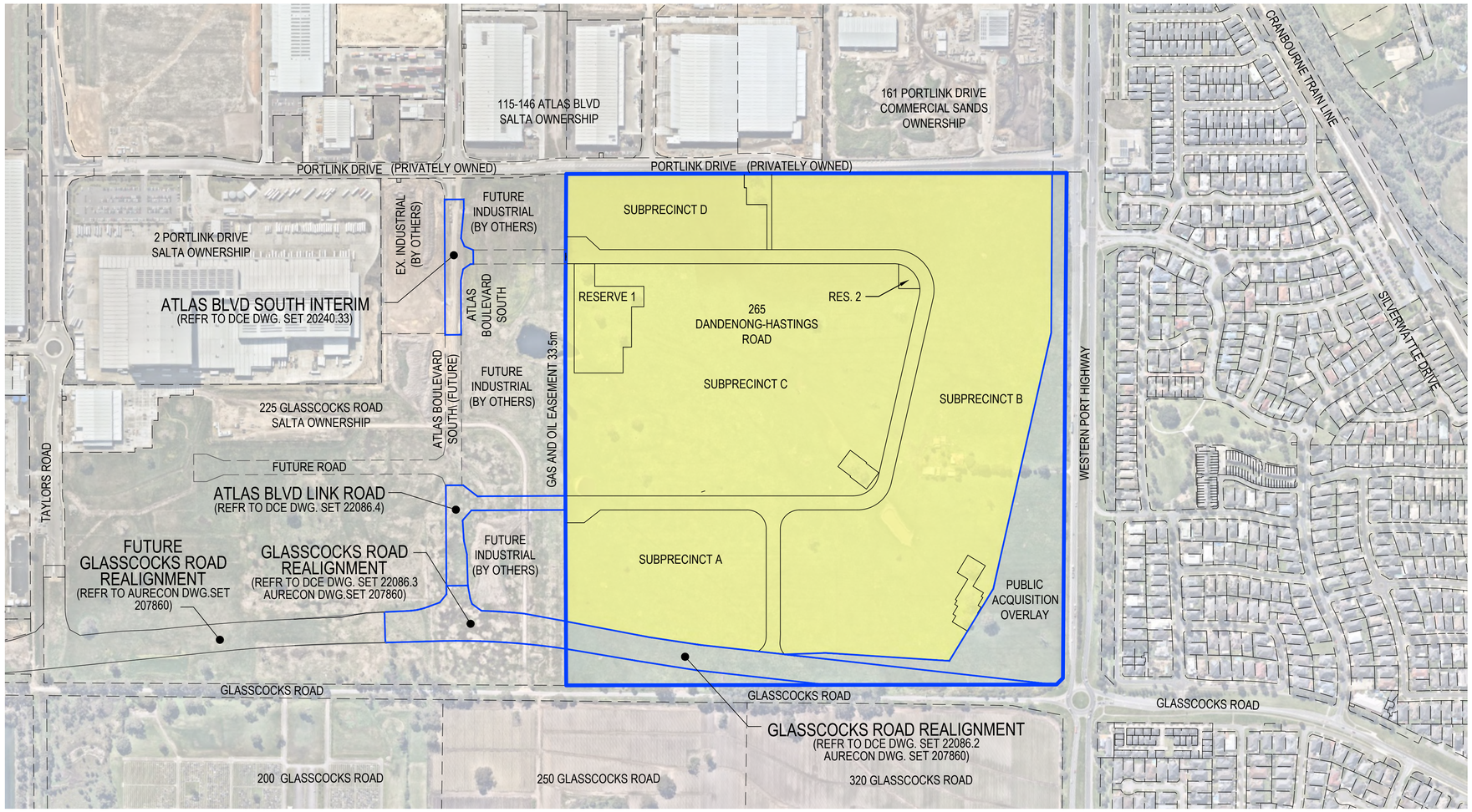
CONCEPT



LOCALITY PLAN

SCALE @ A1: 1:4000

DRAWING INDEX

SHEET No.	DWG No.	DESCRIPTION
01	22086MPTD01	LOCALITY PLAN
02	22086MPDP01	LAYOUT PLAN
03	22086MPFP01	FILL PLAN
04	22086MPEW01	BULK EARTHWORKS
05-07	22086MPSS01-03	SITE SECTIONS, SHEETS 01 TO 03
08-18	22086MPSEC01-11	SECTIONS, SHEETS 01 TO 11

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
LOCALITY PLAN

DCE REF	22086MPTD01
DRAWN BY	B.SHADE
REVISION	F
REV DATE	19/12/23

LEGEND
AREA OF WORKS
TITLE BOUNDARY

0m 40m 80m 160m 240m
Scale @ A1/A3 1:4000 / 1:8000

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CONCEPT

115-146 ATLAS BLVD
SALTA OWNERSHIP

161 PORTLINK DRIVE
COMMERCIAL SANDS OWNERSHIP

PORTLINK DRIVE

PORTLINK DRIVE

PORTLINK DRIVE

2 PORTLINK DRIVE
SALTA OWNERSHIP

EX. INDUSTRIAL
(BY OTHERS)

FUTURE INDUSTRIAL
(BY OTHERS)

FUTURE LINK ROAD

ATLAS BLVD SOUTH INTERIM
(REFR TO DCE DWG. SET 20240.33)

ATLAS BLVARD SOUTH

ADJACENT
DEVELOPMENT
(BY OTHERS)

FUTURE INDUSTRIAL
(BY OTHERS)

225 GLASSCOCKS ROAD
SALTA OWNERSHIP

ATLAS BOULEVARD
SOUTH
(FUTURE CONSTRUCTION)

FUTURE ROAD

ATLAS BLVD LINK ROAD
(REFR TO DCE DWG. SET 22086.4)

FUTURE LINK ROAD

FUTURE ATLAS BOULEVARD

FUTURE INDUSTRIAL
(BY OTHERS)

GLASSCOCKS ROAD
REALIGNMENT
(REFR TO DCE DWG. SET 22086.3
AURECON DWG.SET 207860)

GLASSCOCKS ROAD REALIGNMENT
(REFR TO DCE DWG. SET 22086.2
AURECON DWG. SET 207860)

GLASSCOCKS ROAD

200 GLASSCOCKS ROAD

250 GLASSCOCKS ROAD

3m LANDSCAPE SETBACK

3m LANDSCAPE SETBACK

SUB-PRECINCT D

7.5m PEDESTRIAN LINK

ROAD A

RESERVE 1

RESERVE 2

3m LANDSCAPE SETBACK

3m DCE

GAS AND OIL EASEMENT

SUB-PRECINCT C

ROAD A

SUB-PRECINCT B

3m LANDSCAPE SETBACK

ROAD A

ROAD B

SUB-PRECINCT A

3m LANDSCAPE SETBACK

20m BUILDING SETBACK

5m BUILDING SETBACK

20m BUILDING SETBACK

5m LANDSCAPE SETBACK

20m BUILDING SETBACK

5m LANDSCAPE SETBACK

CONSERVATION AREA

GLASSCOCKS ROAD REALIGNMENT
(BY OTHERS)

PAO
(PUBLIC ACQUISTION
OVERLAY)

WESTERN PORT HIGHWAY

WESTERN PORT HIGHWAY

F 07

E 07

D 06

A 05

B 05

C 06

SATINWOOD WAY

BILLY STREET

PYRAMID
PLACE

CARABEEN WAY

CARABEEN WAY

MORETON BAY

BOULEVARD

MORETON BAY

BRAMBLE CLOSE

WATERBUSH CRESCENT

EXISTING
DEVELOPMENT

CARBINE WAY

SUNSHINE WAY

BISCAY DRIVE

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
LAYOUT PLAN

DCE REF	22086MPLP01
DRAWN BY	B.SHADE
REVISION	F
REV DATE	19/12/23

SUPER PROPERTY Aliro

0m 20m 40m 80m 120m

Scale @ A1/A3 1:2000 / 1:4000

LEGEND

- Ex W — EX. WATER MAIN
- Ex S — EX. SEWER MAIN & MH
- Ex E — EX. ELECTRICAL CABLE
- EX. DRAIN
- Ex T — EX. COMM. CABLE & PIT
- Ex G — EX. GAS MAIN
- Ex RM — EX. SEWER RISING MAIN
- Ex OIL — EX. OIL
- E — ADJ. ELECTRICAL CABLE
- G — ADJ. GAS MAIN
- ADJ. DRAIN
- W — ADJ. WATER MAIN
- S — ADJ. SEWER MAIN & MH
- SERVICE TO BE ABANDONED
- 32 x 32m TREE PROTECTION ZONE (TPZ)
- EX. TREE TO BE REMOVED
- EX. TREE
- LANDSCAPING/NATURE STRIP
- FUTURE ATLAS BOULEVARD SOUTH
- FUTURE GLASSCOCKS ROAD ALIGNMENT
- GLASSCOCKS ROAD REALIGNMENT FUTURE KERB
- TREE PROTECTION & CONSERVATION AREA
- CONCRETE PAVEMENT
- ASPHALT PAVEMENT
- INTERIM PAVEMENT
- HEAVY DUTY PAVEMENT

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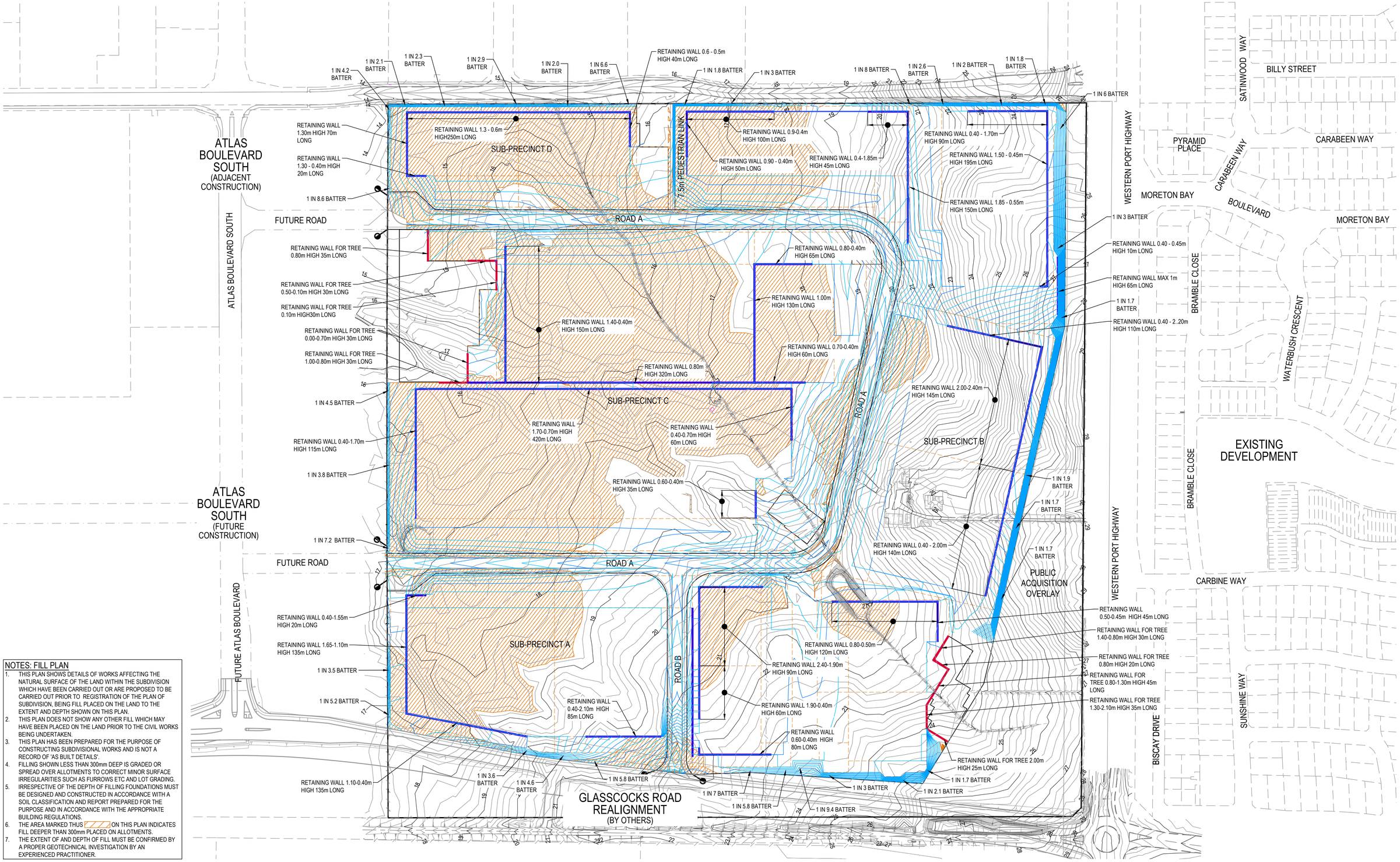
CONCEPT



NOTES: FILL PLAN

1. THIS PLAN SHOWS DETAILS OF WORKS AFFECTING THE NATURAL SURFACE OF THE LAND WITHIN THE SUBDIVISION WHICH HAVE BEEN CARRIED OUT OR ARE PROPOSED TO BE CARRIED OUT PRIOR TO REGISTRATION OF THE PLAN OF SUBDIVISION, BEING FILL PLACED ON THE LAND TO THE EXTENT AND DEPTH SHOWN ON THIS PLAN.
2. THIS PLAN DOES NOT SHOW ANY OTHER FILL WHICH MAY HAVE BEEN PLACED ON THE LAND PRIOR TO THE CIVIL WORKS BEING UNDERTAKEN.
3. THIS PLAN HAS BEEN PREPARED FOR THE PURPOSE OF CONSTRUCTING SUBDIVISIONAL WORKS AND IS NOT A RECORD OF 'AS BUILT DETAILS'.
4. FILLING SHOWN LESS THAN 300mm DEEP IS GRADED OR SPREAD OVER ALLOTMENTS TO CORRECT MINOR SURFACE IRREGULARITIES SUCH AS FURROWS ETC AND LOT GRADING.
5. IRRESPECTIVE OF THE DEPTH OF FILLING FOUNDATIONS MUST BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH A SOIL CLASSIFICATION AND REPORT PREPARED FOR THE PURPOSE AND IN ACCORDANCE WITH THE APPROPRIATE BUILDING REGULATIONS.
6. THE AREA MARKED THUS ▨ ON THIS PLAN INDICATES FILL DEEPER THAN 300mm PLACED ON ALLOTMENTS.
7. THE EXTENT OF AND DEPTH OF FILL MUST BE CONFIRMED BY A PROPER GEOTECHNICAL INVESTIGATION BY AN EXPERIENCED PRACTITIONER.

265 WESTERN PORT HIGHWAY

CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
FILL PLAN

DCE REF	22086MPFP01
DRAWN BY	B.SHADE
REVISION	F
REV DATE	19/12/23

SUPER PROPERTY Aliro

LEGEND

- LIMIT OF WORKS
- FILLING OVER 300mm
- ALLOTMENT PAD BOUNDARY
- 155.0 MAJOR FS CONTOUR
- MINOR FS CONTOUR
- RET. WALL BY CIVIL
- RET. WALL BY OTHERS (BUILDER)

0m 20m 40m 80m 120m

Scale @ A1/A3 1:2000 / 1:4000

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CONCEPT

115-146 ATLAS BLVD
SALTA OWNERSHIP

CARGO COURT

161 PORTLINK DRIVE
COMMERCIAL SANDS OWNERSHIP

PORTLINK DRIVE

PORTLINK DRIVE

2 PORTLINK DRIVE
SALTA OWNERSHIP

EX. INDUSTRIAL
(BY OTHERS)

FUTURE INDUSTRIAL
(BY OTHERS)

ATLAS BLVD SOUTH INTERIM
(REFR TO DCE DWG. SET 20240.33)

ATLAS BOULEVARD SOUTH

FUTURE LINK ROAD

7.5m PEDESTRIAN LINK

ROAD A

WESTERN PORT HIGHWAY

ATLAS BOULEVARD SOUTH (FUTURE)

FUTURE INDUSTRIAL
(BY OTHERS)

225 GLASSCOCKS ROAD
SALTA OWNERSHIP

ATLAS BOULEVARD
SOUTH
(FUTURE CONSTRUCTION)

FUTURE ROAD

ATLAS BLVD LINK ROAD
(REFR TO DCE DWG. SET 22086.4)

FUTURE LINK ROAD

ROAD A

FUTURE ATLAS BOULEVARD

FUTURE INDUSTRIAL
(BY OTHERS)

ROAD B

GLASSCOCKS ROAD
REALIGNMENT
(REFR TO DCE DWG. SET 22086.3
AURECON DWG.SET 207860)

GLASSCOCKS ROAD REALIGNMENT
(BY OTHERS)

PAO
(PUBLIC ACQUISITION OVERLAY)

CONSERVATION AREA

GLASSCOCKS ROAD

COCKS ROAD REALIGNMENT
REFR TO DCE DWG. SET 22086.2
AURECON DWG. SET 207860)

250 GLASSCOCKS ROAD

SATINWOOD WAY

BILLY STREET

PYRAMID PLACE

CARABEEN WAY

CARABEEN WAY

MORETON BAY

BOULEVARD

MORETON BAY

BRAMBLE CLOSE

WATERBUSH CRESCENT

EXISTING
DEVELOPMENT

CARBINE WAY

SUNSHINE WAY

BISCAY DRIVE

WESTERN PORT HIGHWAY

EARTHWORKS NOTES:

1. SURVEY LEVELS PROVIDED ARE FROM GNSS OBSERVATION.
2. IF ANY HOLES WERE PRESENT IN THE SURVEY VOLUME ASSUMES LEVELS FROM ONE SIDE OF THE SURVEY POINT JOINS ONTO THE LEVEL ON THE OTHER SIDE OF THE SURVEY POINT
3. STRIPPING DEPTH OF SITE OF 300mm HAS BEEN ALLOWED FOR.
4. ALL 12D VOLUMES ARE SOLID MEASURE (NO COMPACTION FACTOR)

CUT/FILL VOLUME

	VOLUME (m^3)
TOTAL STRIPPING (300mm DEPTH)	-152,200
TOTAL CUT	-352,700
TOTAL FILL	261,500
BALANCE	91,200

265 WESTERN PORT HIGHWAY

CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
BULK EARTHWORKS

DCE REF	22086MPEW01
DRAWN BY	B.SHADE
REVISION	F
REV DATE	19/12/23

SUPER PROPERTY Aliro

0m 20m 40m 80m 120m

Scale @ A1/A3 1:2000 / 1:4000

LEGEND

CUT	FILL
CUT: 0.0m TO 0.2m	FILL: 0.0m TO 0.2m
CUT: 0.2m TO 0.4m	FILL: 0.2m TO 0.4m
CUT: 0.4m TO 0.6m	FILL: 0.4m TO 0.6m
CUT: 0.6m TO 0.8m	FILL: 0.6m TO 0.8m
CUT: 0.8m TO 1.0m	FILL: 0.8m TO 1.0m
CUT: 1.0m TO 1.2m	FILL: 1.0m TO 1.2m
CUT: 1.2m TO 1.4m	FILL: 1.2m TO 1.4m
CUT: 1.4m TO 1.6m	FILL: 1.4m TO 1.6m
CUT: 1.6m TO 1.8m	FILL: 1.6m TO 1.8m
CUT: 1.8m TO 2.0m	FILL: 1.8m TO 2.0m
CUT: 2.0m TO 3.0m	FILL: 2.0m TO 3.0m
CUT: 3.0m TO 4.0m	FILL: 3.0m TO 4.0m
CUT: 4.0m TO 5.0m	FILL: 4.0m TO 5.0m
CUT: 5.0m TO 6.0m	FILL: 5.0m TO 6.0m
CUT: 6.0m TO 100.0m	FILL: 6.0m TO 100.0m

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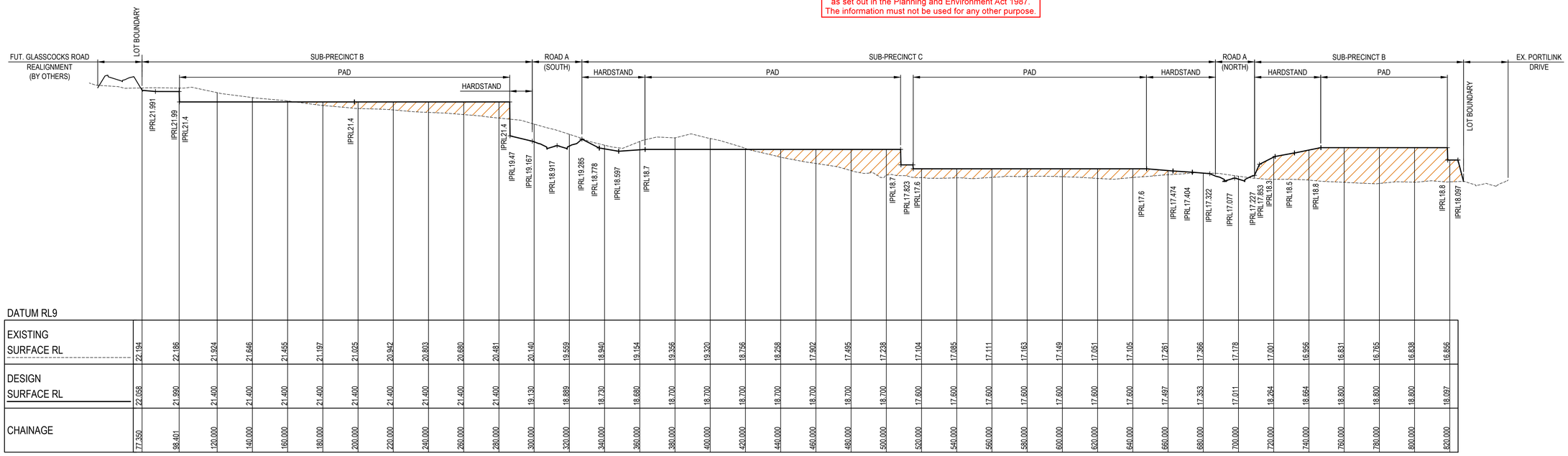
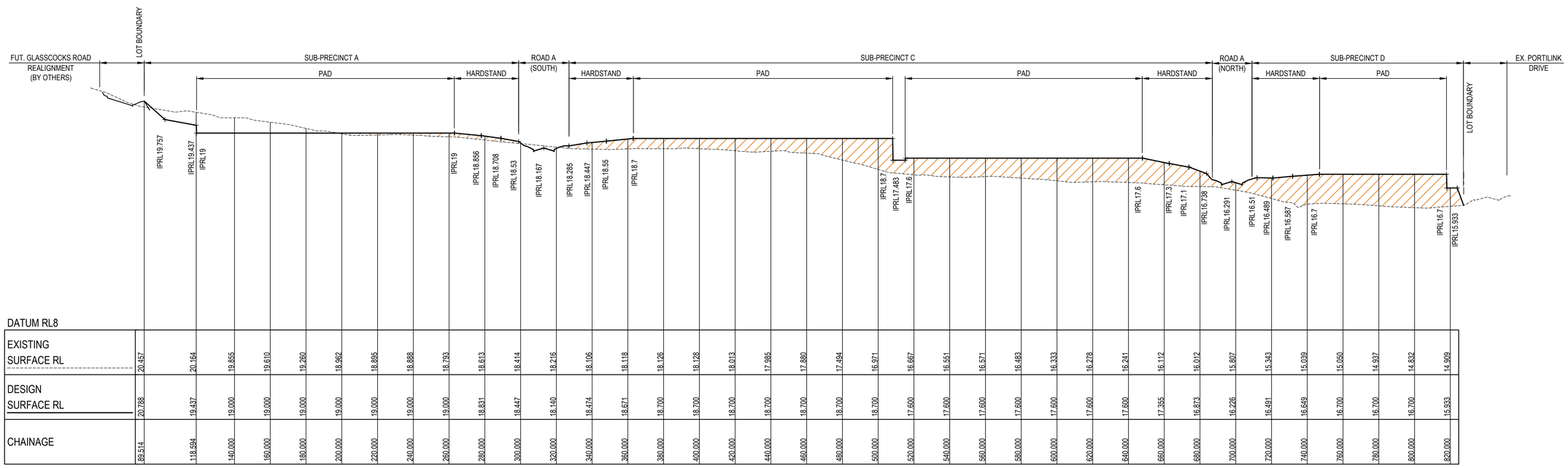
CONCEPT



SECTION B 02



SECTION A 02

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SITE SECTIONS - SHEET 01 OF 03

DCE REF	22086MPSS01
DRAWN BY	B.SHADE
REVISION	F
REV DATE	19/12/23

LEGEND
EXISTING SURFACE
FINISHED SURFACE

H 0m 12.5m 25m 50m 75m
V 0m 1.25m 2.5m 5m 7.5m
Scale @ A1/A3 H1:1250/2500 V1:125/250

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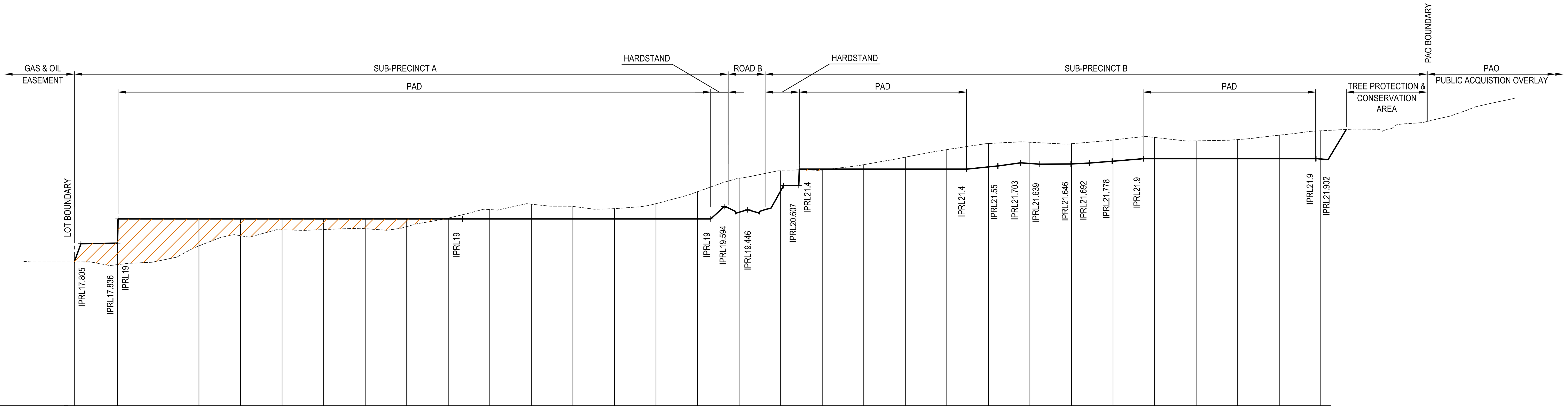
CONCEPT



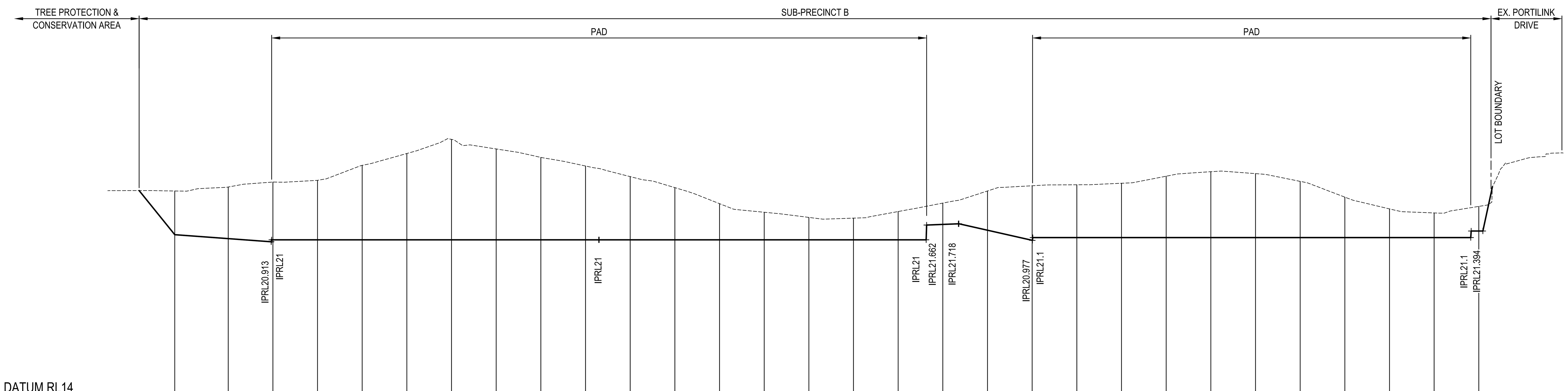
DATUM RL10

EXISTING SURFACE RL	16.927	16.801	17.703	18.193	18.472	18.487	18.530	18.631	19.038	19.452
DESIGN SURFACE RL	16.927	17.836	19.000	19.000	19.000	19.000	19.000	19.000	19.000	19.000
CHAINAGE	0.001	20.850	60.000	80.000	100.000	120.000	140.000	160.000	180.000	200.000

EXISTING SURFACE RL	19.711	19.603	19.496	19.735	20.310	20.958	21.315	21.356	21.614	21.976
DESIGN SURFACE RL	19.000	19.000	19.000	19.000	19.000	19.322	20.347	21.400	21.400	21.400
CHAINAGE	220.000	240.000	260.000	280.000	300.000	320.000	340.000	360.000	380.000	400.000

EXISTING SURFACE RL	22.337	22.629	22.693	22.622	22.801	22.925	22.758	22.822	23.034	23.244
DESIGN SURFACE RL	21.400	21.505	21.671	21.648	21.780	21.900	21.900	21.900	21.900	21.886
CHAINAGE	420.000	440.000	460.000	480.000	500.000	520.000	540.000	560.000	580.000	600.000

SECTION D
02



DATUM RL14

EXISTING SURFACE RL	23.185	23.363	23.584	23.662	24.332	24.863	25.494	25.066	24.688	24.303
DESIGN SURFACE RL	21.229	21.054	21.000	21.000	21.000	21.000	21.000	21.000	21.000	21.000
CHAINAGE	236.072	260.000	280.000	300.000	320.000	340.000	360.000	380.000	400.000	420.000

EXISTING SURFACE RL	23.828	23.336	22.619	22.234	22.003	21.970	22.266	22.644	23.186	23.419
DESIGN SURFACE RL	21.000	21.000	21.000	21.000	21.000	21.000	21.000	21.690	21.429	20.979
CHAINAGE	440.000	460.000	480.000	500.000	520.000	540.000	560.000	580.000	600.000	620.000

EXISTING SURFACE RL	23.463	23.531	23.846	24.048	23.962	23.616	22.910	22.384	22.203	22.495
DESIGN SURFACE RL	21.100	21.100	21.100	21.100	21.100	21.100	21.100	21.100	21.100	21.394
CHAINAGE	640.000	660.000	680.000	700.000	720.000	740.000	760.000	780.000	800.000	820.000

SECTION C
02

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SITE SECTIONS - SHEET 02 OF 03

DCE REF	**22086MPSS02**
DRAWN BY	**B.SHADE**
REVISION	**F**
REV DATE	**19/12/23**

ISPT SUPER PROPERTY Aliro

LEGEND
EXISTING SURFACE
FINISHED SURFACE

H 0m 12.5m 25m 50m 75m
V 0m 1.25m 2.5m 5m 7.5m
Scale @ A1/A3 H1:1250/2500 V1:125/250

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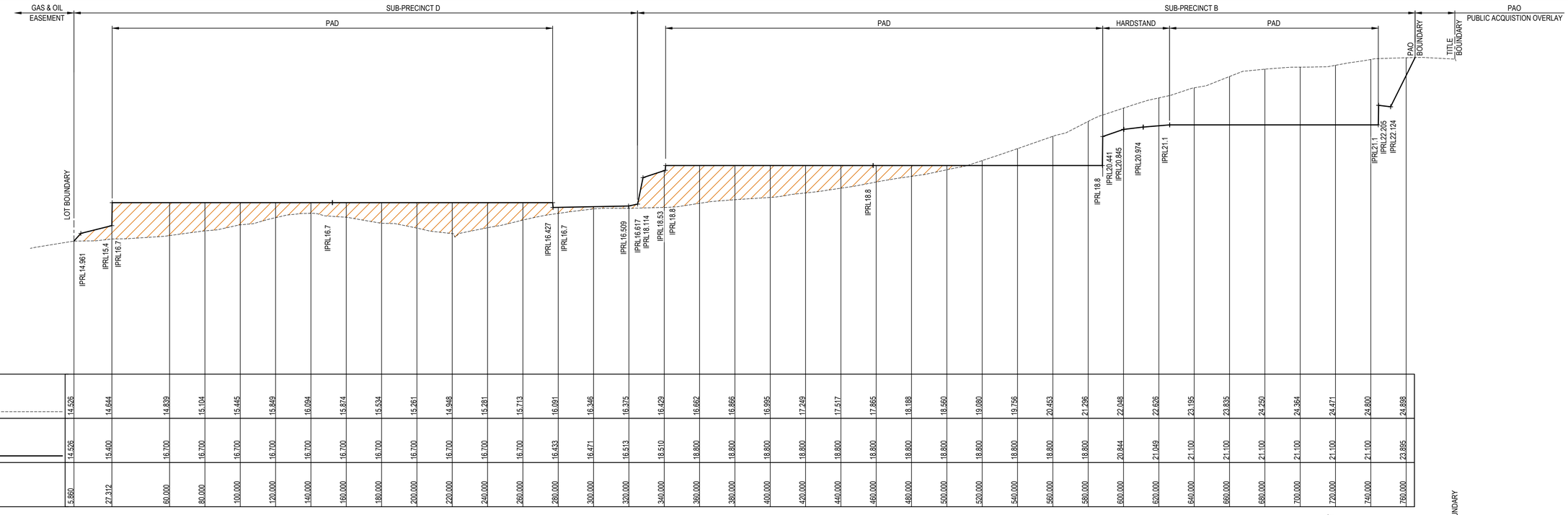
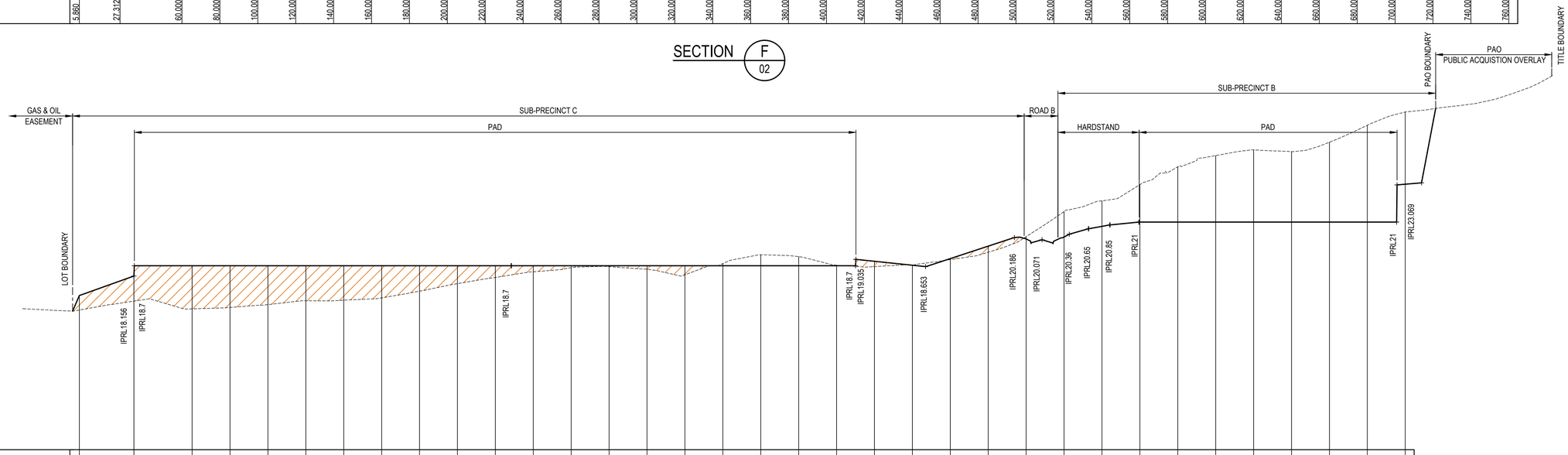
CONCEPT



SECTION F 02



SECTION E 02

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SITE SECTIONS - SHEET 03 OF 03

DCE REF	22086MPSS03
DRAWN BY	B.SHADE
REVISION	F
REV DATE	19/12/23

LEGEND
EXISTING SURFACE
FINISHED SURFACE

H 0m 12.5m 25m 50m 75m
V 0m 1.25m 2.5m 5m 7.5m
Scale @ A1/A3 H1:1250/2500 V1:125/250

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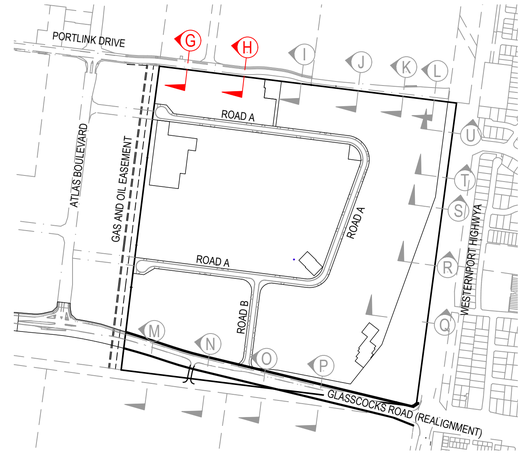
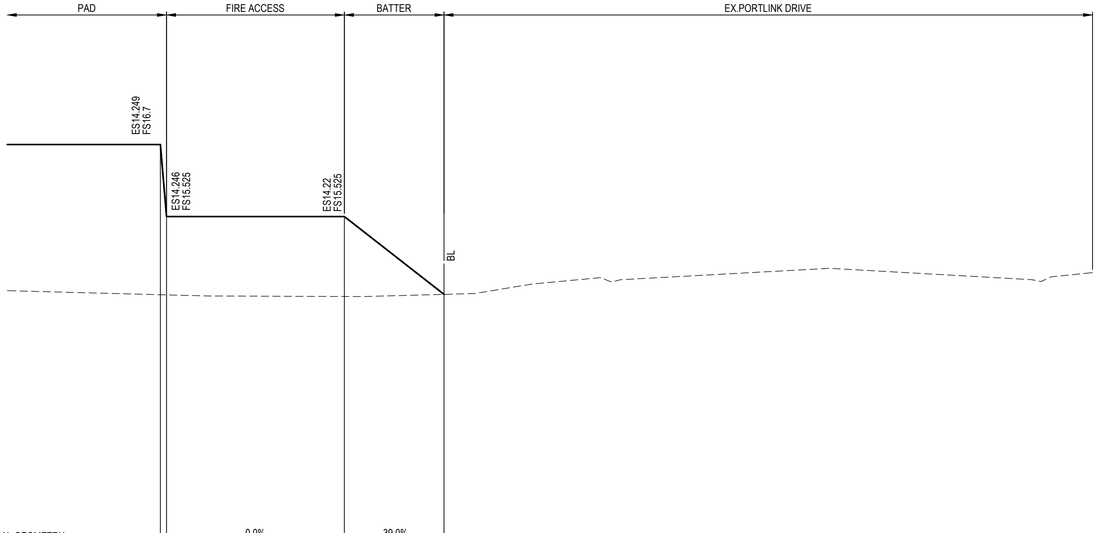
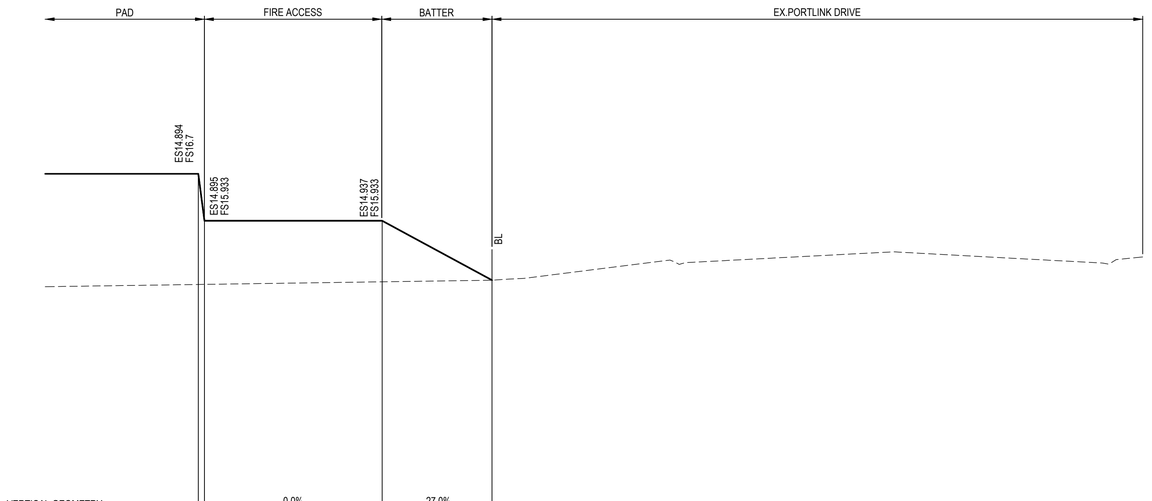
CONCEPT



KEY PLAN
SCALE @ A1: 1:8000



SECTION G
SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100



SECTION H
SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 01 OF 11

DCE REF	22086MPSEC01
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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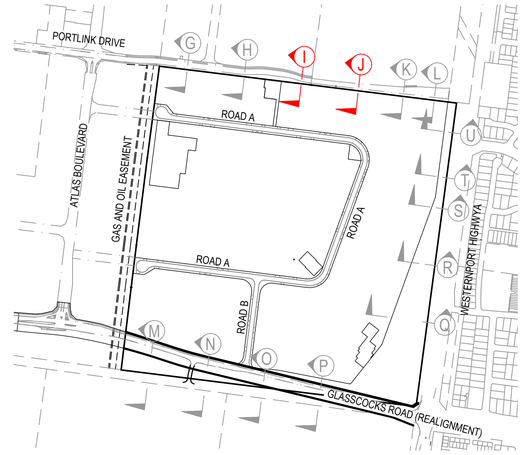
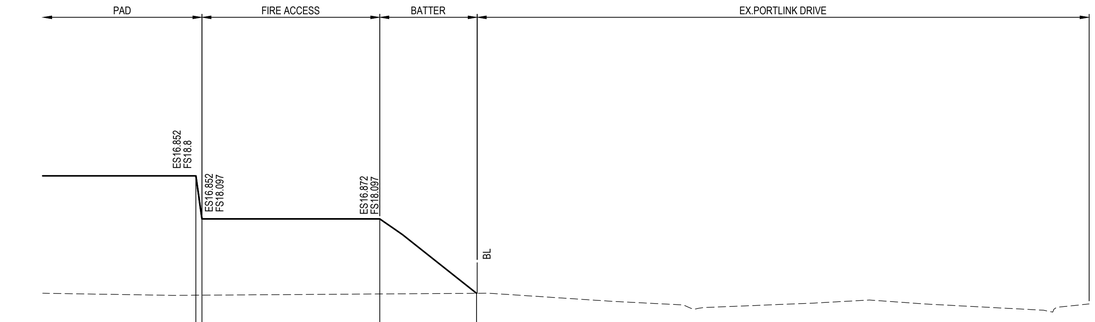


KEY PLAN

SCALE @ A1: 1:8000

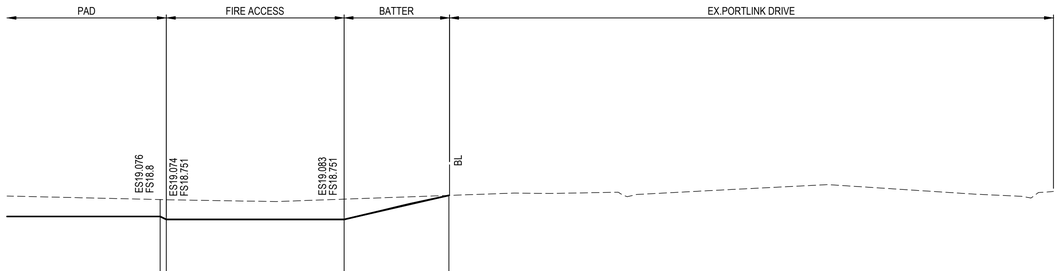


VERTICAL GEOMETRY: 0.0% | -38.5%

DATUM RL12				
EXISTING SURFACE RL	16.852	16.852	16.872	16.883
DESIGN SURFACE RL	18.800	18.097	18.097	16.883
CHAINAGE	10.532	10.732	16.537	19.695

SECTION I

SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100



VERTICAL GEOMETRY: 0.0% | 11.5%

DATUM RL14				
EXISTING SURFACE RL	19.076	19.074	19.083	19.144
DESIGN SURFACE RL	18.800	18.751	18.751	19.144
CHAINAGE	10.532	10.732	16.537	19.958

SECTION J

SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 02 OF 11

DCE REF	22086MPSEC02
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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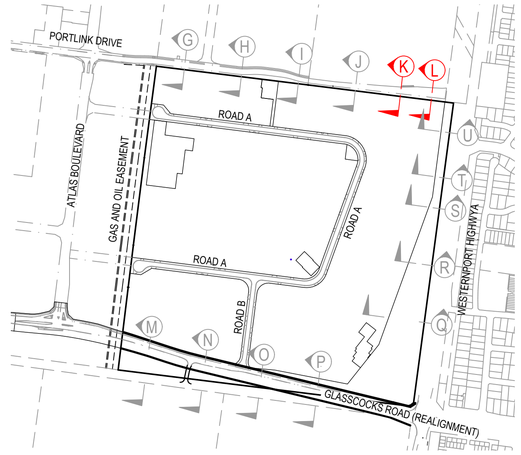
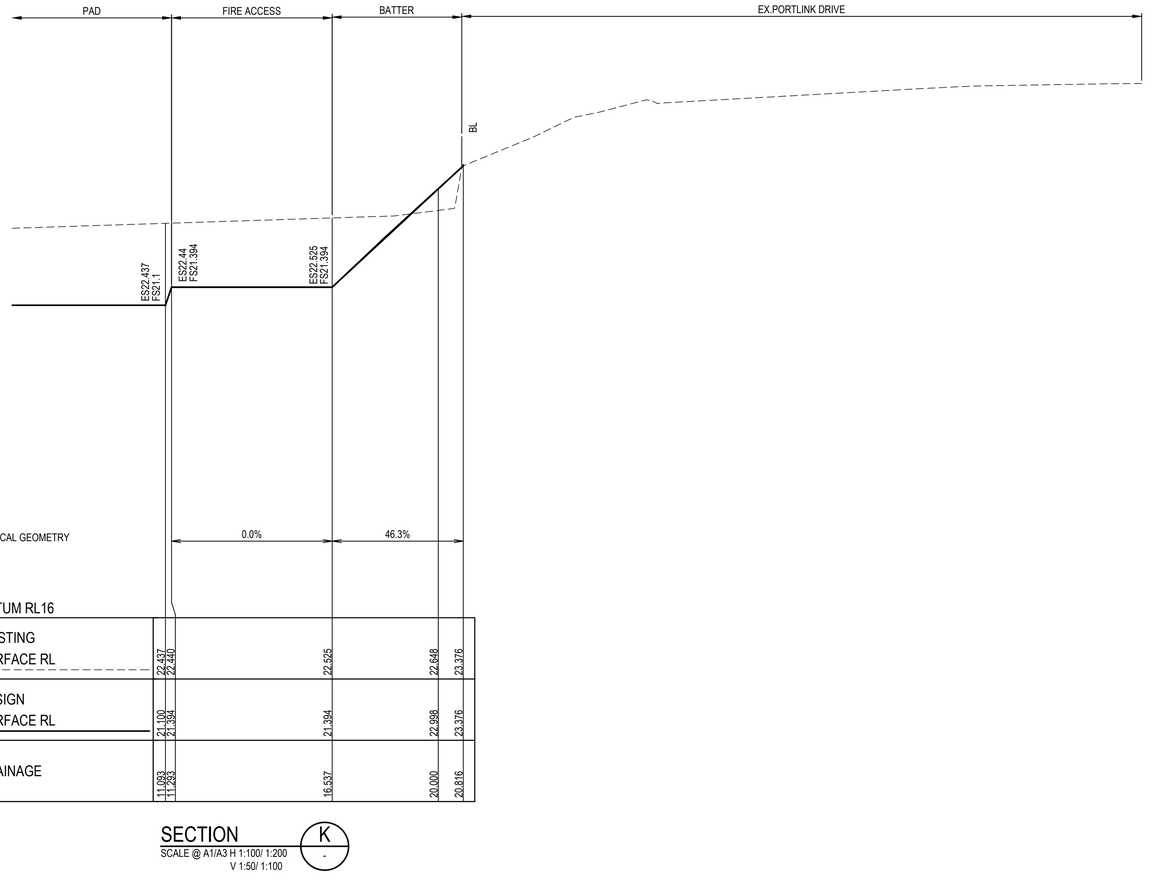


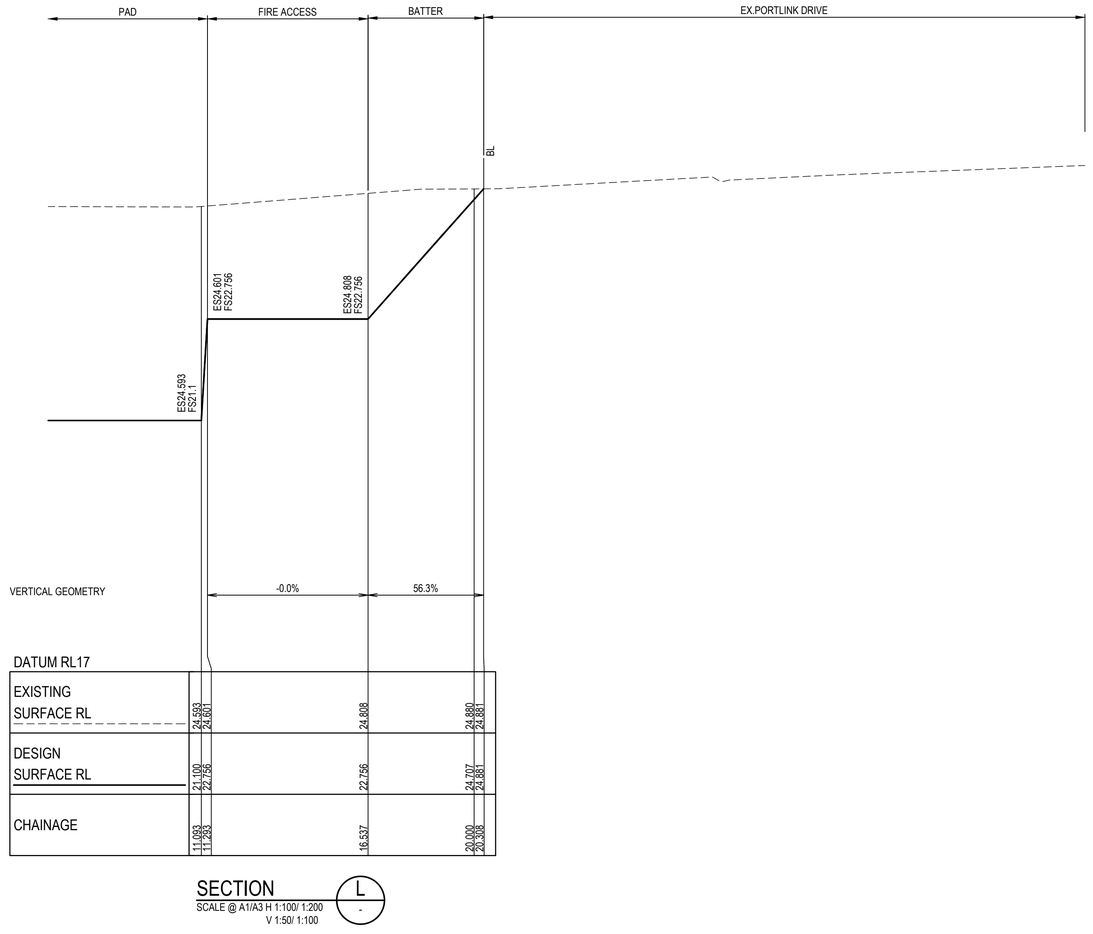
KEY PLAN

SCALE @ A1: 1:8000



SECTION K

SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100



SECTION L

SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 03 OF 11

DCE REF	22086MPSEC03
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

ISPT SUPER PROPERTY Aliro

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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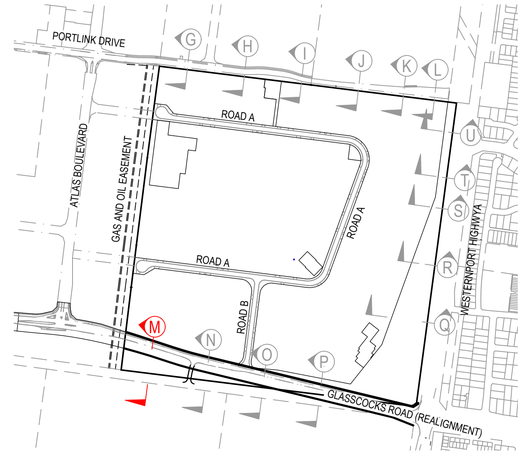
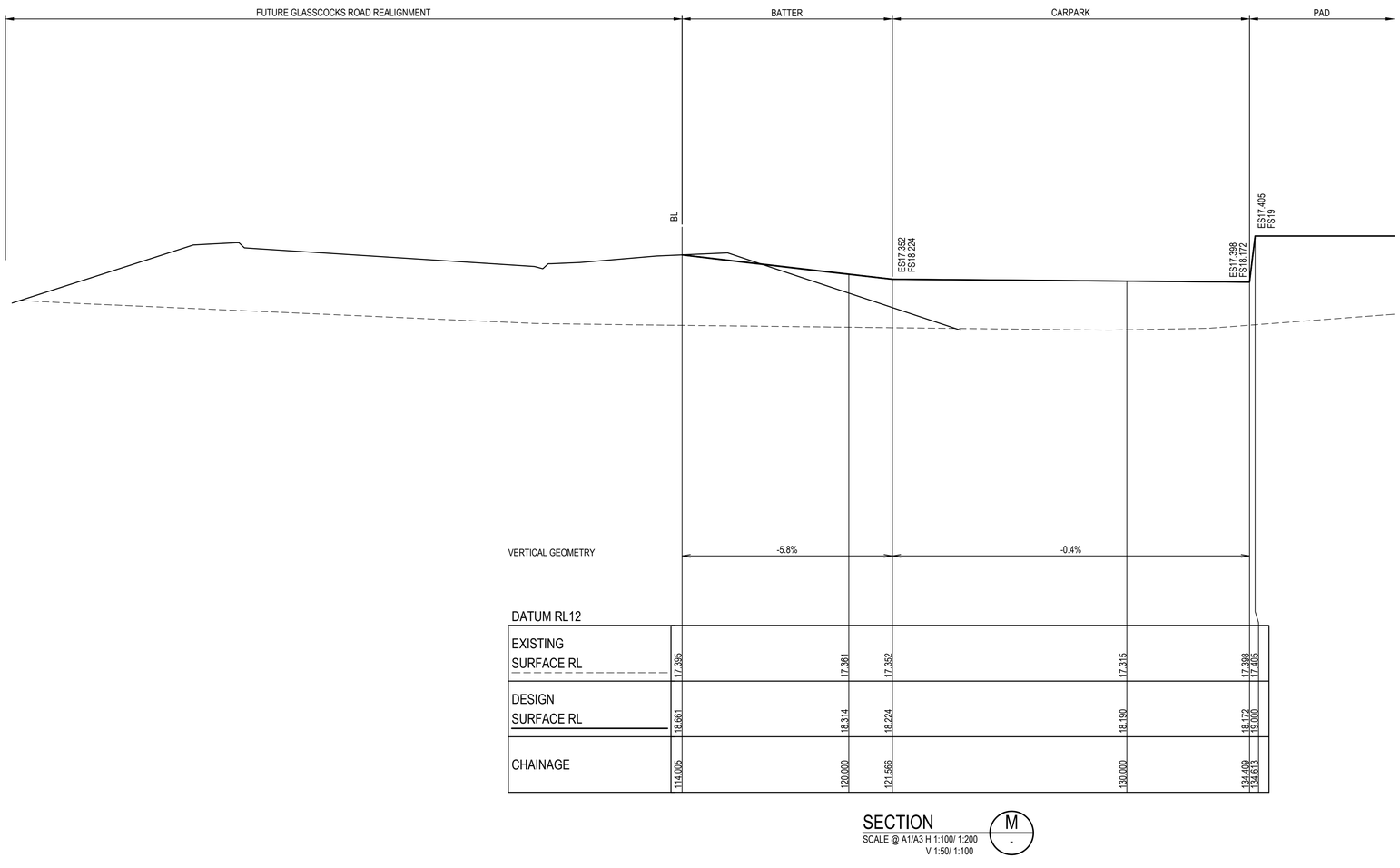


KEY PLAN

SCALE @ A1: 1:8000



SECTION M

SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 04 OF 11

DCE REF	22086MPSEC04
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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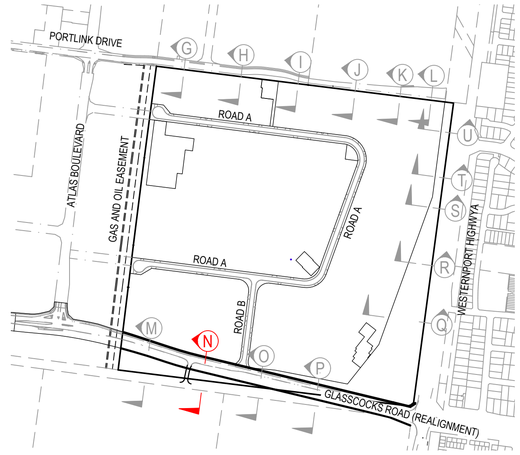
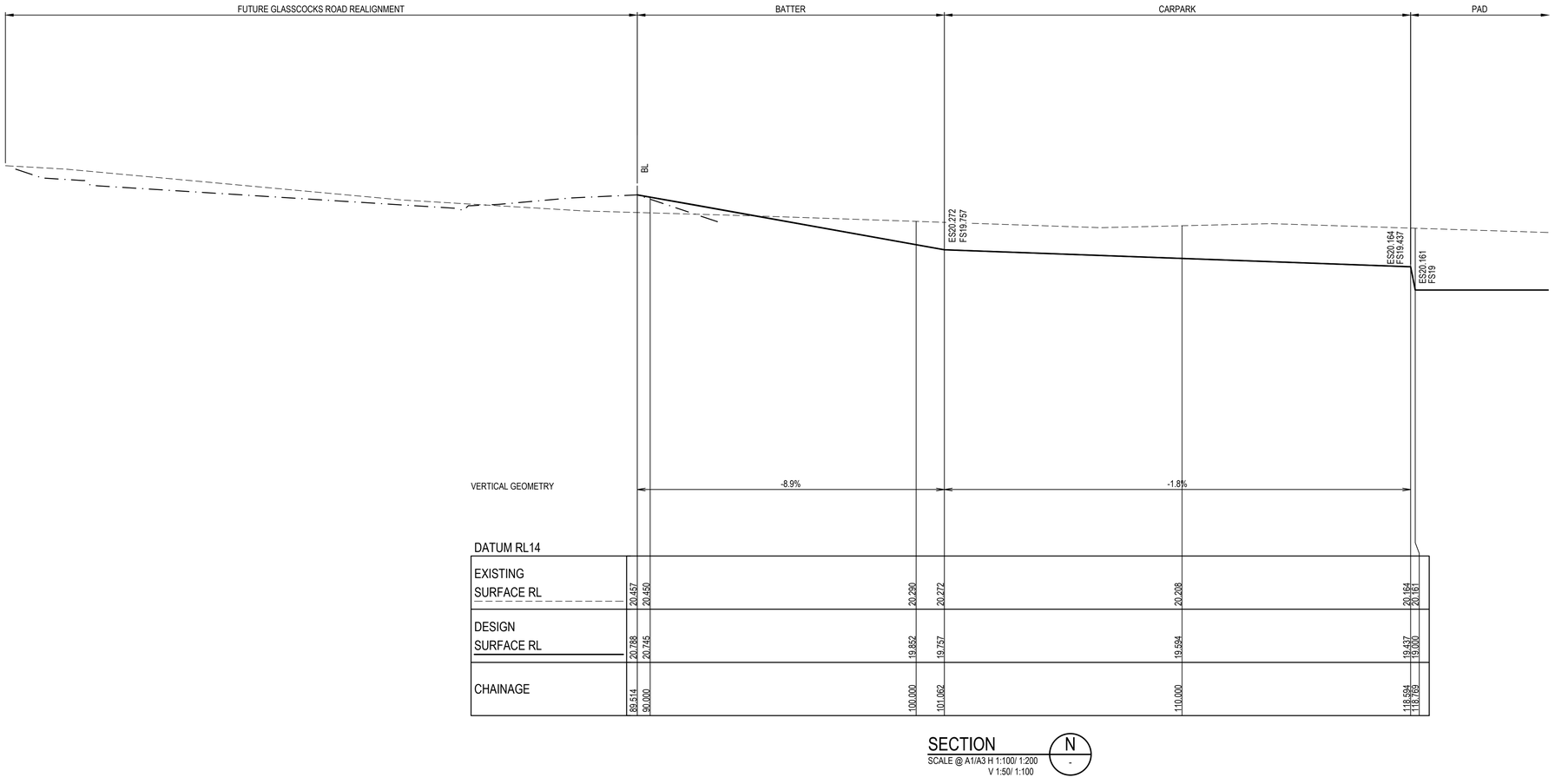


KEY PLAN
SCALE @ A1: 1:8000



SECTION
SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

N
-

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 05 OF 11

DCE REF	**22086MPSEC05**
DRAWN BY	**B.SHADE**
REVISION	**F**
REV DATE	**18/12/23**

ISPT SUPER PROPERTY Aliro

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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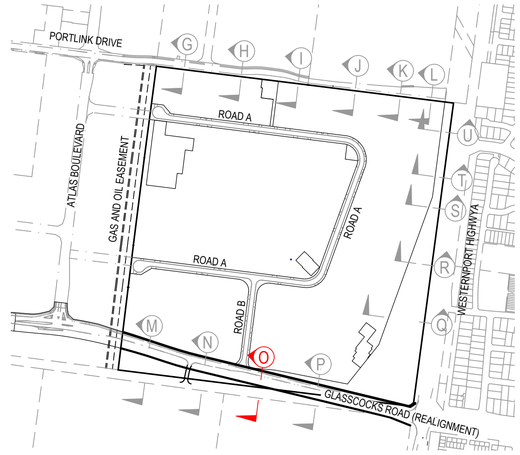
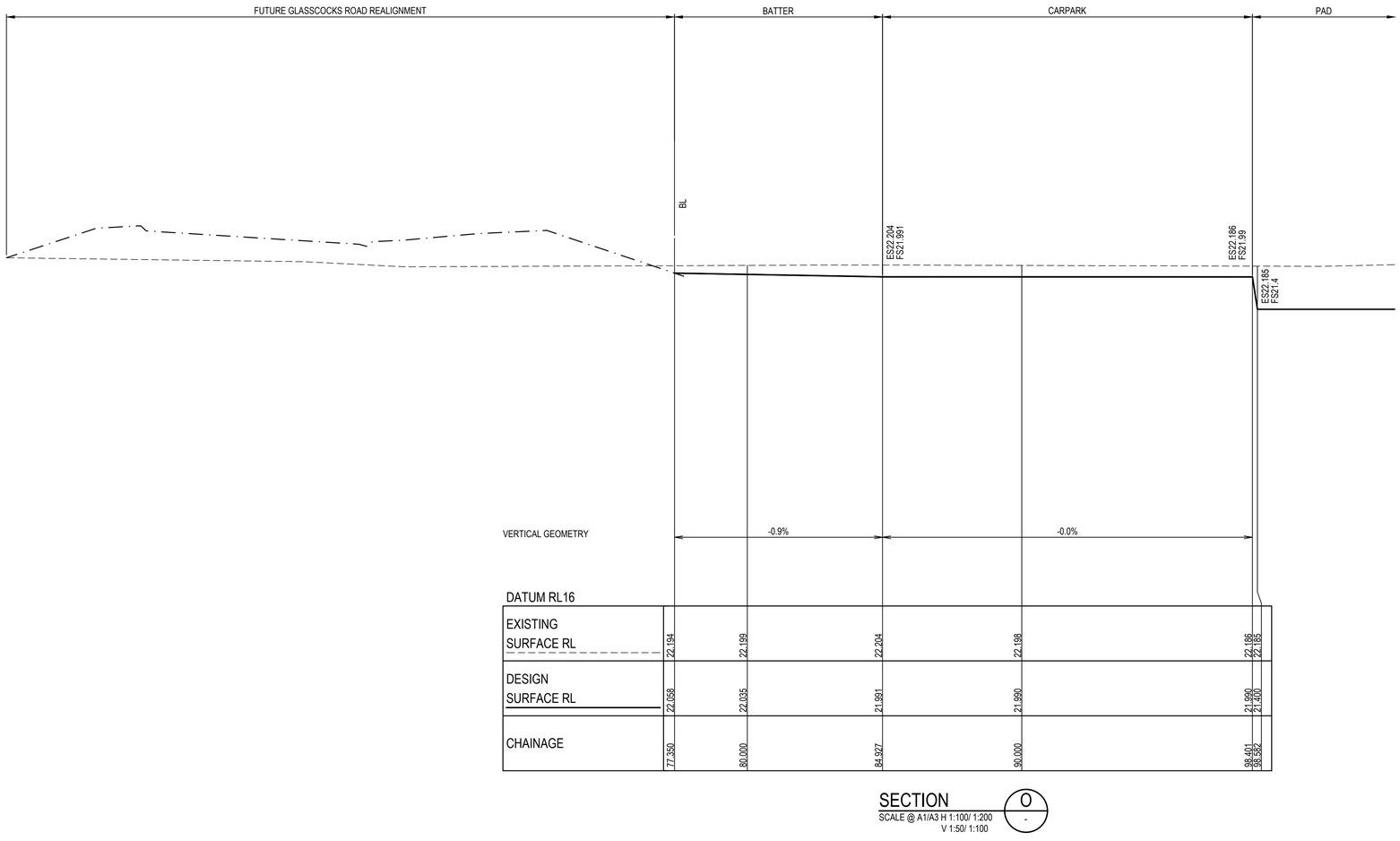


KEY PLAN
SCALE @ A1: 1:8000



SECTION O
SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 06 OF 11

DCE REF	22086MPSEC06
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

ISPT SUPER PROPERTY Aliro

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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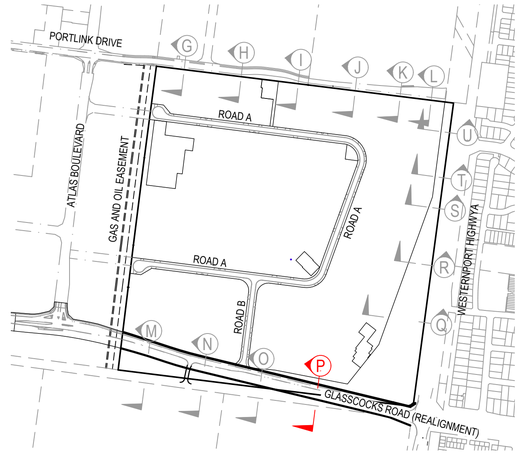
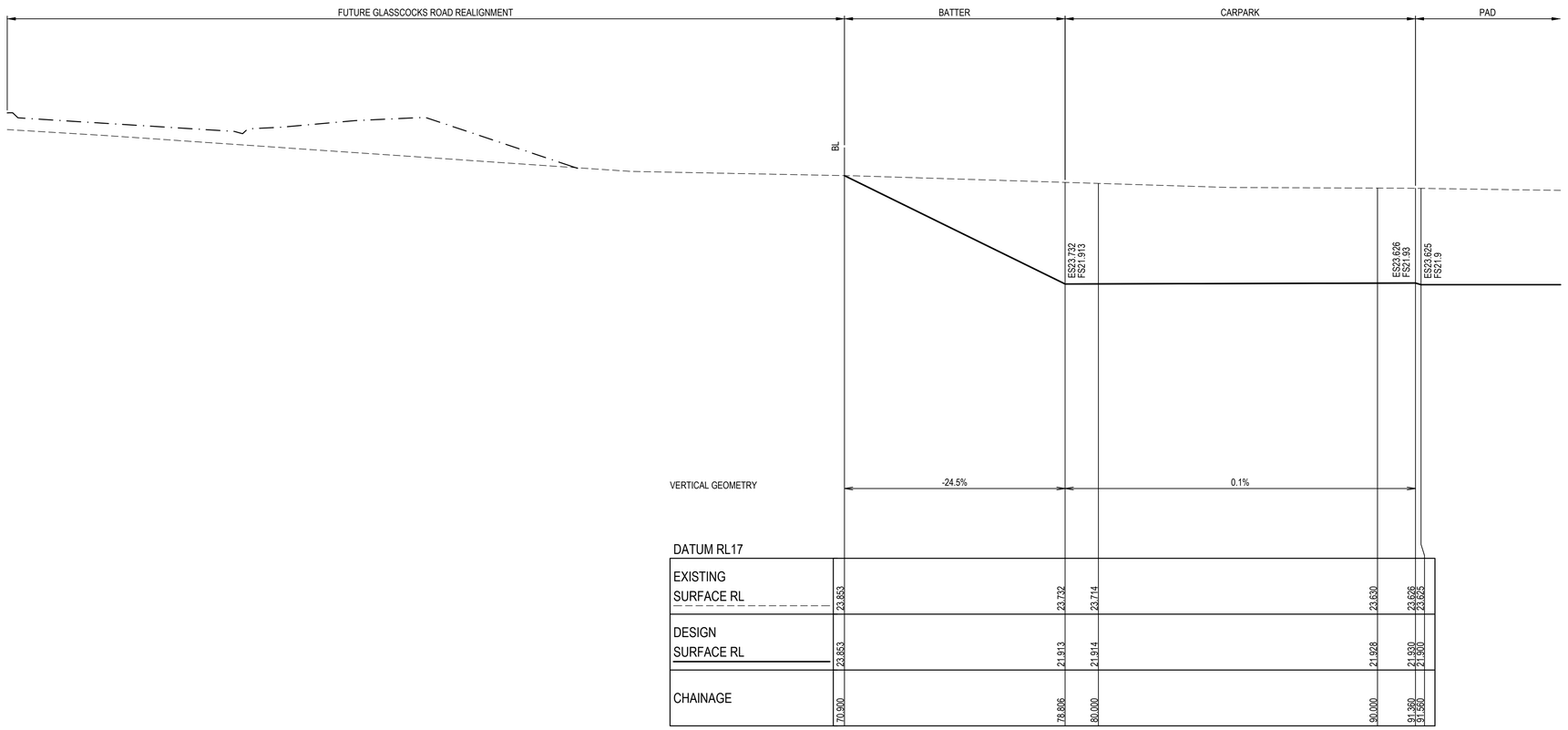


KEY PLAN
SCALE @ A1: 1:8000



SECTION P
SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 07 OF 11

DCE REF	22086MPSEC07
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

ISPT SUPER PROPERTY Aliro

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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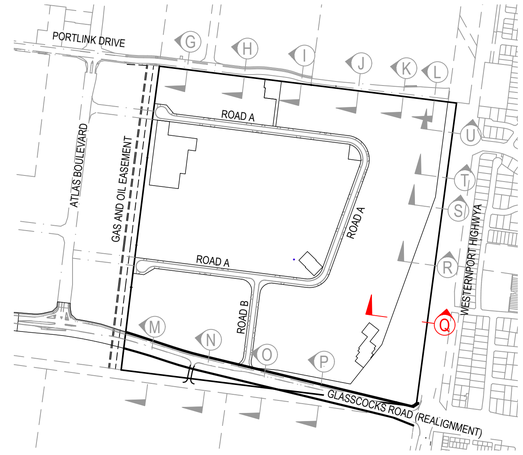
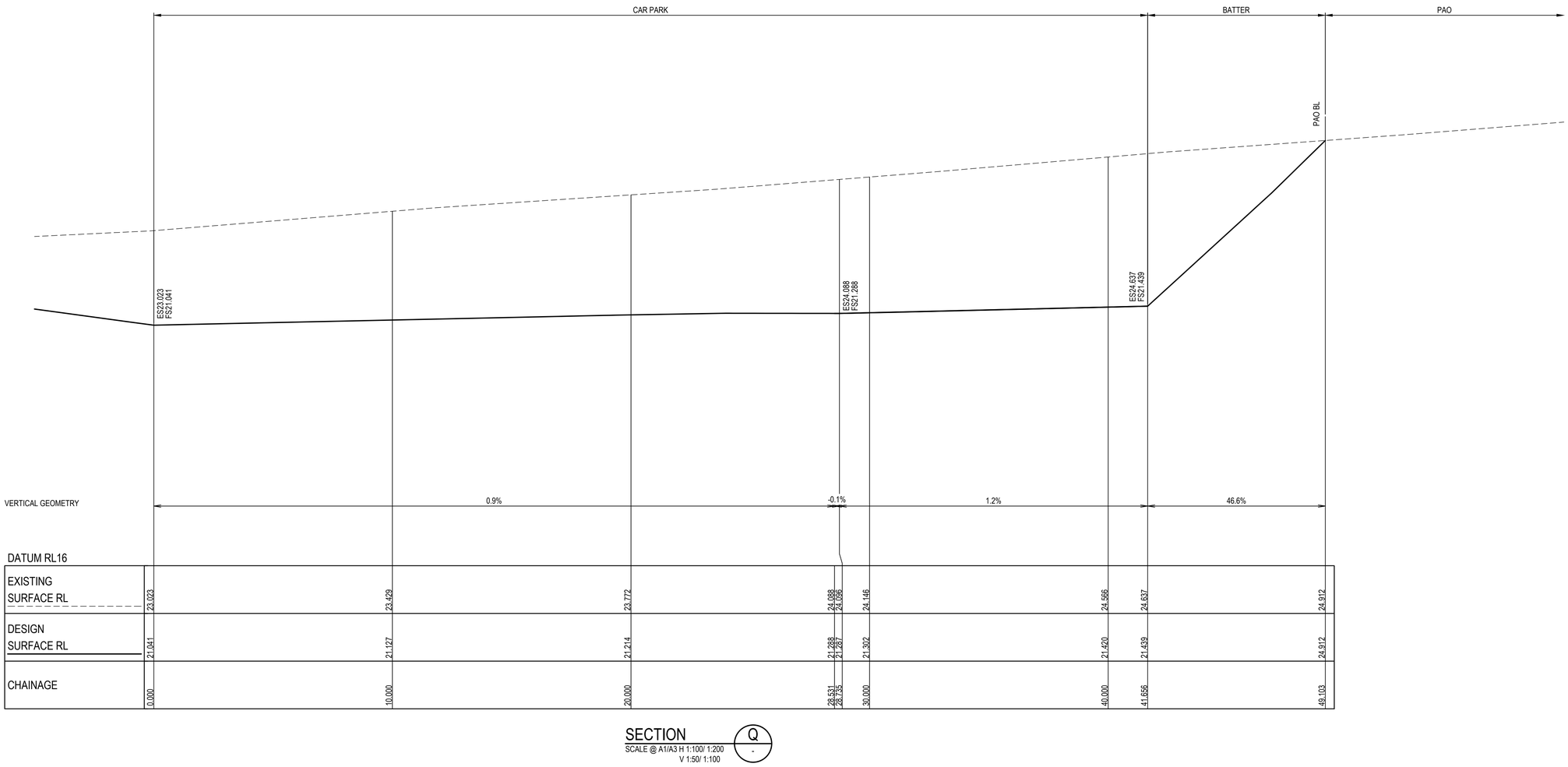


KEY PLAN

SCALE @ A1: 1:8000



SECTION Q

SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 08 OF 11

DCE REF	**22086MPSEC08**
DRAWN BY	**B.SHADE**
REVISION	**F**
REV DATE	**18/12/23**

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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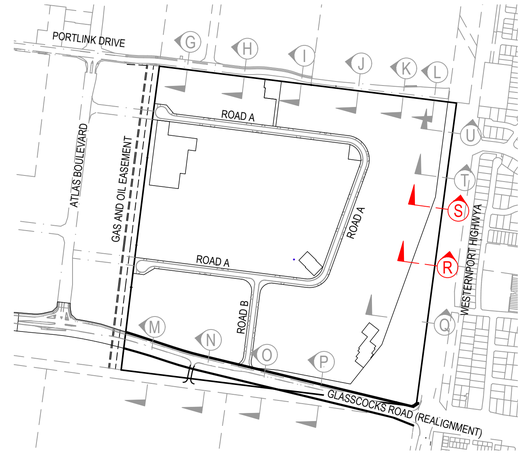
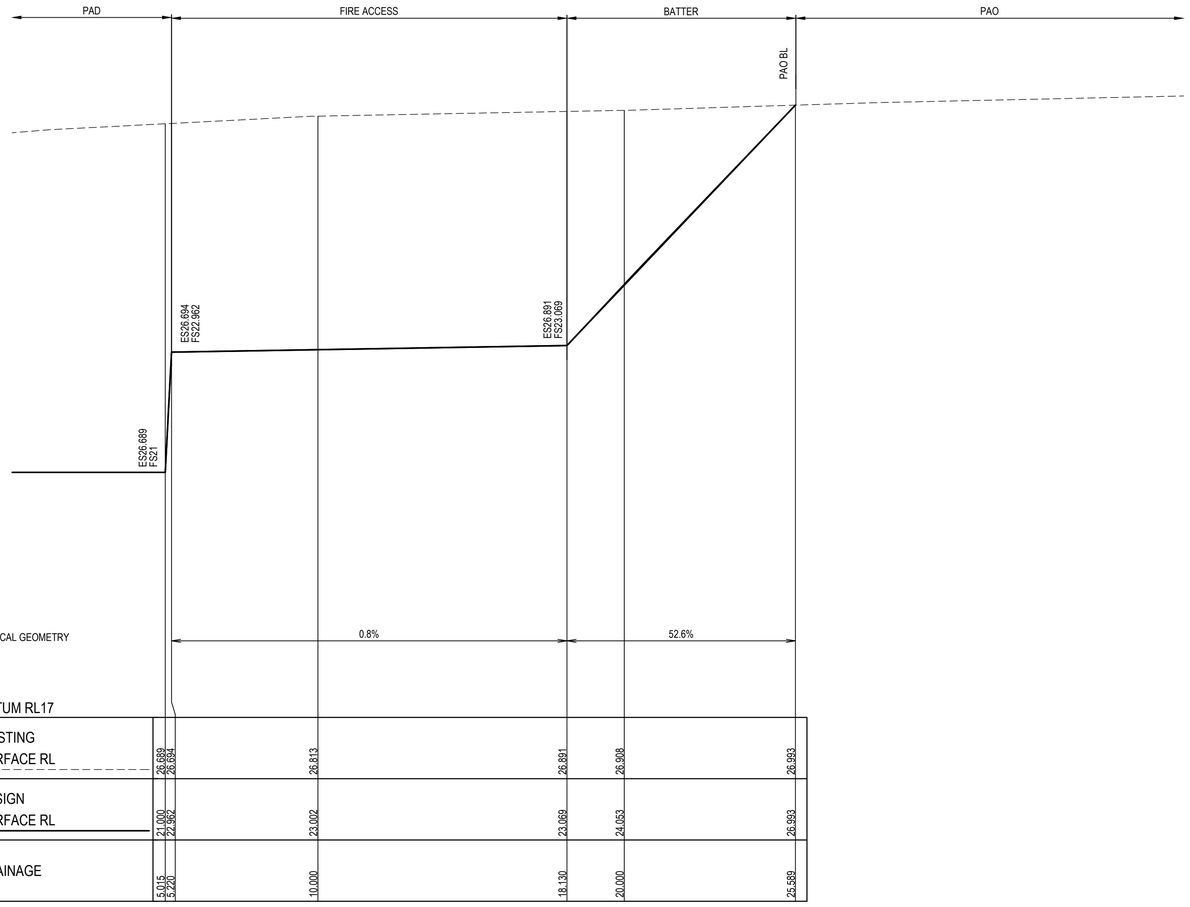
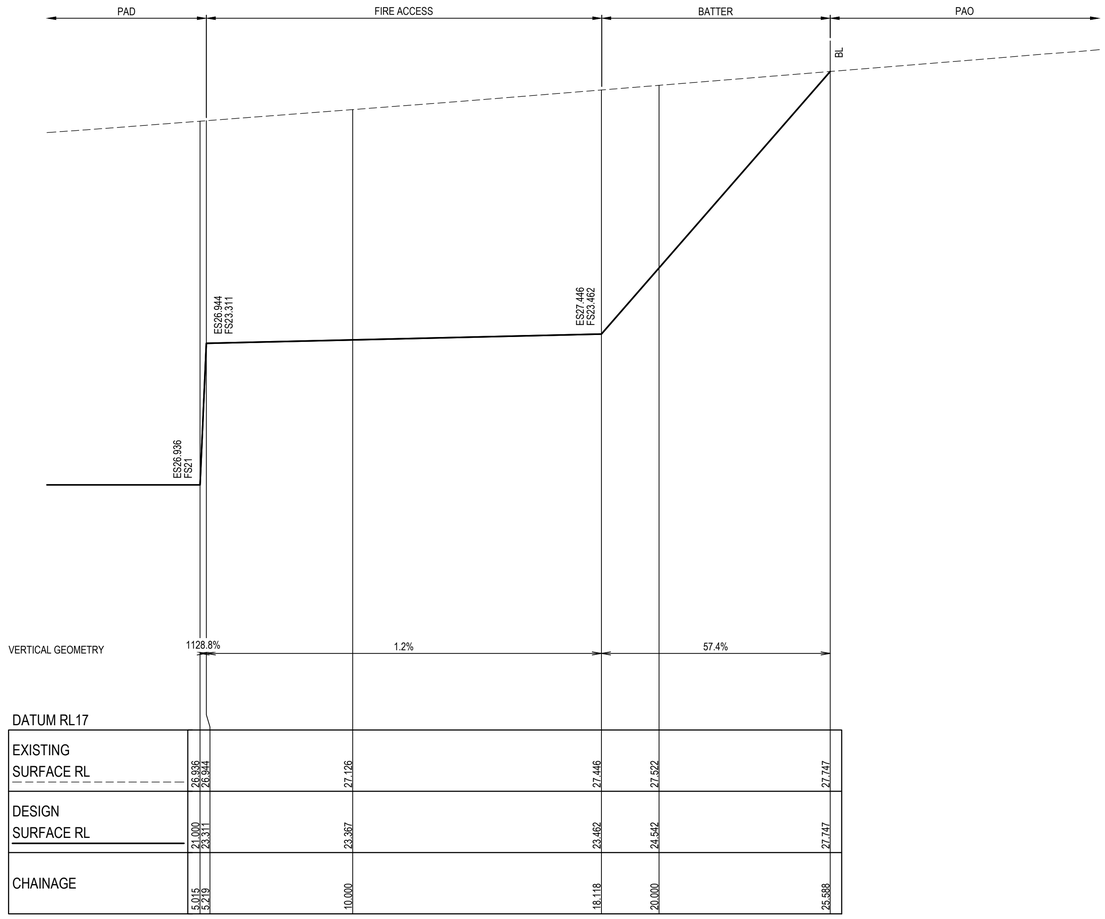


KEY PLAN

SCALE @ A1: 1:8000



SECTION R
SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100



SECTION S
SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 09 OF 11

DCE REF	22086MPSEC09
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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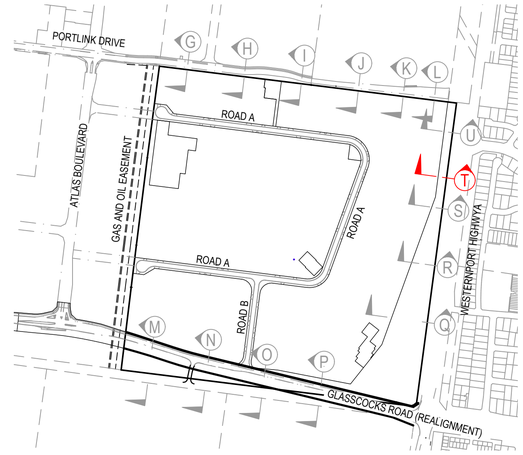
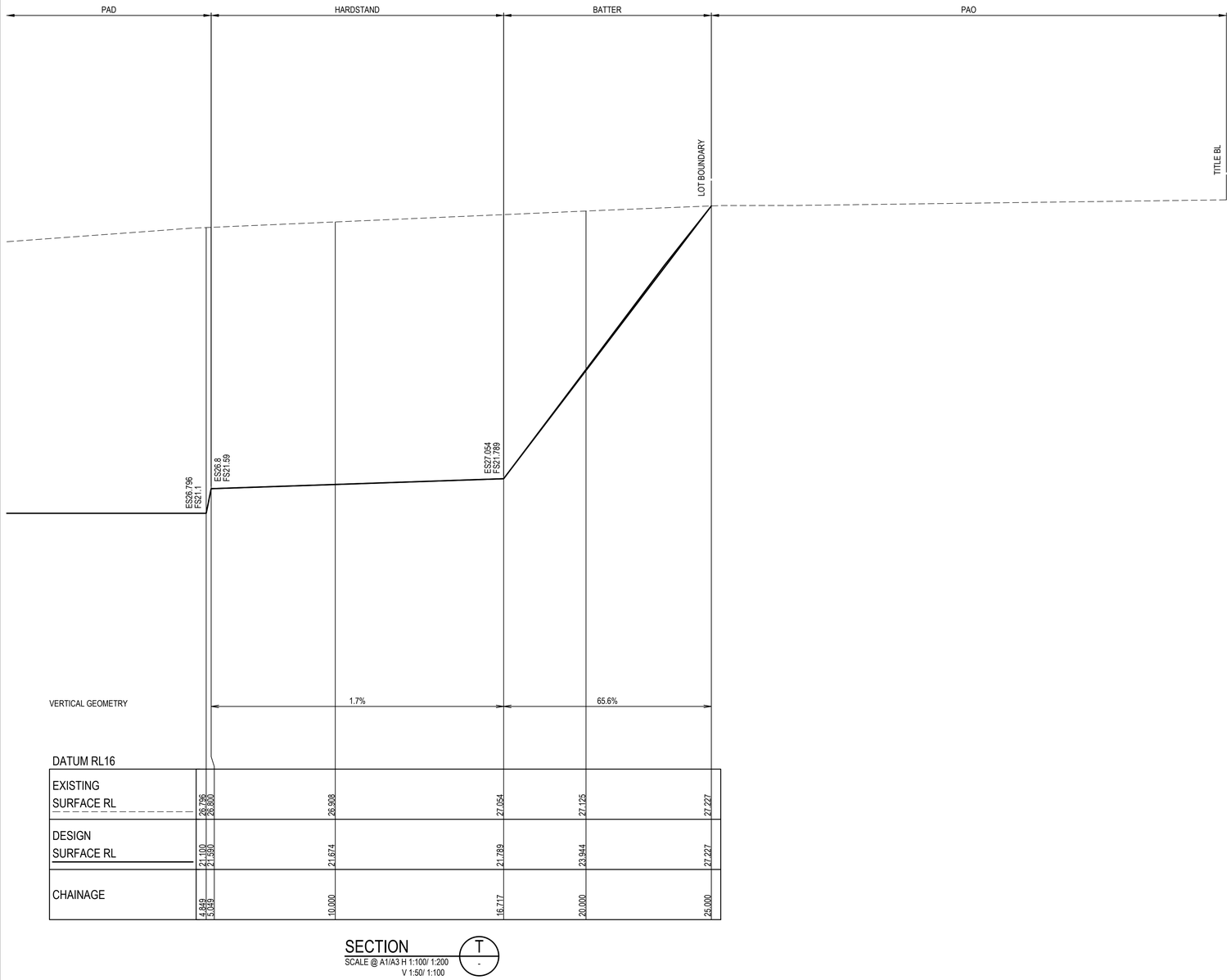
FOR DISCUSSION



KEY PLAN

SCALE @ A1: 1:8000



SECTION T

SCALE @ A1/A3 H 1:100/ 1:200 V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 10 OF 11

DCE REF	22086MPSEC10
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

ISPT SUPER PROPERTY Aliro

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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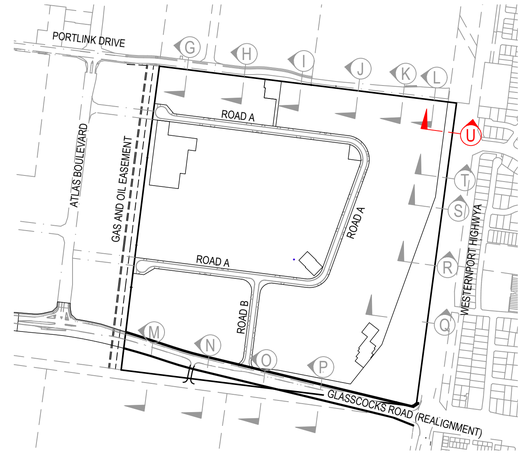
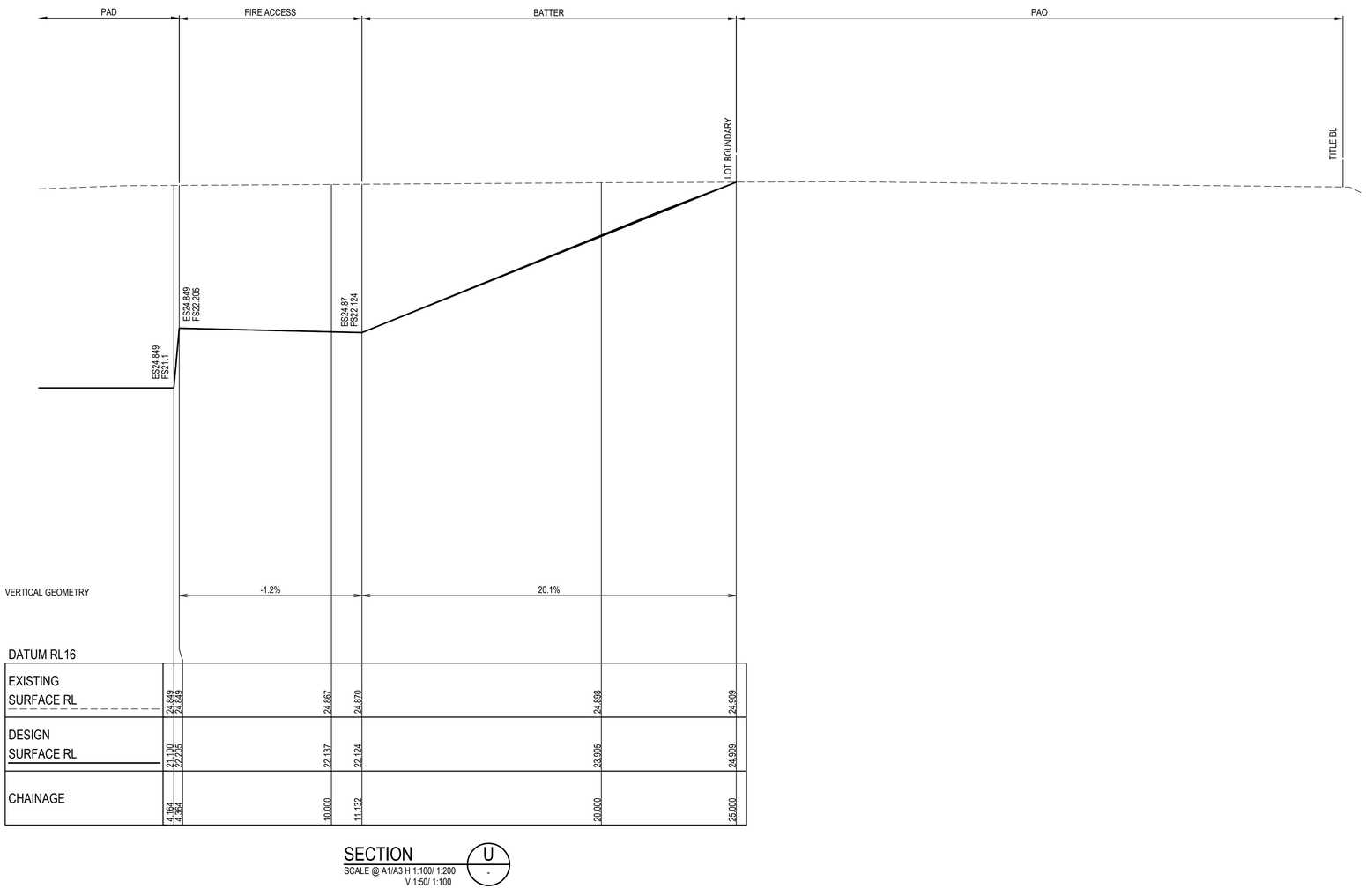
FOR DISCUSSION



KEY PLAN
SCALE @ A1: 1:8000



SECTION U
SCALE @ A1/A3 H 1:100/ 1:200
V 1:50/ 1:100

265 WESTERN PORT HIGHWAY
CITY OF GREATER DANDENONG
ROADS AND DRAINAGE
SECTIONS - SHEET 11 OF 11

DCE REF	22086MPSEC11
DRAWN BY	B.SHADE
REVISION	F
REV DATE	18/12/23

ISPT SUPER PROPERTY Aliro

H 0m 1m 2m 4m 6m
V 0m 0.5m 1m 2m 3m
Scale @ A1/A3 H1:100/200 V1:50/100

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FOR DISCUSSION

APPENDIX F

INTEGRATED TRANSPORT PLAN

37°48'22"S
144°43'42"E

Industrial Subdivision: 265 Dandenong Hastings Rd, Dandenong South

Integrated Transport Plan

20 March 2024
Prepared for Aliro

IMP2203050ITP01F05

Impact

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1 Introduction

1.1 Engagement

IMPACT® have been engaged by Aliro to undertake and prepare an Integrated Transport Plan for land at 265 Dandenong - Hastings Road, Dandenong South.

1.2 Scope of Engagement

This Integrated Transport Plan is intended to accompany a Development Plan application, and responds to the requirements at Schedule 6 To Clause 43.04 Development Plan Overlay.

These requirements are reproduced below.

SCHEDULE 6 TO CLAUSE 43.04 DEVELOPMENT PLAN OVERLAY DANDENONG SOUTH INDUSTRIAL AREA EXTENSION - KEYSBOROUGH & LYNDHURST SITES	**Integrated Transport Plan** An Integrated Transport Plan generally in accordance with the Dandenong South Industrial Area Extension Structure Plan (January 2009). The Integrated Transport Plan should take into account all transport modes and include an indicative public transport, road, bicycle and pedestrian network showing, as appropriate: — Provision of access to the existing road network. — Provision of adequate pedestrian and cycle ways and accommodation for potential public transport routes and public transport infrastructure. — Integration with the Principal Public Transport Network. — Any other matters as required by the responsible authority, Roads Corporation and the Department of Transport.

In preparing this assessment, the following materials have been referenced:

- Data and Documents published by Department of Transport (State Road Authority)
- City of Greater Dandenong Planning Scheme
- Dandenong South Industrial Area Extension Structure Plan
- Dandenong South Industrial Area Extension Development Contributions Plan
- Lyndhurst Inland Port & Industrial Subdivision Integrated Transport Plan (Dec 2011) - Prepared by Cardno on behalf of Salta Properties
- Other documents as referenced within the report.

2 Existing Conditions

2.1 Site Location

The subject site is located on the northwest corner of the intersection between Western Port Highway and Glasscocks Road and is bound by Glasscocks Road (south), Western Port Highway (East) and Portlink Drive (North).

The site is symmetrical in shape with a land area of approximately 62.2Ha. The location of the site is illustrated at Figure 1.

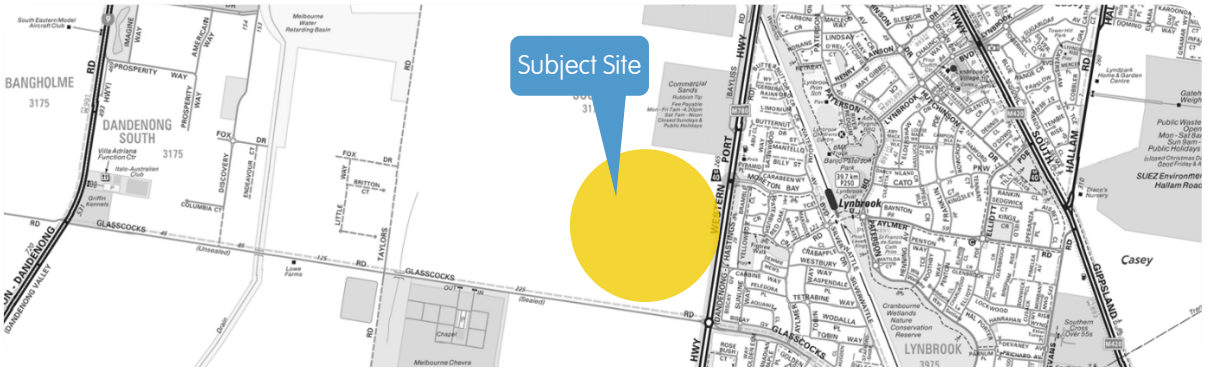


Figure 1 Location of Subject Site

An aerial view of the site is shown at Figure 2.

Figure 2 Aerial View - Subject Site

2.2 Strategic Context

The site is located within the Dandenong National Employment and Innovation Cluster as shown at Figure 3.

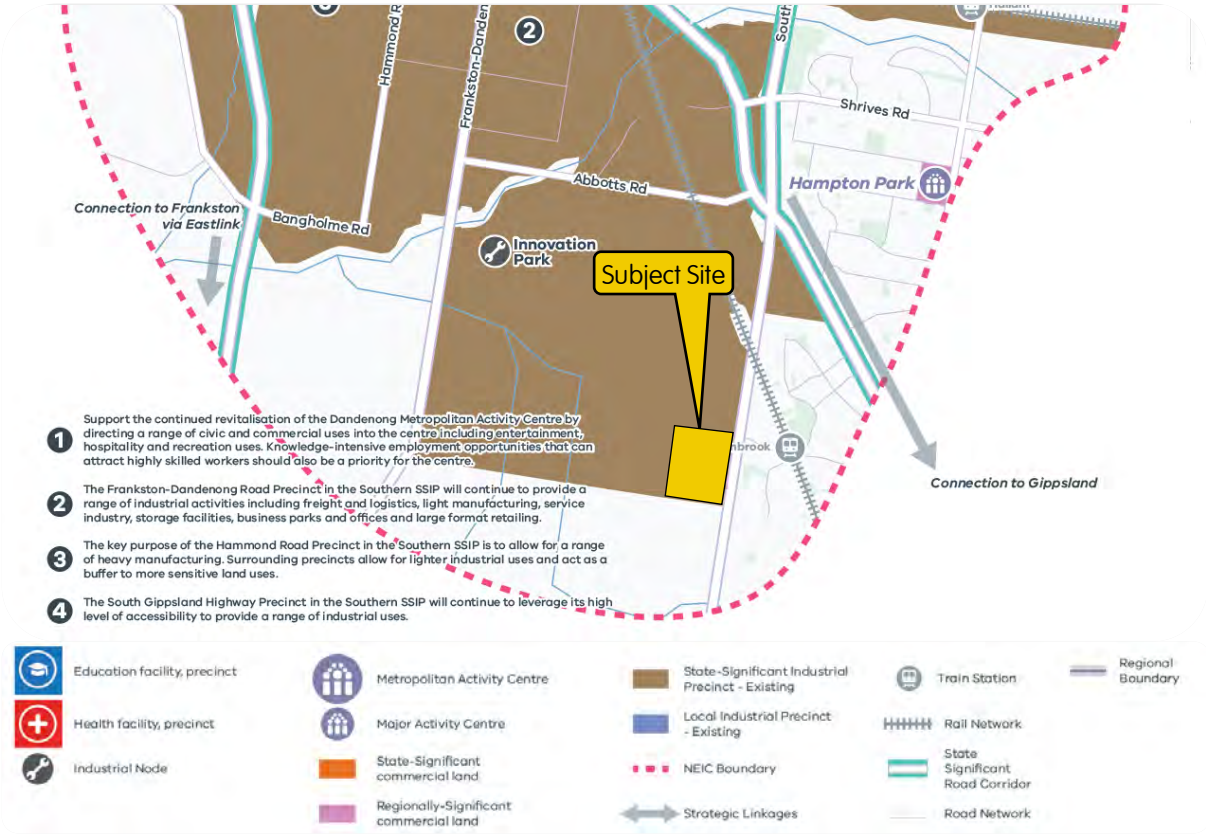


Figure 3 Dandenong National Employment and Innovation Cluster

This plan shows that the site is located within a State Significant Industrial Precinct.

These precincts are described as strategically located land available for major industrial development linked to the Principal Freight Network and transport gateways.

The purpose of these precincts is to:

— Provide strategically located land for major industrial development linked to the Principal Freight Network and transport gateways

2.2.1 South East Growth Corridor Plan

Growth Corridor Plans are high level integrated land use and transport plans that provide a strategy for the development of Melbourne's growth corridors over the coming decades.

The subject site is located within the South East Growth Corridor Plan area as illustrated at Figure 4 and is identified as existing urban area.

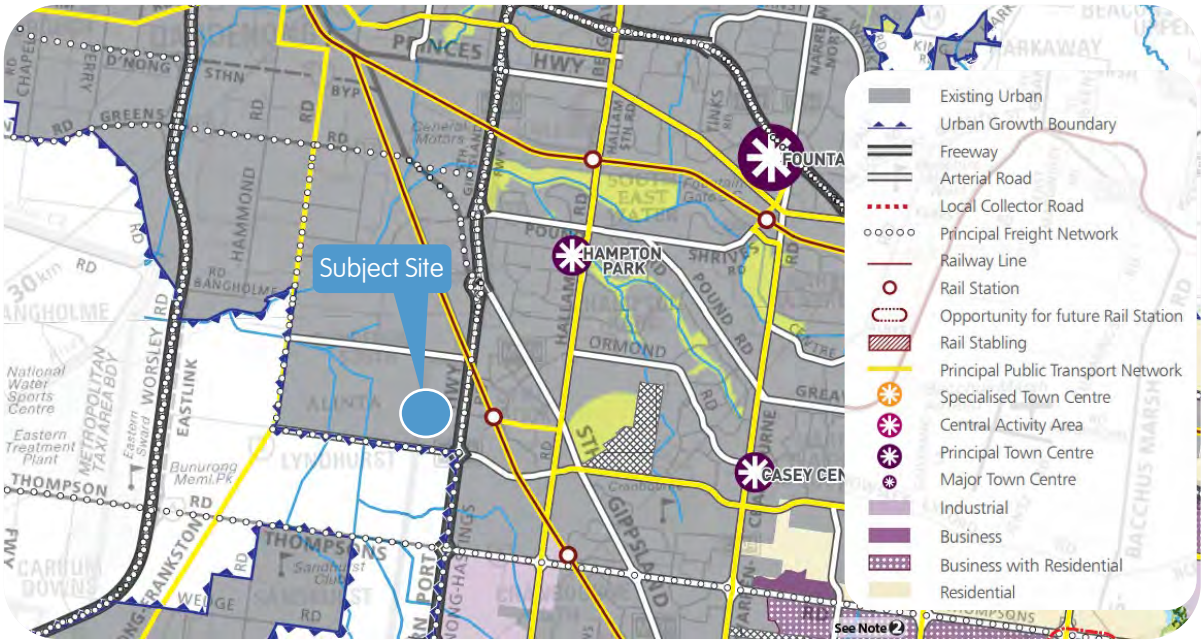


Figure 4 West Growth Corridor Plan

The Southeast Growth Corridor Plan identifies the arterial road and rail network in Melbourne's Southeast, including road corridors that are expected to absorb the freight demand.

The location of the site relative to these freight demand routes is shown at Figure 5.

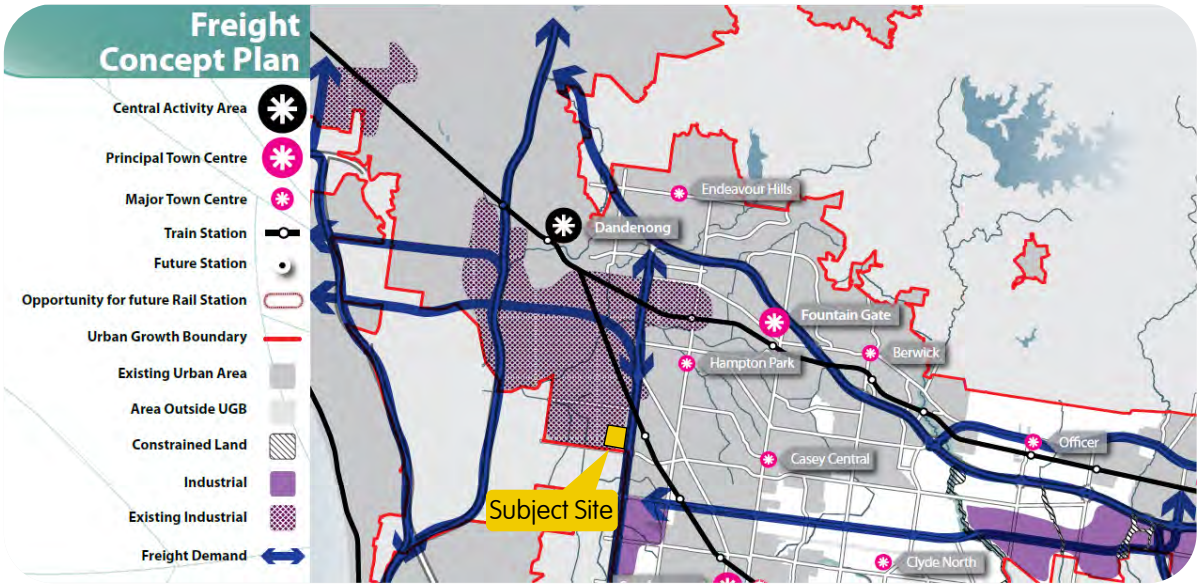


Figure 5 Key Freight Demand Routes

From the above, we observe that the Southeast Growth Corridor Plan identifies generally South Gippsland Freeway, and the Monash Freeway to the east of the site and Dandenong Bypass to the south of the site and East Link to the West of the site as key freight demand routes.

2.2.2 Dandenong South Industrial Extension Area

The site is located within the Dandenong South Industrial Extension Area as identified within the Dandenong South Industrial Area Extension Structure Plan.

The Structure Plan is intended to facilitate the development of the industrial area and to ensure the provision of well-serviced industrial infrastructure capable of accommodating the existing and future industrial and commercial activities.

The site is located on land specifically identified as the Lyndhurst Structure Plan.

The location of the land within this structure plan area is shown at Figure 6.

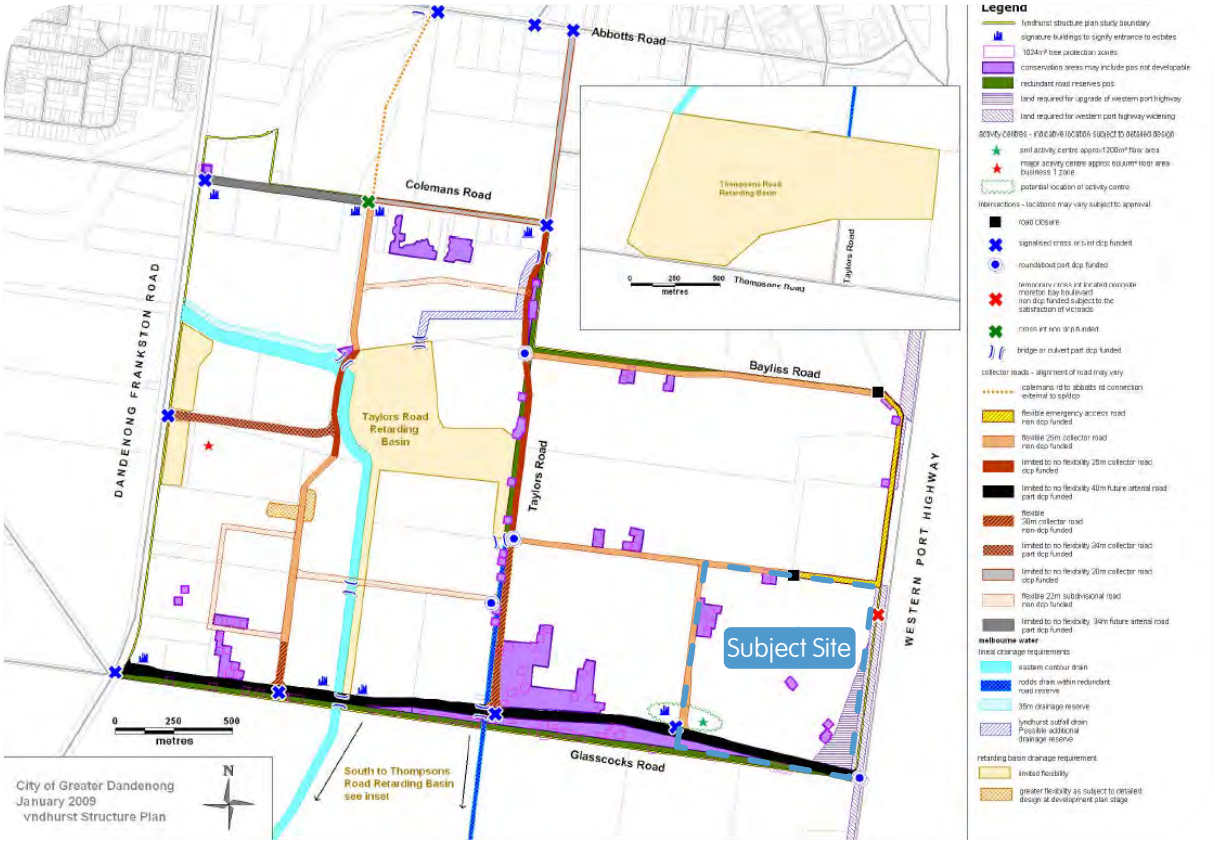


Figure 6 Lyndhurst Structure Plan Area

Relevant to the site, the Structure Plan has the following features:

Road Network

- Realigns Glasscocks Road to the north of the existing reserve, enabling the retention of native vegetation within the current Glasscocks Road corridor and allowing the existing road to become a service road for properties to the south whilst forming part of the Lyndhurst Open Space Network;
- Can be aligned to facilitate efficient access to each lot while:
  - Minimising the need for direct access to future and existing arterial roads (Western Port Highway, Glasscocks Road, Dandenong Frankston Road and Colemans Road West); and
  - Not unnecessarily severing land or creating parcels of land that are difficult to develop.
- Provides for a temporary access to the Western Port Highway at the intersection of Moreton Bay Boulevard, to the satisfaction of VicRoads.

Traffic & Transport

From the traffic modelling it is recommended that:

- Glasscocks Road eventually be upgraded to a six lane divided road.
- Lyndhurst site internal roads constructed mainly as two lane roads with a third centre lane used for turning vehicles, except for higher volume sections linking Glasscocks Road and Dandenong-Frankston Road with the site.

No additional access points will be supported to Glasscocks Road or the Western Port Highway. All to the satisfaction of VicRoads and the responsible authority

2.3 Road Infrastructure Upgrades

The Structure Plan nominates the road hierarchy and carriageway widths for key roads within the Structure Plan area. These are shown at Figure 7.

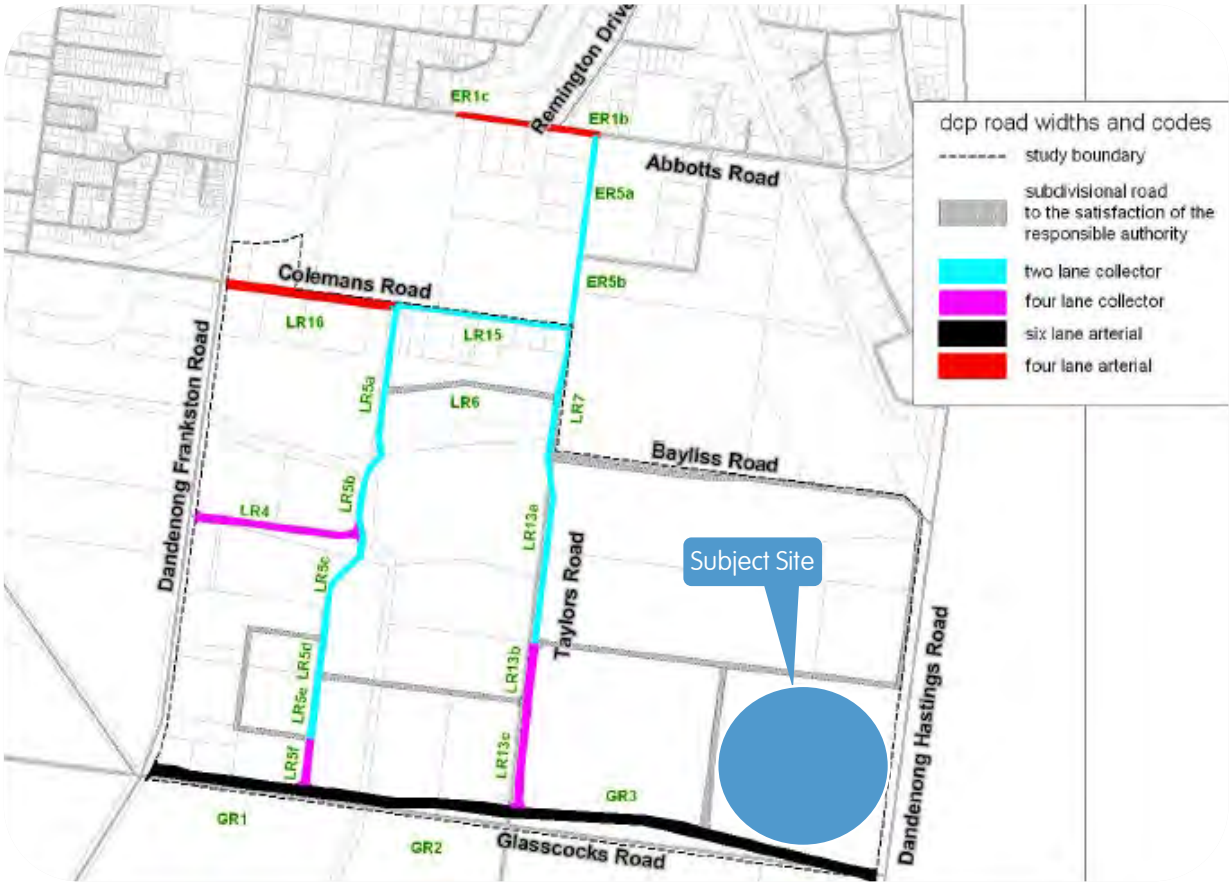


Figure 7 Lyndhurst DCP Road Cross Sections

We observe that most of the road infrastructure upgrades have been delivered with the notable exception of Glasscocks Road and in turn the four lane collector intersections at Taylors Road and Discovery Drive.

2.3.1 Glasscocks Road

The Dandenong South Industrial Area Extension Structure Plan contemplates the upgrade of Glasscocks Road in the section between Western Port Highway and Frankston -Dandenong Road.

These works will require land from the subject site.

The upgrade of Glasscocks Road will occur in two stages comprising an interim and ultimate configuration, with typical road cross sections as shown at Figure 8 and Figure 9.

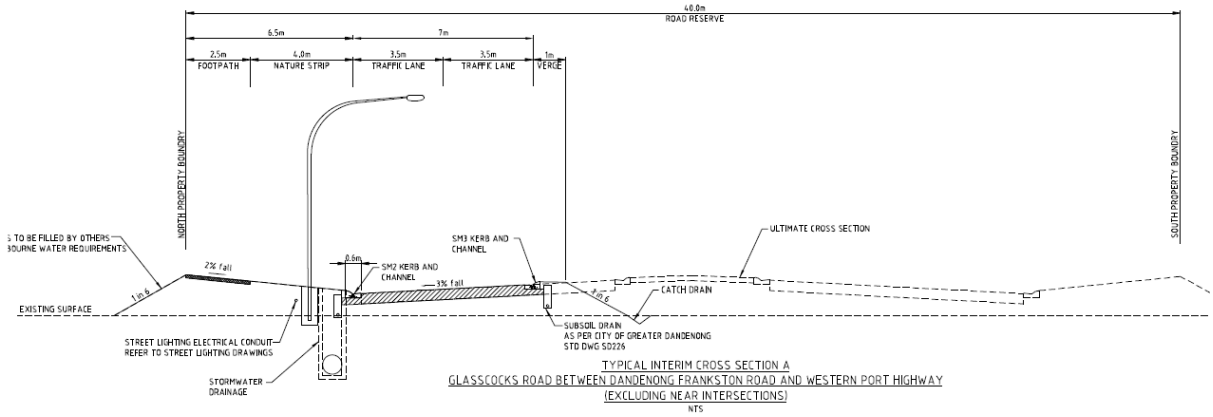


Figure 8 Glasscocks Road - Interim Cross Section

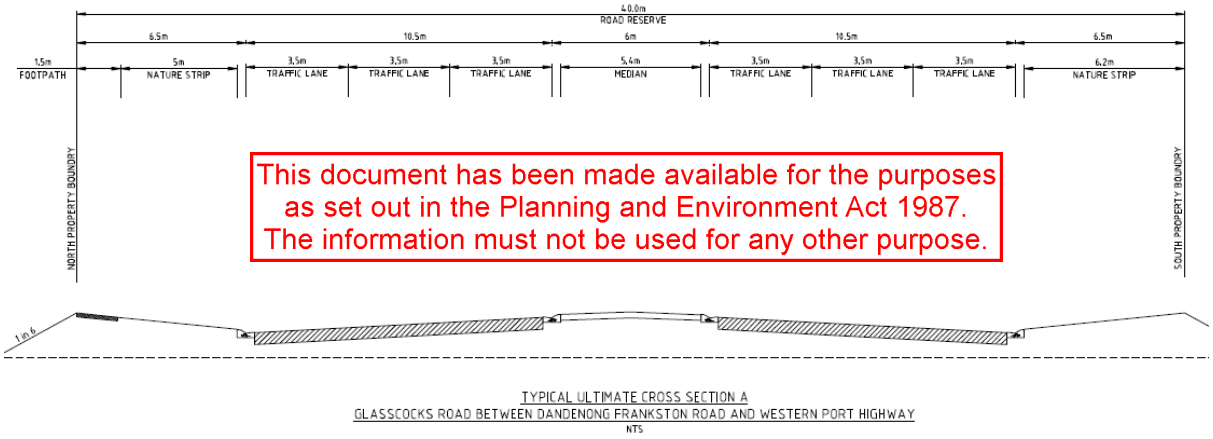


Figure 9 Glasscocks Road - Ultimate Cross Section

Concept functional design of the reconfigured interim and ultimate intersection between Western Port Highway and Taylors Road is illustrated at Figure 10.

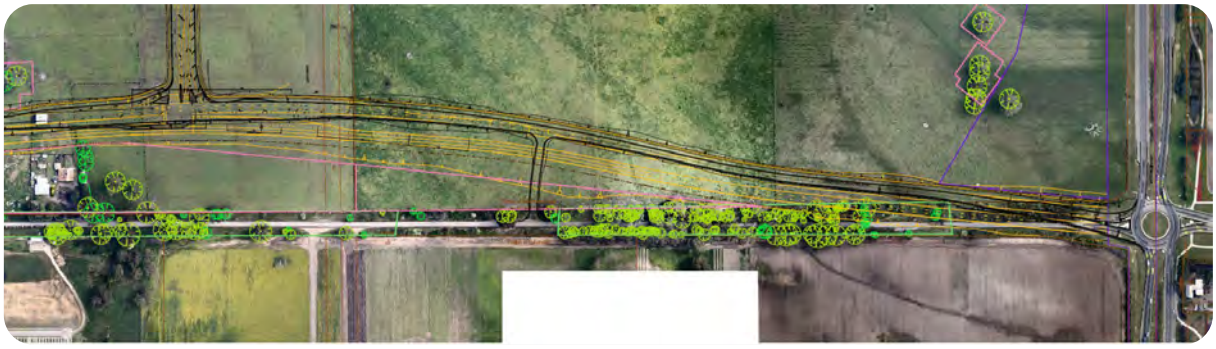


Figure 10 Glasscocks Road - Interim & Ultimate Concept Functional Design

The upgrade of Glasscocks Road includes mitigation works at the Western Port Highway / Glasscocks Road Intersection.

The geometry of the upgraded Western Port Highway / Glasscocks Road Intersection is shown at Figure 11, and shows two approach and two departure lanes on Glasscocks Road (west).

All other elements of the intersection remain as per existing.

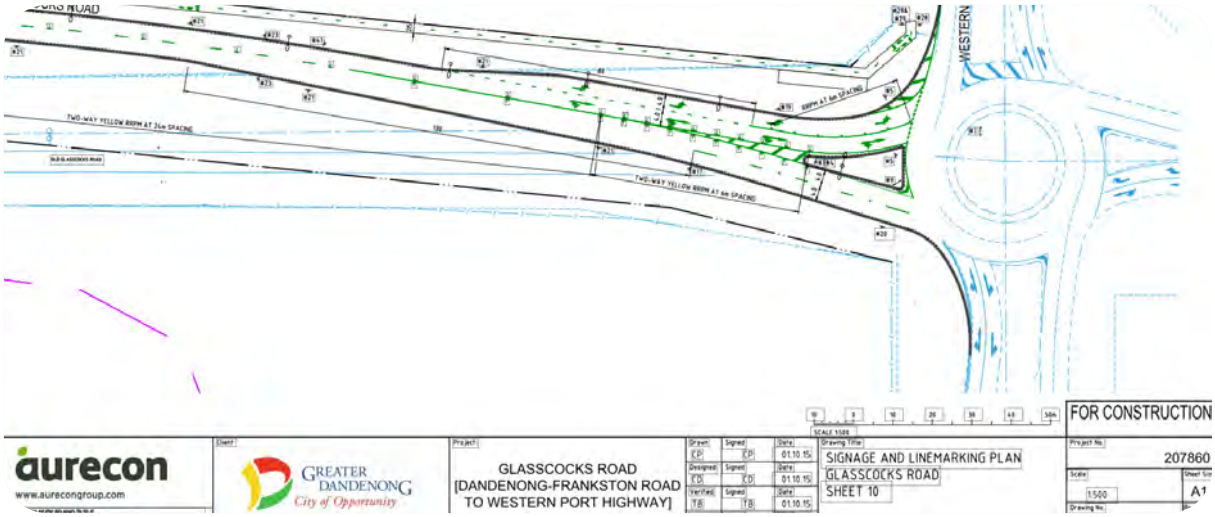


Figure 11 Western Port Highway / Glasscocks Road Mitigation Works

These works will be delivered via a combination of fully and partially funded mechanisms included in the Development Contributions Plan (DCP) for the Dandenong South Industrial Area Extension as illustrated at Figure 12.

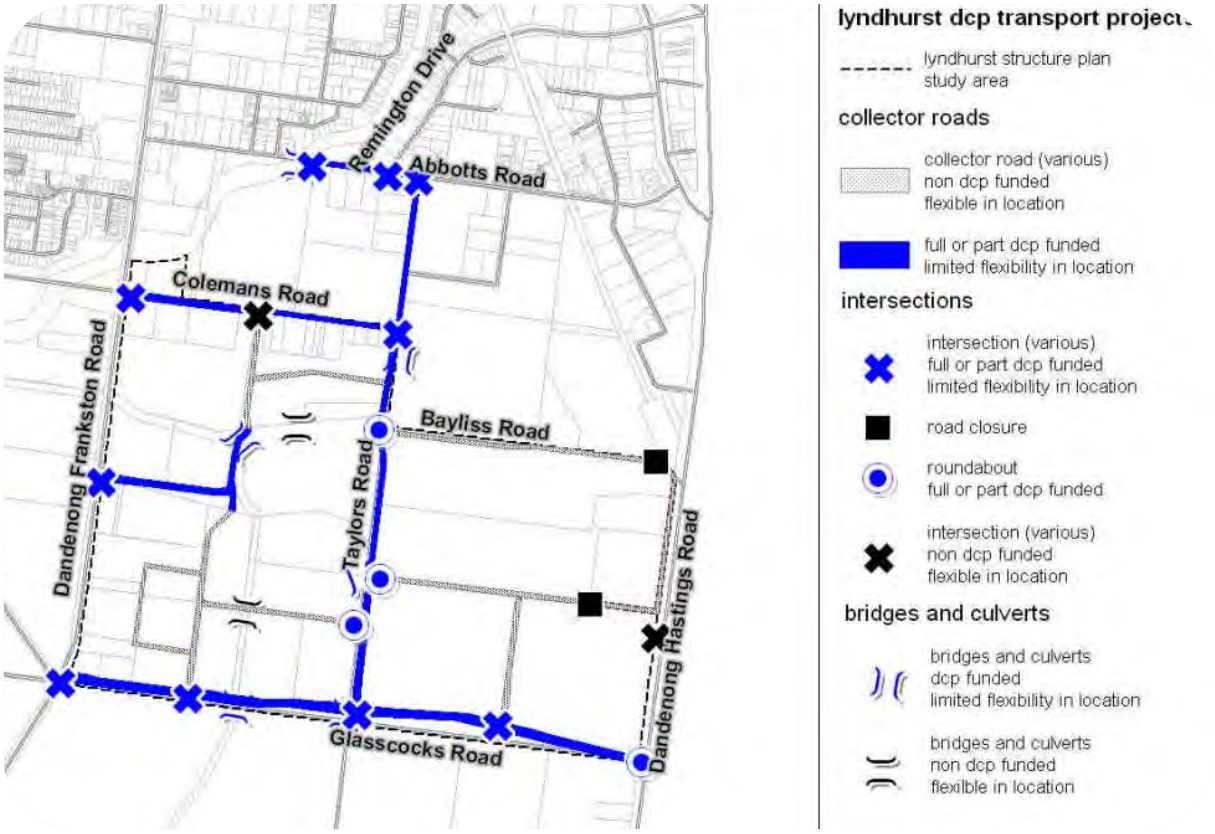


Figure 12 Lyndhurst DCP Transport Projects

2.4 Road Network

2.4.1 Western Port Highway

Western Port Highway is classified as a Declared State Highway for which Department of Transport is the responsible authority, and is aligned in a North - South direction, providing connections to key freight routes including, Monash Freeway to the north via South Gippsland Freeway.

Its typical cross section along the site frontage comprises a 4 lane median divided carriageway. Views of Western Port Highway facing south along the site frontage are provided at Figure 13.

Figure 13 **Western Port Highway facing south along the site frontage**

2.4.2 Glasscocks Road

Glasscocks Road is classified as a Local Road for which Council is the responsible authority. The road generally runs in an east - west direction. Along the site frontage Glasscocks Road operates as a two-way road, with a carriageway of circa 5.5 m wide. This road is currently sub-standard and not suitable for heavy vehicle access.

The intersection of Glasscocks Road and Western Port Highway is delivered as a roundabout. Views of Glasscocks Road along the site frontage are shown at Figure 14.

Figure 14 **Glasscocks Road facing east along the site frontage.**

2.4.3 Portlink Drive

Portlink Drive is a private road controlled and maintained by Salta Properties, and provides access to the Nexus Industrial Estate via its signalised intersection with Western Port Highway. Views of Portlink Drive along the site frontage are shown at Figure 15.

Figure 15 Portlink Drive facing west along the site frontage

Note: The Dandenong South Industrial Area Extension Structure Plan included provision for a temporary access to the Western Port Highway at the intersection of Moreton Bay Boulevard, to the satisfaction of VicRoads. Portlink Drive is the temporary access to the Western Port Highway. This road remains a private road under the control of Salta Properties.

2.5 Heavy Vehicle Access - Principal Freight Network

The Principal Freight Network (PFN) is described as a strategic network of current and recognised future freight places and connecting movement corridors which are of national, state or regional significance and accommodate freight of significant volume, value or importance.

This network is intended to facilitate the efficient, safe, sustainable and economic movement of freight in Victoria, both now and in the future. An extract of the PFN is reproduced at Figure 16.

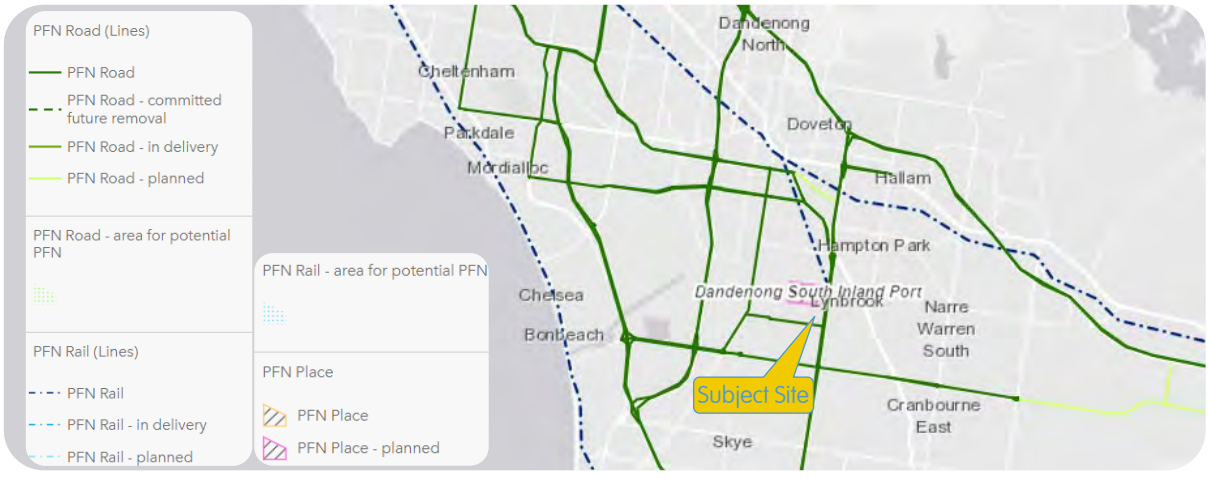


Figure 16 Principal Freight Network

Western Port Highway and Glasscocks Road are both included in the PFN.

The site will also be located proximate to the Dandenong South Inland Port, which is identified as a PFN Place (a place where goods of significant value, quantity or importance is generated, stored, distributed, handled or carried).

2.6 Sustainable Transport

2.6.1 Public Transport

Public Transport opportunities for visitors or staff to the site are available via Lynbrook Train Station, where a mix oftrain and bus services are accessible.

This station is located about 1 km to the northeast of the site as illustrated at Figure 17.

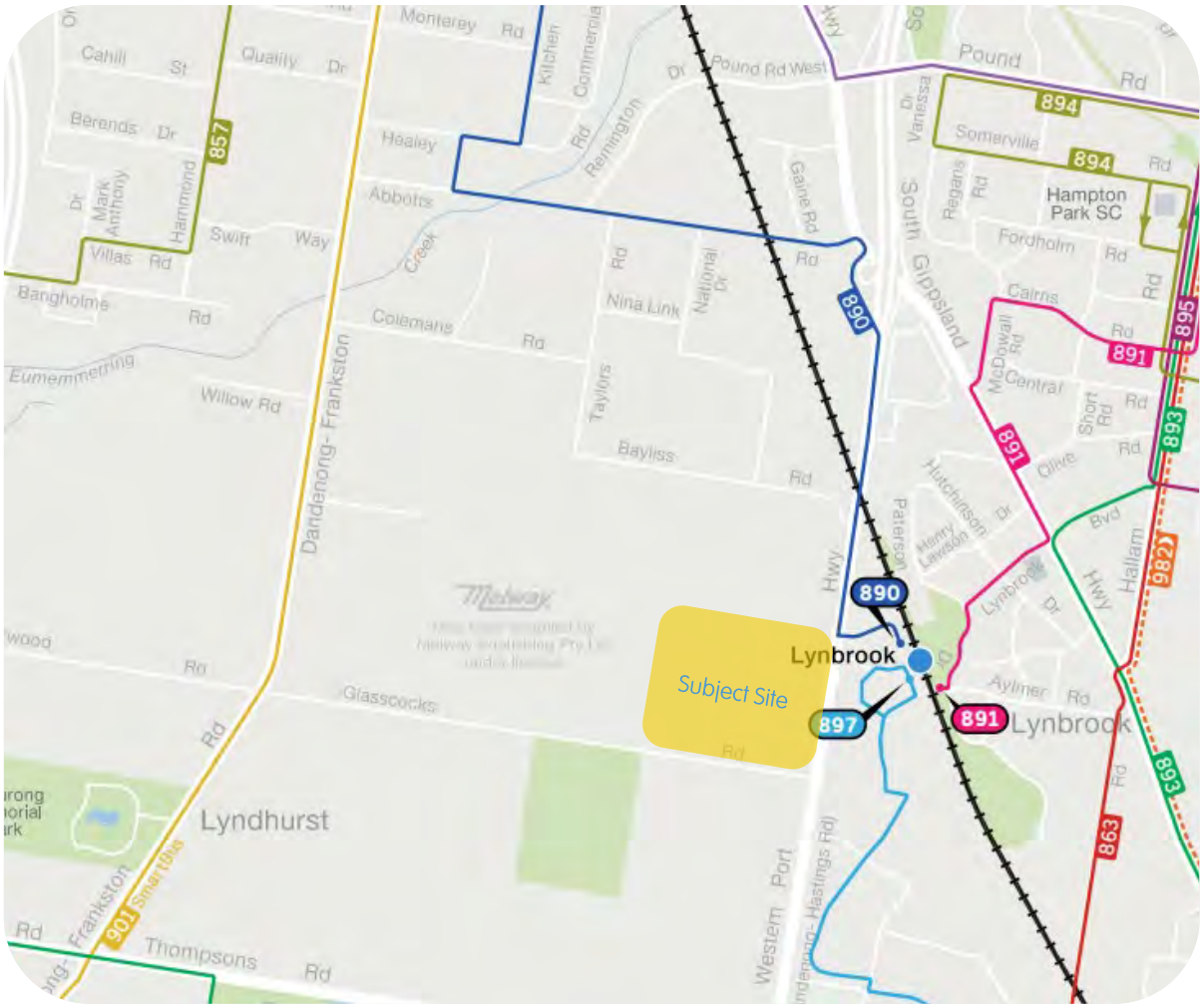


Figure 17 Public Transport Services

A summary of the public transport services available at this station is provided at Table 1.

Table 1 Public Transport Options

Service	Route	Description
Train		Cranbourne Line
Bus	890	Dandenong Station - Lynbrook Station
	891	Fountain Gate SC - Lynbrook Station via Hallam Station
	897	Clyde North - Lynbrook Station via Cranbourne Park SC

2.6.2 Cycling

The site is easily accessible via Victoria's Principal Bicycle Network and Strategic Cycling Corridors (SCC).

These corridors are important transport routes for cycling and are a subset of the Principal Bicycle Network (PBN). They are intended to support the needs of commuter trips (to work or education) and other important trips, such as to stations, shops or schools.

As demonstrated in Figure 18, Westernport Highway is identified as forming part of the Principal Bicycle Network, whilst Glasscocks Road is planned as a Main Cycling Route, which will connect to a broader network of Primary and Main Routes.

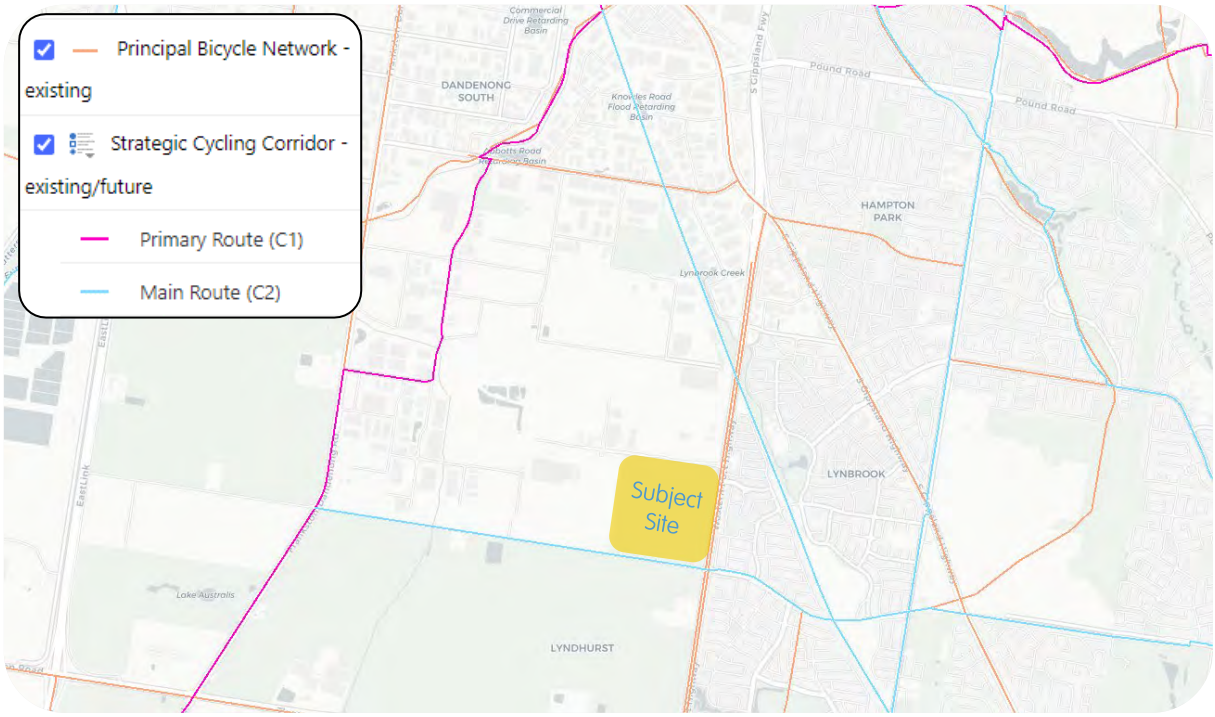


Figure 18 Principal and Strategic Cycling Corridors

Primary Cycling Routes provide the core network of Strategic Cycling Corridors that connect places of state significance - the central city, Metropolitan Activity Centres (MACs) and National Employment and Innovation Centres (NEICs) within metropolitan Melbourne.

3 Development Proposition

3.1 Use & Yeild

The proposal contemplates the development of the subject for the purpose of an industrial estate.

Allowing for the Public Acquisition Overlay, and land required to deliver the upgraded Glasscocks Road, the site has a developable area of about 47.28Ha.

The concept masterplan prepared for the site indicates a likely yield of about 292,000 sq.m. Development of the site is expected to be occur over a number of stages with stage one is identified at the southern portion of the site, with development expected to progressively extend northwards. The interim access plan is provided at Figure 19.

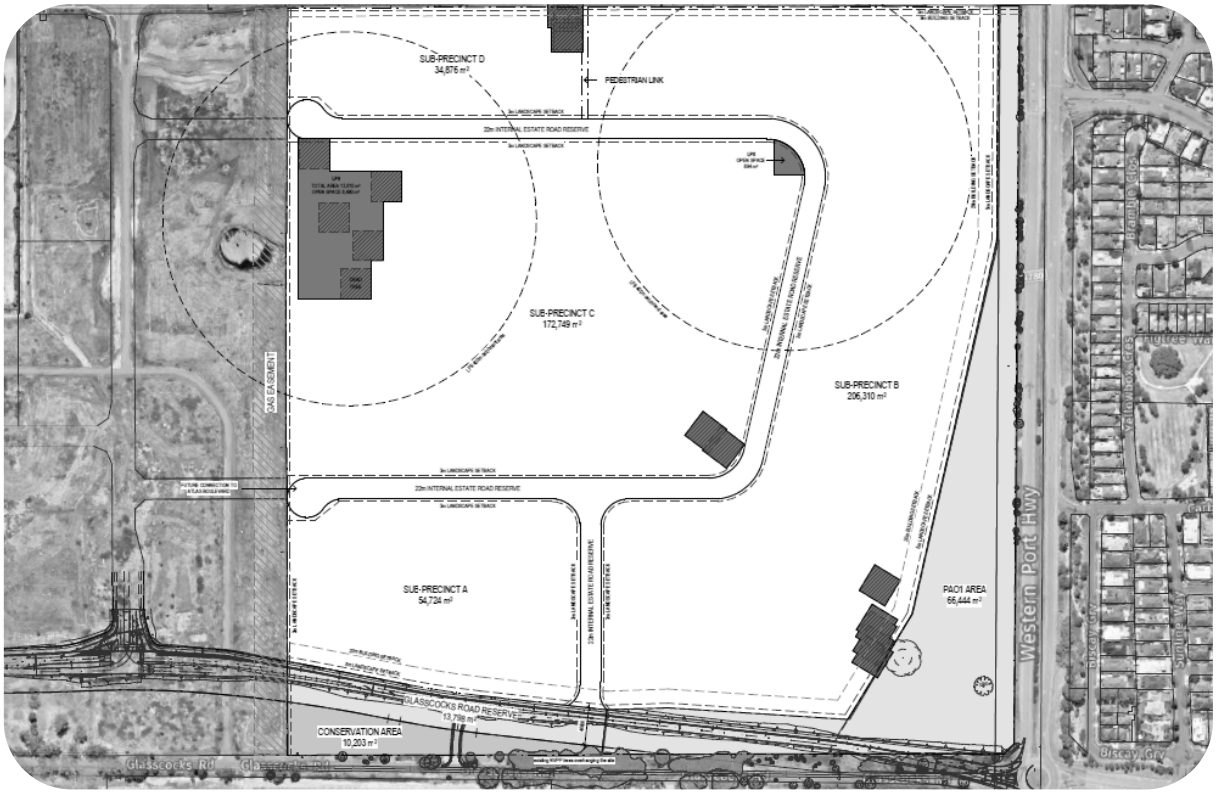


Figure 19 Interim Access Plan

3.2 Access Arrangements

3.2.1 Ultimate

In the ultimate scenario, access to and from the site as contemplated in the Structure plan will be provided via Atlas Boulevard which will in turn provide access to the broader local and arterial road network including Glasscocks Road.

Currently, Atlas Boulevard has yet to be delivered in a manner that can be relied on for access to the site.

Furthermore, a connection to Atlas Boulevard would need to traverse private land to the west.

These constraints preclude the realisation of the ultimate access scenario in the short to medium term.

This ultimate arrangement is expected to be delivered once a negotiated outcome is reached with the neighbouring landowner.

Notwithstanding these constraints, the mitigation measures for the intersection of Dandenong Hastings Road/ Glasscocks Road specified in the Dandenong South Industrial Area Extension DCP will be provided as necessary to the satisfaction of the Head, Transport for Victoria.

3.2.2 Interim

We observe that whilst the site has a frontage to Portlink Drive along the site's northern boundary, Portlink Drive is a private road controlled and maintained by Salta Properties. Accordingly, reliance on this road for access would be subject to similar constraints that affect the delivery of the ultimate access scenario.

In the absence of a legitimate connection to Atlas Boulevard or Portlink Drive, access to the site is planned directly from Glasscocks Road until such time as the ultimate outcome is possible.

We acknowledge that the Structure Plan states that No additional access points will be supported to Glasscocks Road or the Western Port Highway. This expectation would have been formed on the basis of timely and orderly delivery of the road infrastructure required to enable access to the land holdings in the structure plan area.

Given the 'land locked' nature of the site, it is reasonable to consider that access in a temporary manner via Glasscocks Road could be permitted and delivered as part of the Glasscocks Road upgrade works subject to design and traffic capacity considerations.

On this basis, the masterplan contemplates access to Glasscocks Road as shown at Figure 20, with provision allowed for access to Atlas Boulevard once agreement is reached with the neighbouring landowner.

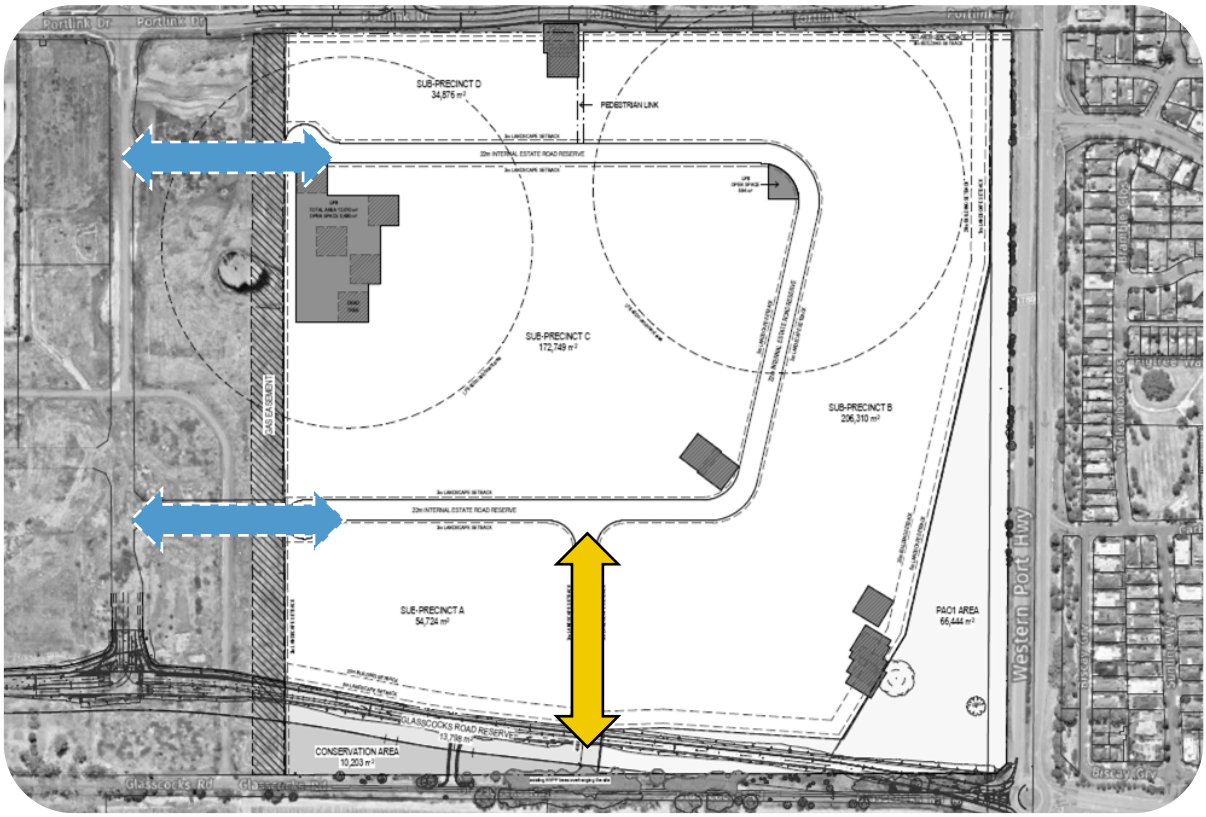


Figure 20 **Interim & Ultimate Access Arrangements**

Conceptually, the access to Glasscocks Road will be delivered with auxiliary left and right turn lanes as illustrated at Figure 21.

Figure 21 Concept Interim Intersection Design - Glasscocks Road / Site Access

The delivery of this interim access will trigger a need to widen the Glasscocks Road carriageway to accommodate the auxiliary left and right turn lanes.

Assessment provided at Section 4.3.2.5 confirms that this access will operate satisfactorily with no adverse impacts to eh operation of through traffic along Glasscocks Road.

3.3 Sustainable Transport

3.3.1 Public Transport

Existing public transport services comprise heavy rail at Lynbrook train station and road based public transport, namely, bus services.

Department of Transport and Planning has published Public Transport Guidelines for Land Use and Development (2008). These guidelines are intended to assist with site design to facilitate the delivery and use of public transport services. In relation to bus services the guide offers the following guidance:

Land use developments should propose public transport routes in locations which will optimise population catchments and service viability. Principles for efficient operation and maximising the demand include:

- Neighbourhoods should be designed for bus routes on strategically located connector roads so that dwellings will be within 400 metres of a bus route. (our emphasis)
- Design should allow for direct routes and easy access between key destinations. (our emphasis)
- Bus stops should be provided in convenient locations;
- Direct and safe pedestrian access should be provided to bus stops

Having regard to the above principles, and observing that bus routes are expected to be located on connector and arterial road. The subject site is not planned with connector or arterial roads within the site.

Accordingly, potential public transport routes and infrastructure could be provided along Glasscocks Road, Taylors Road, Abbots Road and Dandenong Frankston Road as shown indicatively at Figure 22.

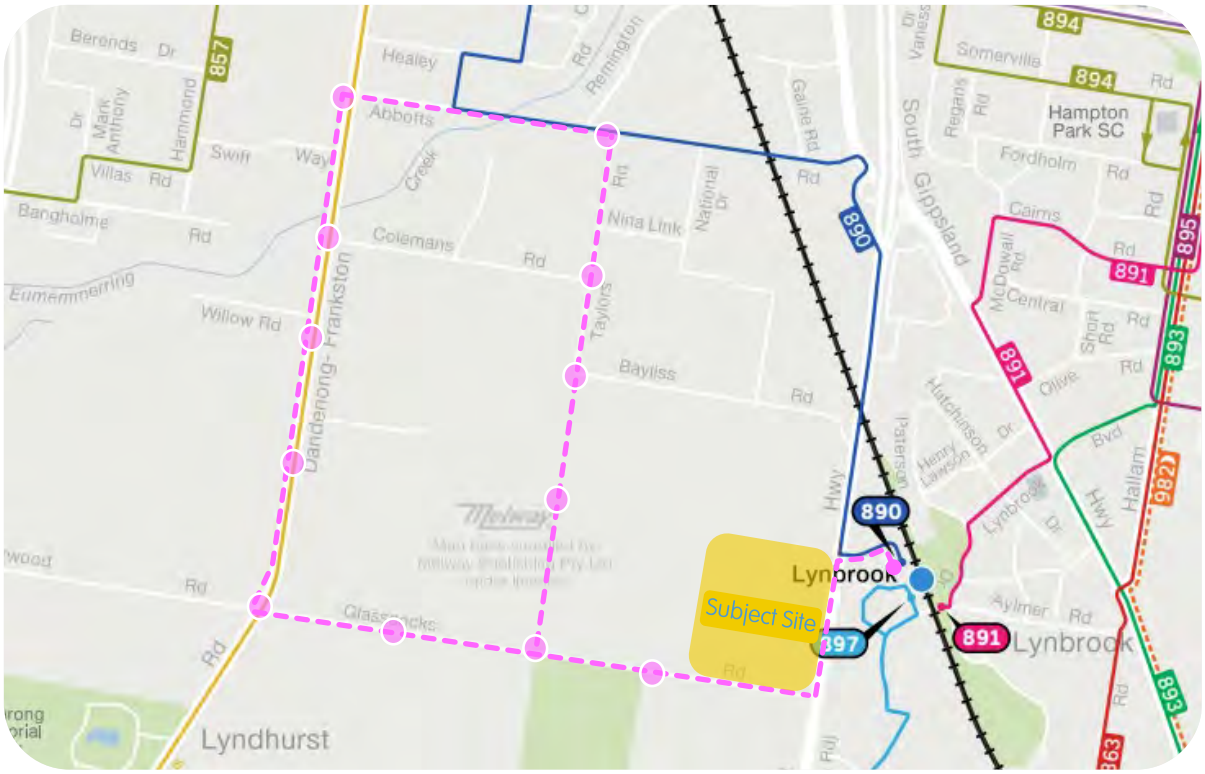


Figure 22 **Potential Public Transport Services**

The potential service route integrates with the Principal Public Transport Network at two locations namely, at Lynbrook Train Station, where metropolitan train services are provided, and secondly at Dandenong Frankston Road where SmartBus services are provided.

3.3.2 Cycling and Walking

The site is easily accessible via Victoria's Principal Bicycle Network and Strategic Cycling Corridors (SCC).

Westernport Highway is identified as forming part of the Principal Bicycle Network, whilst Glasscocks Road is planned as a Main Cycling Route. The Glasscocks route will connect to a broader network of Primary and Main Routes.

The development contemplates a transport network that will incorporate a shared path, and standard footpaths.

In the interim scenario, these paths will connect to the infrastructure planned along Glasscocks Road.

Ultimately the shared path and footpaths will connect to the network planned along Atlas Boulevard, which in turn will connect to the broader network.

The proposed path network and its integration to the existing and planned network is illustrated at Figure 18.

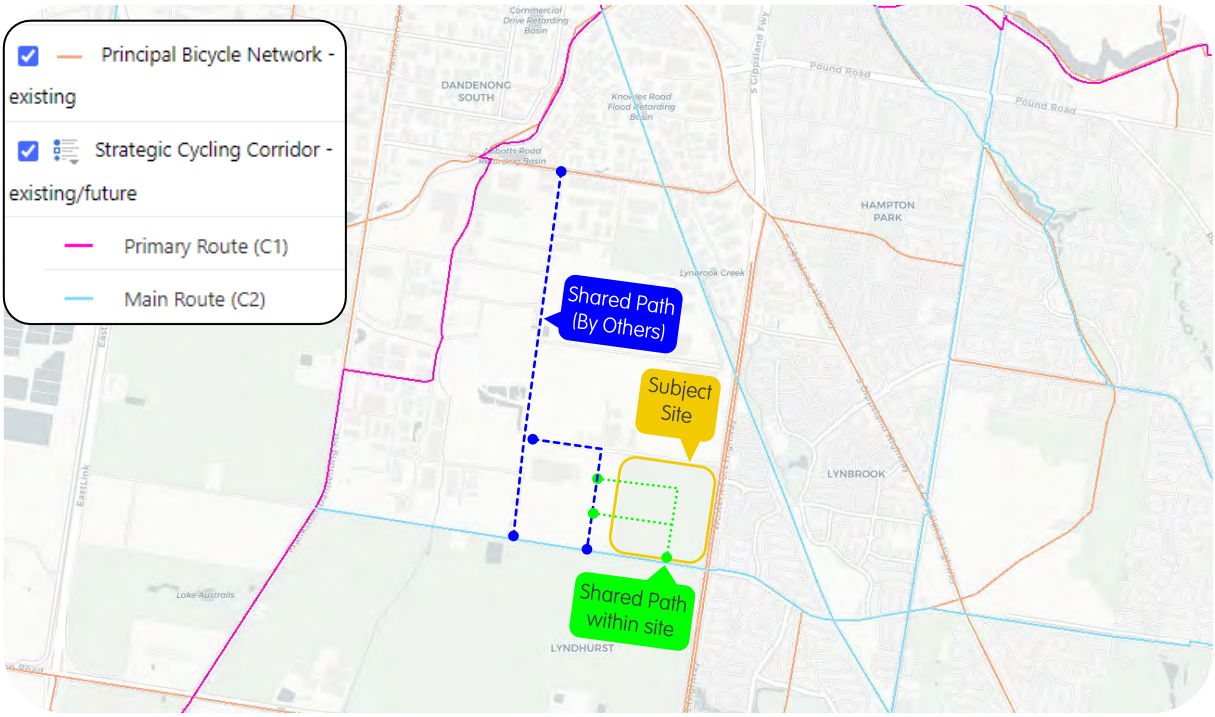


Figure 23 **Planned Cycling & Walking Network**

3.4 Motorised Transport

3.4.1 Car Parking

The planning scheme at Clause 52.06 provides guidance on suitable parking provision rates to accommodate motorised transport to / from the site.

It has been observed that the nominated rates are significantly higher than actual demand as recorded at a number of warehouse and industrial uses in the locality of the site.

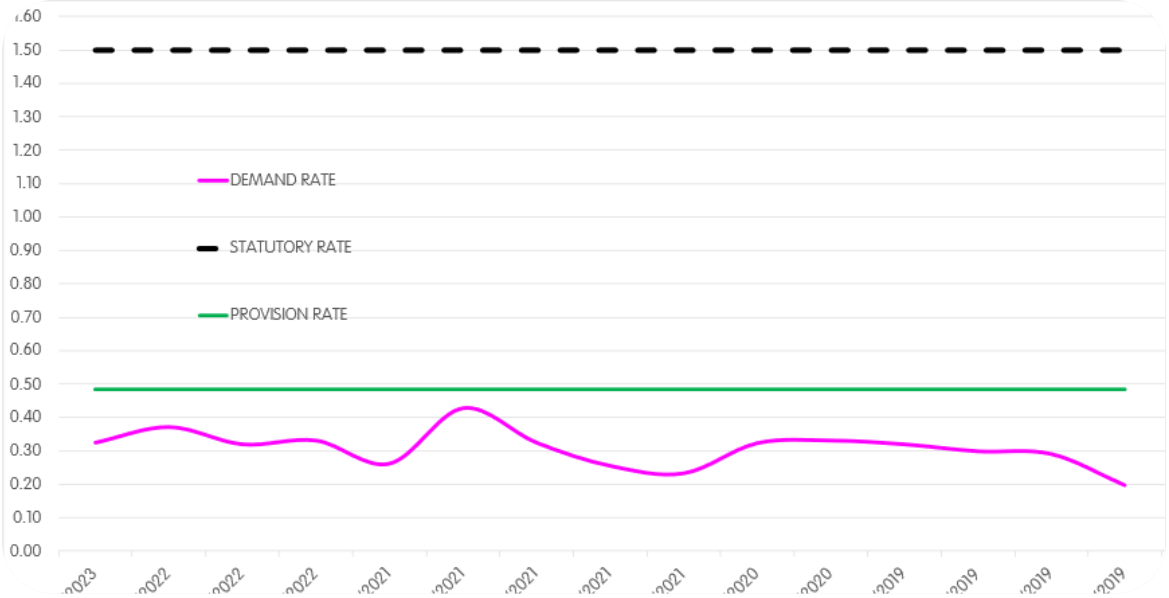
These studies reveal that Warehouse and Industrial developments have been delivered and operate successfully with parking provided at discounts of between 59% - 78%.

Importantly, recorded demand is regularly recorded at rates that are between 75% - 87% of the statutory rate.

A summary of these studies is provided overleaf.

WOOLWORTHS DISTRIBUTION CENTRE, DANDENONG	WAREHOUSE

Floor Area	62,000 sq.m	
Statutory Requirement	1.5 spaces per 100 sq.m,	
PROVIDED Rate	0.48 spaces per 100 sq.m	68% Less than Statutory Rate
AVERAGE DEMAND RATE	0.31 spaces per 100 sq.m	80% Less than Statutory Rate

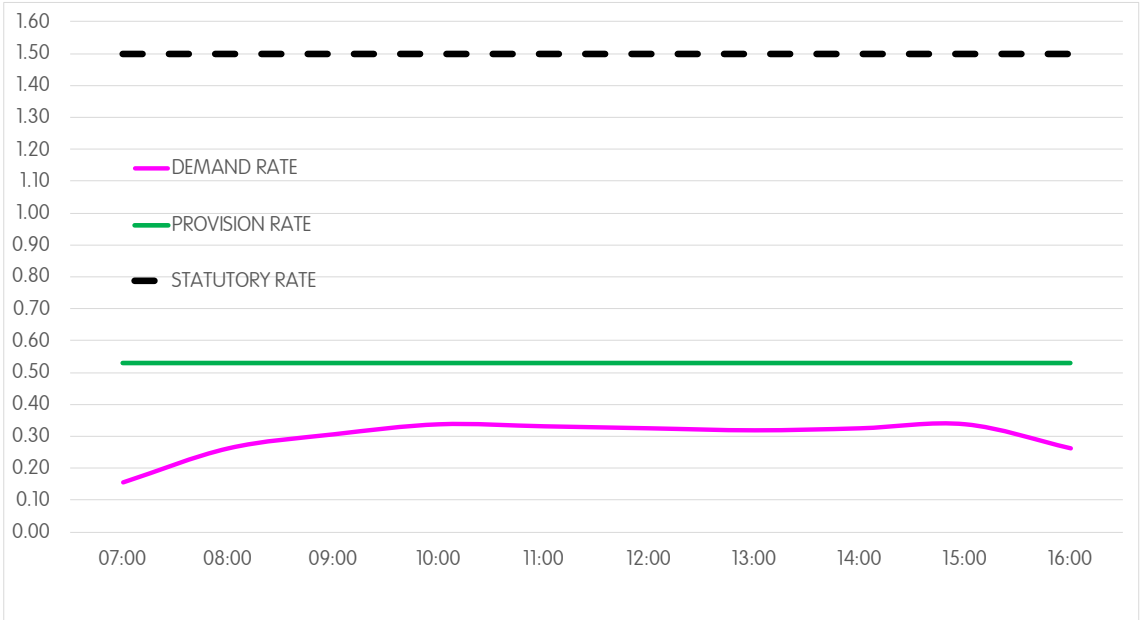


BUNNINGS DISTRIBUTION CENTRE, DANDENONG	WAREHOUSE

Floor Area	43,500 sq.m	
Statutory Requirement	1.5 spaces per 100 sq.m,	
PROVIDED Rate	0.33 spaces per 100 sq.m	78% Less than Statutory Rate
AVERAGE DEMAND RATE	0.20 spaces per 100 sq.m	87% less than Statutory Rate

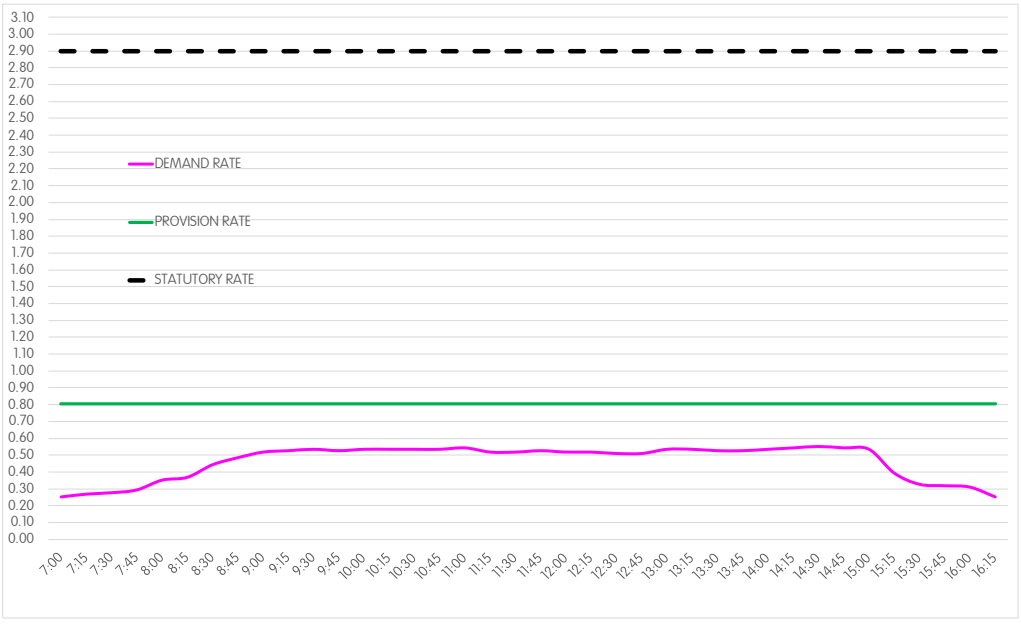
1 HUDSON COURT, KEYSBOROUGH	WAREHOUSE

Floor Area	16,000 sq.m	
Statutory Requirement	1.5 spaces per 100 sq.m,	
PROVIDED Rate	0.53 spaces per 100 sq.m	65% Less than Statutory Rate
AVERAGE DEMAND RATE	0.30 spaces per 100 sq.m	80% less than Statutory Rate



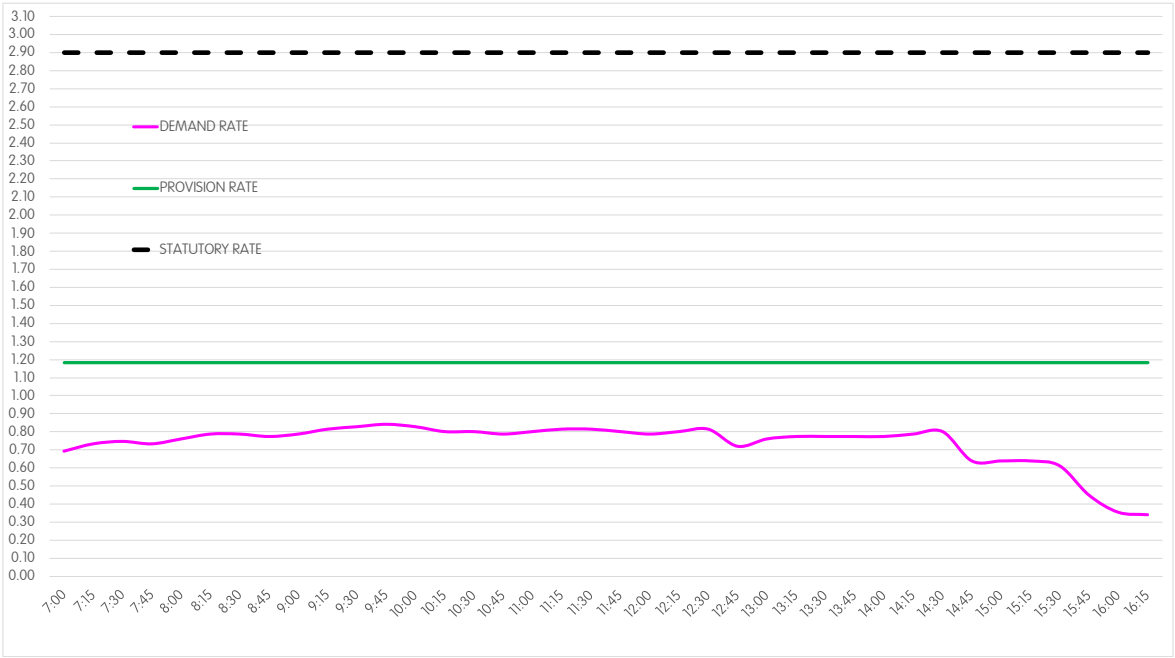
68 ATLANTIC DRIVE, KEYSBOROUGH	INDUSTRIAL

Floor Area	11,950 sq.m	
Statutory Requirement	2.9 spaces per 100 sq.m,	
PROVIDED Rate	0.80 spaces per 100 sq.m	72% Less than Statutory Rate
AVERAGE DEMAND RATE	0.40 spaces per 100 sq.m	86% Less than Statutory Rate



7-9 NAXOS WAY, KEYSBOROUGH	INDUSTRIAL

Floor Area	7,350 sq.m	
Statutory Requirement	2.9 spaces per 100 sq.m,	
PROVIDED Rate	1.2 spaces per 100 sq.m	59% Less than Statutory Rate
AVERAGE DEMAND RATE	0.73 spaces per 100 sq.m	75% Less than Statutory Rate



Considered more broadly, and shown diagrammatically within Figure 24, there is clear evidence of a downward trend in relation to car parking provision rate as warehouse floor area increases.

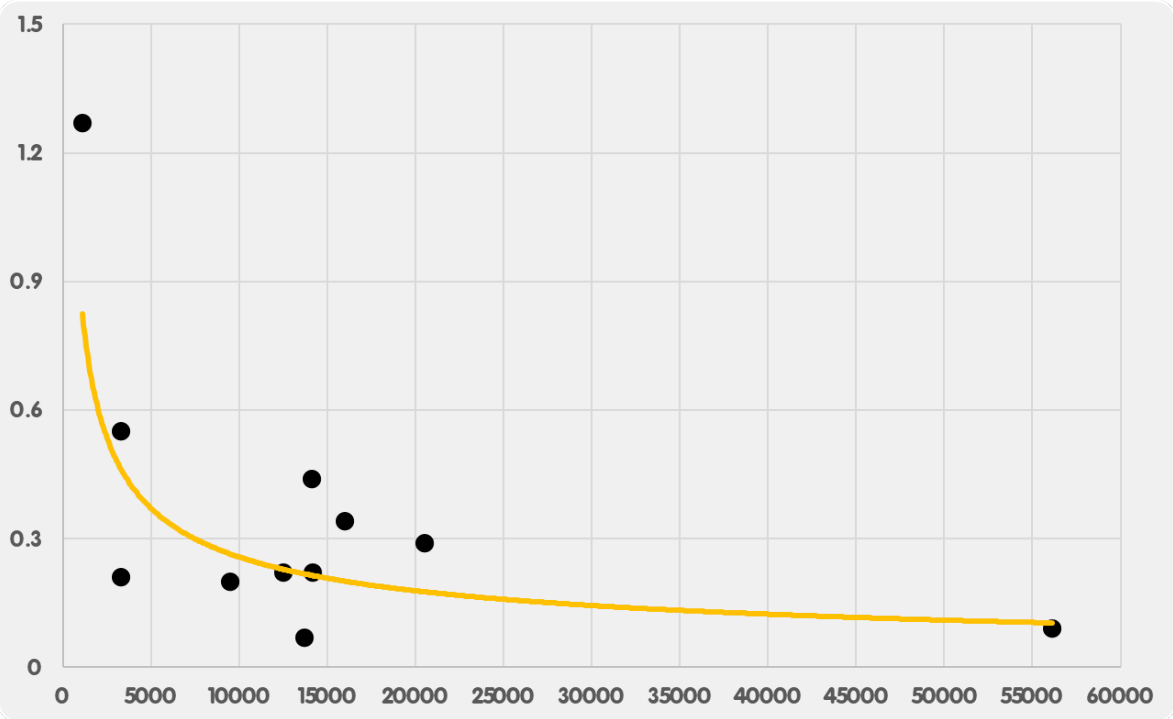


Figure 24 **Warehouse Car Parking Provision Rates Comparison**

A comparison between the RMS (NSW) case studies and results derived from the **IMPACT**® case studies reveal consistent rates in all but the median rate, which is lower in the **IMPACT**® case studies.

	RMS (NSW) Case Studies	**IMPACT**® case studies
Highest Rate	1.25 spaces per 100 sq.m	1.27 spaces per 100 sq.m
Average Rate	0.30 spaces per 100 sq.m	0.35 spaces per 100 sq.m
Lowest Rate	0.10 spaces per 100 sq.m	0.09 spaces per 100 sq.m
Median Rate	0.33 spaces per 100 sq.m	0.22 spaces per 100 sq.m

The **IMPACT**® case studies drawn from various locations in Metropolitan Melbourne, and as demonstrated in the comparison with the RMS (NSW) rates, there is consistency in the outputs which enhances the confidence in the results. It is the intention that whilst parking for each warehouse or industrial tenancy will be assessed on its merits, that parking provision will be provided at a rate lower than the statutory requirements.

3.4.2 Road Network

The development plan has been conceived with a road network contained within a 22-metre road reservation that will accommodate a 12 carriageway, flanked by 5m verges on both sides. Within the verge a standard footpath is planned on one side, with a shared path planned on the other.

This road reservation is consistent with the typical City of Greater Dandenong geometric cross section, drawing number SD 005-C.

The road will terminate at a court bowl. The court bowl is designed to cater for the safe movement of Class 2 Heavy Vehicles (B Doubles and A Doubles).

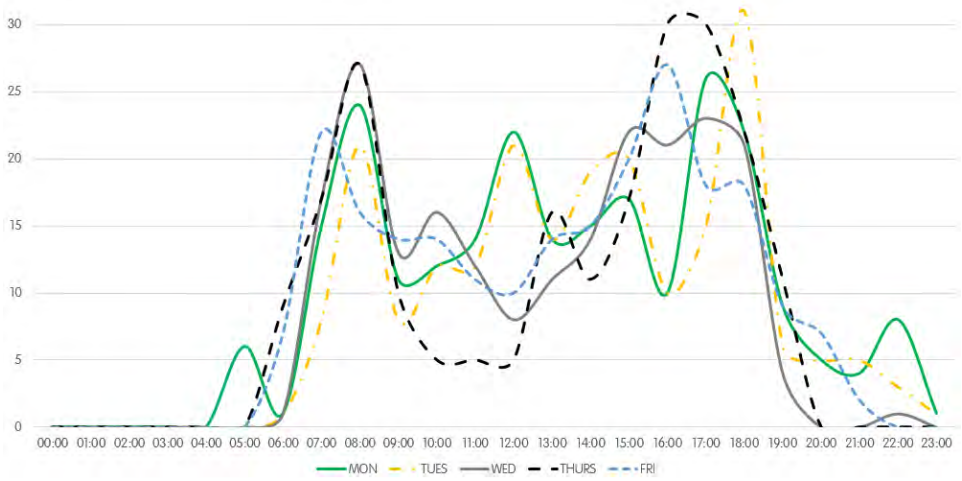
4 Traffic Considerations

4.1 Traffic Generation Potential

IMPACT® has commissioned studies at numerous warehouse developments of varying sizes in Metropolitan Melbourne. The studies indicate that warehouse developments in Metropolitan Melbourne generate their peak hour volumes generally outside the peak network period.

These case studies are reproduced as follows.

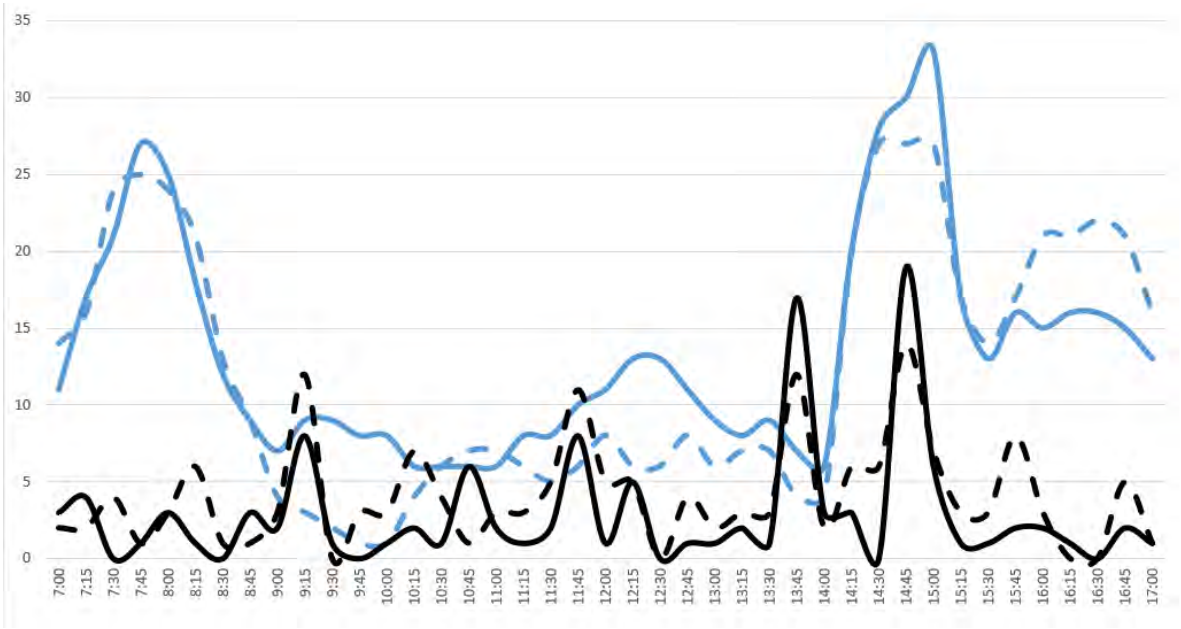
1 Hudson Court, Keysborough	
	
Floor Area	16,000 sq.m
Study	Pneumatic tube counters (5 Days)
Peak Traffic Volumes	31 trips



Peak Rate	0.19 trips / 100 sq.m

68 Atlantic Drive, Keysborough & 7-9 Naxos Way, Keysborough

Floor Area	Site 1: 11,9367 Sq.m Site 2: 7,357 Sq.m
Study	Camera (2 Days)
Peak Traffic Volumes	Site 1: 33 trips Site 2: 19 trips

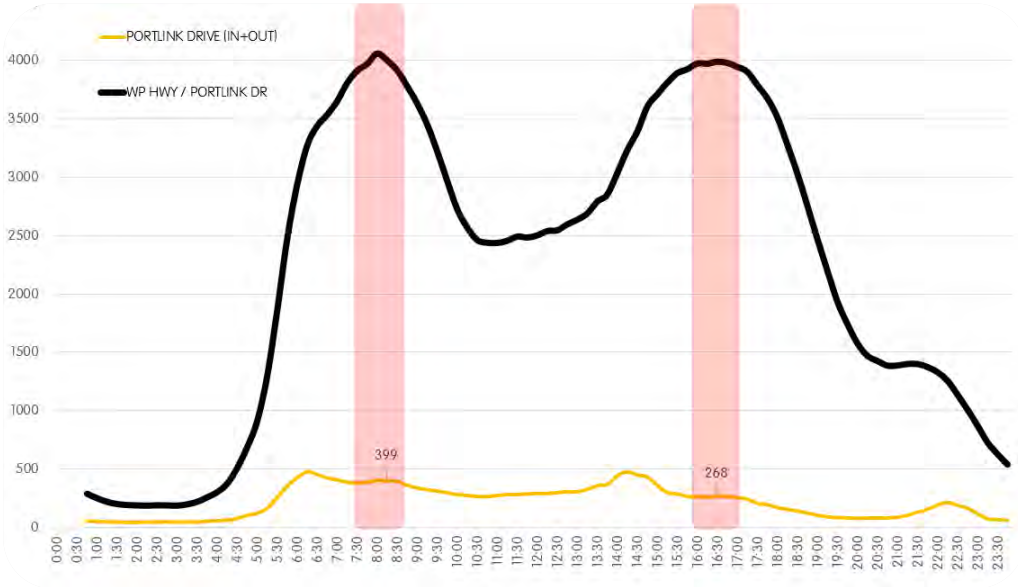


Peak Rate	Site 1: 0.28 trips / 100 sq.m Site 2: 0.26 trips / 100 sq.m

Consideration has also been given to the traffic generation potential at an estate level, with reference to the adjoining Industrial estate to the north. This Estate, Nexus Industrial, accommodates a mix of tenancy types with access provided to the estate via a single access point to Western Port Highway.

A study of volumes to / from the estate across the entire month of May 2023 revealed the following average rates, as they compare with network peak volumes.

Nexus Industrial Estate, Dandenong South	
	
Floor Area	X 12 Tenancies - 146,000 sq.m
Study	SCATS Data (May 2023)- Signalised Intersection
Peak Traffic Volumes	AM Peak - Average 399 Trips PM Peak - Average 268 Trips



Rate	AM Commuter Peak: 0.27 trips / 100 sq.m PM Commuter Peak: 0.18 trips / 100 sq.m

Note: The studies capture traffic generated to / from the Lyncadle Landfill / Smart Recycling Site. This volume is assumed to be generated by development at Nexus. This assumption provides a conservative peak rates.

Based on the foregoing studies, we have adopted the average rates recorded from the neighbouring site as suitable rates to inform the traffic generation potential of the proposed development.

Adopting these rates reveals that the proposed development on the site has the potential to generate on average 788 trips during the AM peak and 526 trips during the PM Peak.

BUILDING AREA	PERIOD	RATE / 100 SQ.M	VOLUMES
292,000 sq.m	**AM PEAK**	0.27	**788**
	PM PEAK	0.18	**526**

Inbound and outbound distribution splits ae expected to occur on average as shown below.

MOVEMENT	PERIOD			
	AM		PM	
	SPLIT	VOLUME	SPLIT	VOLUME
IN	70%	552	40%	210
OUT	30%	237	60%	315
TOTAL	788		526	

4.2 Traffic Distribution

Traffic distribution patterns are influenced by factors such:

- Orgin and Destination
- Route Choice
- Network Congestion

These factos are recognised in VicRoads Guidelines for Transport Impact Assessment Reports (TIAR) - For Major Land Use and Development Proposals where it notes that:

- Where the degree of saturation for part of the road network is estimated to be in excess of 0.9 (approximately) it may be necessary in the analysis to distribute traffic across the network to recognise the diversion of traffic to alternative routes or to recognise the spreading of any peak periods. This may depend on the environment (urban or rural) and relative congestion on the remainder of the surrounding road network.

The subject site is located within a Structure Plan area that is nested within the industrial precint bound to the north by Abbotts Road, to the west by Dandenong Frankston Road, to the south by Glasscocks Road and to the eaasat tby Western Port Highway.

This precinct in the context of the freeway and arterial road network is illustratted in the image overleadf.

Review of Journey to Work data reveals that persons commuting to the Dandenong area reside in communities located mostly to the east and south east of the subjecct site as shown at Figure 25.

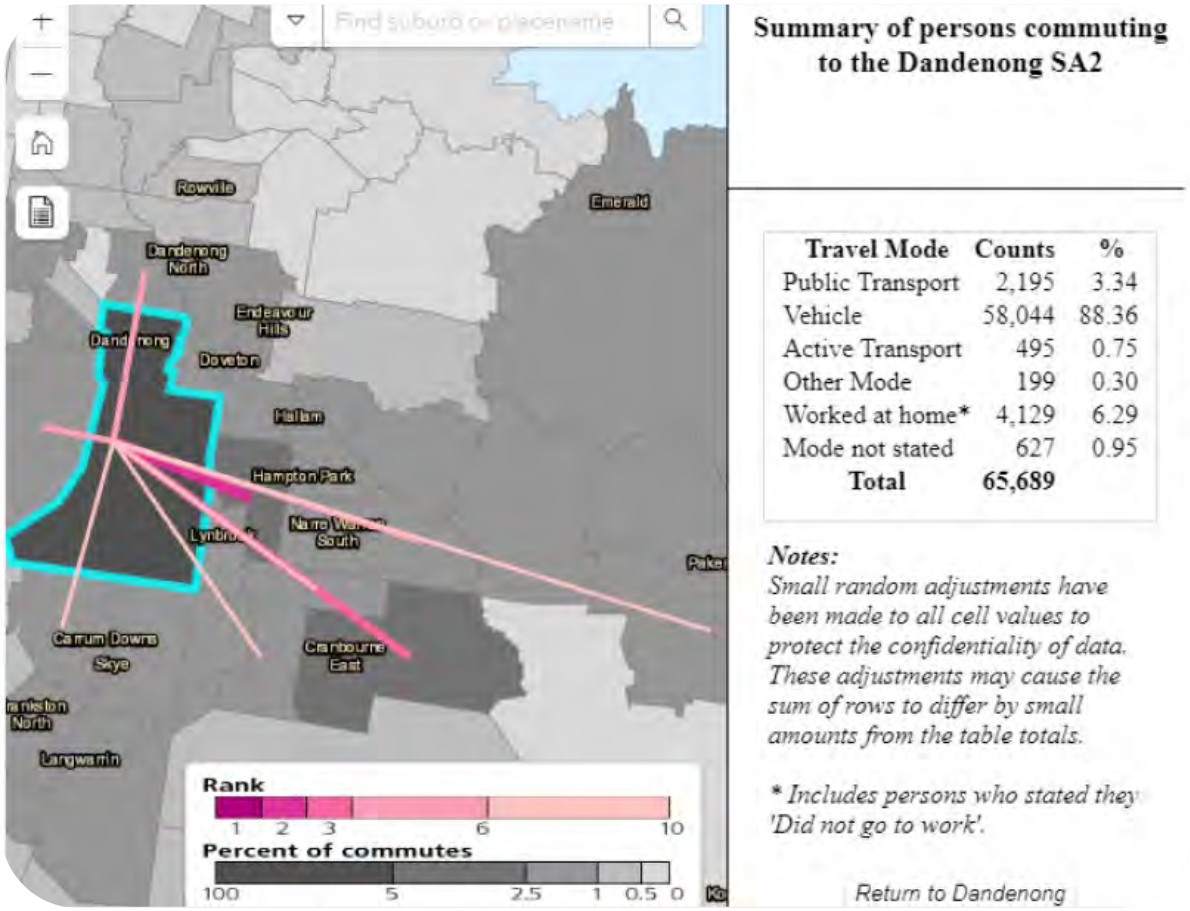


Figure 25 **Journey to Work Catchment**

A study of the macro traffic distribtuion within this industrial precinct is presented at Figure 26.

Figure 26 **Macro Traffic Distribution Patterns**

The observation in the absence of Glassocks Road and a legible north south connectctor i.e. Taylors Road, is that traffic volumes are predominatley attracted to Dandenong Frankston Road, 50%, with Abbotts Road attracting 35% of the volume.

Noting the dominance of travel to / from the east and south east, we anticipate that South Gippsland Highway plays an important network function in facilitating these east and south east movements.

Access to the South Gippsland Highway from Western Port Highway is inferior and requires either:

Option 1: Travel Northbound and access South Gippsland Highway via the offramp. This offramp provides acccess to South Gippsland Highway at a priority controlled (giveway) interseciton, with motoriststs required to turrn find gaps and turn rigtht across up to 6 lanes.

Option 2: Travel Southbound and access South Gippsland Highway via Thompsons Road.

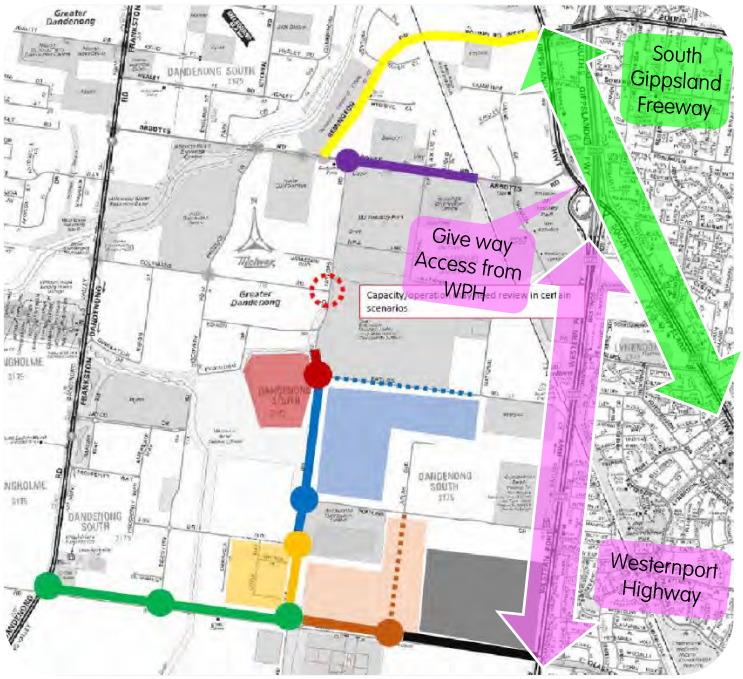
These options are idenfied as inferior when compared with:

Abbotts Road Enables access to South Gippsland Highway via a signalised intersection;

Remmington Drive Enables access to South Gippsland Highway via a signalised intersection.

We observe that these two aaccess corridors, namely Abbotts Road and Remmingtton Drive have been upgraded to provide increased capacity and connectivity to South Gippsland Highway.

These capacity and connectivity improvement works were documented in a working paper prepared by Council. This paper identified network gaps and improvement projects in this precinct, as well as the estimated timing. Extract at Figure 27.



Road Section	Likely Delivery by...	Estimate Timing
Remington Drive / Pound Road Bridge	MRPV	TBC (recent delay from 2021 construction – worst case 2025)
Taylors / Abbotts Signals and Abbotts Road widening	Council	2021
Taylors – Colemans to Bayliss	Frasers	2021
Taylors – Bayliss to Fox	Salta (Inland Port Area etc.)	TBC
Taylors – Fox to Glasscocks	Mainfreight	2021
Glasscocks – Frankston Dandenong to Taylors	TBC (Council, Victorian Government or triggering developer)	TBC – timing subject to funding (land available 2021)
Glasscocks – Taylors to Atlas	Salta (Woolworths Area)	TBC
Glasscocks – Atlas to Westernport	Cantwell	TBC

Figure 27 Road Network Opportunities and Constraints

We also observe that opporutnties to improve east - west access to South Gippsland Highway have been or are currently being explored by Department of Transport and Planning (formally Vicroads).

The scope of the study considers the potential upgrade of Glasscocks Road between Frankston-Dandenong Road and South Gippsland Highway as shown on the project scope plan at Figure 28.

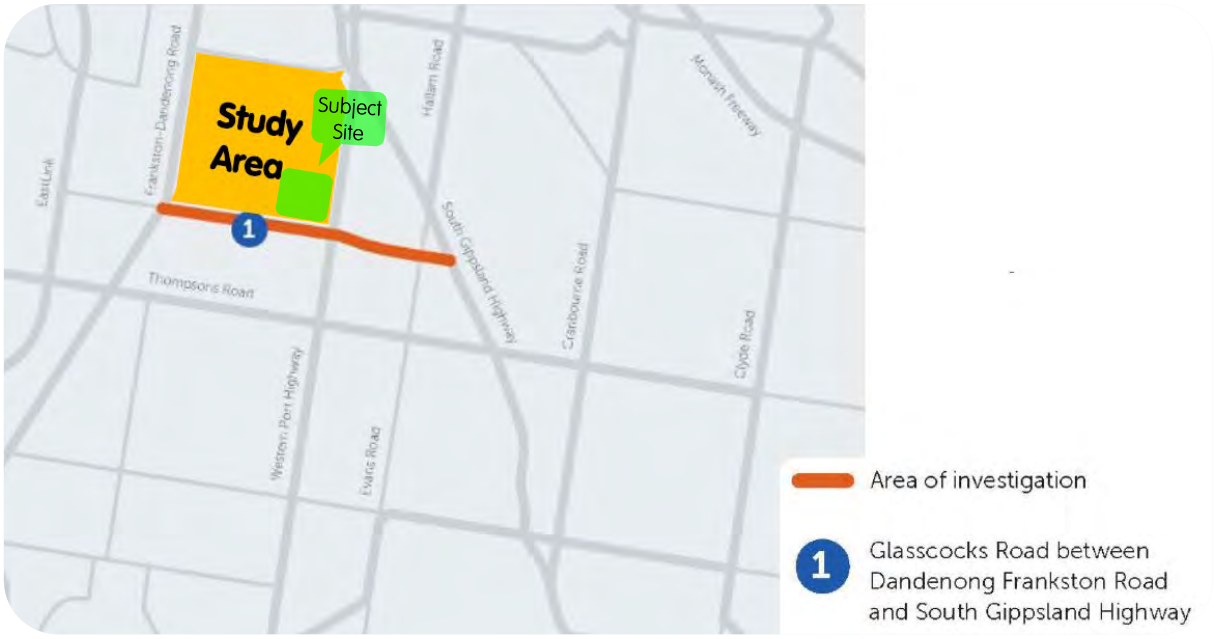


Figure 28 Glasscocks Road Study Area

The Department of Transport and Planning describes the need for this project as well as feedback from Community serveys as follows:

> Glasscocks Road is an east-west, partially unsealed connection, between the Western Port Highway and Frankston-Dandenong Road, which are two major north-south arterial roads in the south east. Glasscocks Road also extends east of the Western Port Highway and is currently a no-through road.
>
> Population growth and increased development in the south-eastern suburbs has led to higher volumes of traffic in the area.
>
> Feedback from the community survey displayed overwhelming support for improvements to be made to Glasscocks Road, with 98% of respondents agreeing that improvements are required.

The foregoing insights point to:

- Gaps in the network and a need for:
  - A meaningful east - west corridor that provides high capacity access to the South Gippsland Highway.
  - A meaningful north - south corridor that provides connectivety to the east - west corridors (Abbotts Road and Remmington Drive) which provide higher capacity access to the South Gippsland Highway.
- Limitations in the effectiveness of Western Port Highway to cater for high capacity access to the South Gippsland Highway.

Given the foregoing we envisage that volumes to / from the site will be split as follows:

TO / FROM	SPLIT
WESTERN PORT HIGHWAY	40%
FRANKSTON-DANDENONG ROAD	30%
ABBOTTS ROAD VIA TAYLORS ROAD	30%

This distribution is shown indicatively at Figure 29.

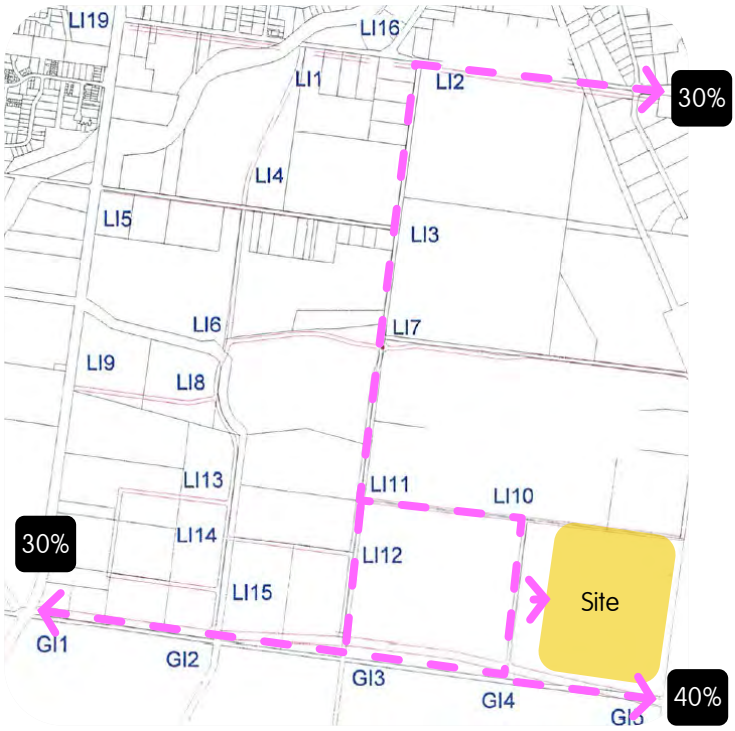


Figure 29 **Network Distribution**

4.3 Traffic Impacts - Post Development

The impacts of traffic generated by the development of the subject site were considered as part of the structure plan process.

These assessments informed the design of intersections which in turn were relied on to determine development contribution costs that have and continue to be levied on developments within the Structure Plan area.

In this context, consideration is therefore limited to the interim proposal to gain direct access to Glasscocks Road, and the ability for this access to work satisfactorily in this interim period.

4.3.1 Assessment Framework

In preparing this assessment we have had regard to the VicRoads Guidelines for Transport Impact Assessment Reports (TIAR) - For Major Land Use and Development Proposals (2006).

The VicRoads Guidelines are intended to:

a. Provide transparency and certainty in the assessment of land use development proposals and analysis to be undertaken by a road authority;

b. Promote uniformity, and ensure fairness, in the consideration of larger land use development proposals by a road authority; and

c. Facilitate early resolution of transport and access issues through the provision of timely and quality reports that reduce (but not necessarily eliminate) the need for discussion and negotiation between road authorities and developers, or their representatives, and reduce administration and rework.

In Section 5.1 (Performance Objectives of a TIAR), the VicRoads Guidelines sets out the Performance Objectives as follows:

<u>For existing road infrastructure:</u>

— Any potential adverse effects from land use development proposals on road safety and operational efficiency are identified and, where necessary, developers provide mitigating road improvement works as part of the development costs to minimise these effects and retain, within practical limitations, the level of safety and operational efficiency that would have existed without the development.

In section 5.3 (Proposed Vehicle Access Arrangements), The VicRoads Guideline states that:

— A principal objective is to ensure that any disruption to through traffic is minimised and that safety is not compromised. Therefore, design of the permitted access should take into account the volume and type of traffic generated by the proposed development, as well as the speed environment for through traffic on the abutting road'.

In Section 5.7 (Post Development Analysis), the guideline requires that:

— A comparison of the traffic performance (level of service) of the road network between the Base Case and Post Development scenarios should be carried out to identify the land use/development impacts and the required mitigating works (and any appropriate staging of the works).

— Each of the identified affected elements of the road network, including proposed intersections providing site access, should be analysed for safety and traffic capacity using an appropriate and agreed methodology. Capacity analysis of signalised intersections should be carried out using a recognised or agreed analysis tool (e.g. SIDRA).

— The assessment should identify required improvements to intersections in order to retain, within practical limitations, the degree of saturation, safety and operational efficiency at levels that would have existed without the proposed land use/development (i.e Base Case).

- Where the degree of saturation for part of the road network is estimated to be in excess of 0.9 (approximately) it may be necessary in the analysis to distribute traffic across the network to recognise the diversion of traffic to alternative routes or to recognise the spreading of any peak periods. This may depend on the environment (urban or rural) and relative congestion on the remainder of the surrounding road network.
- The TIAR should also demonstrate that the proposed site access arrangements (as compared to any mitigating works to existing road network) will operate satisfactorily for an appropriate future time period after full development (i.e. at least 10 years).

The VicRoads Guideline effectively requires the proponent of change to ameliorate the impact of traffic generated by the proposed development by introducing interventions as required to ensure that the road network post development operates at conditions relatively similar to existing conditions in respect to both capacity and safety, and at the site access point, ensure satisfactory operation in safety and capacity over a design horizon of 10 years post development.

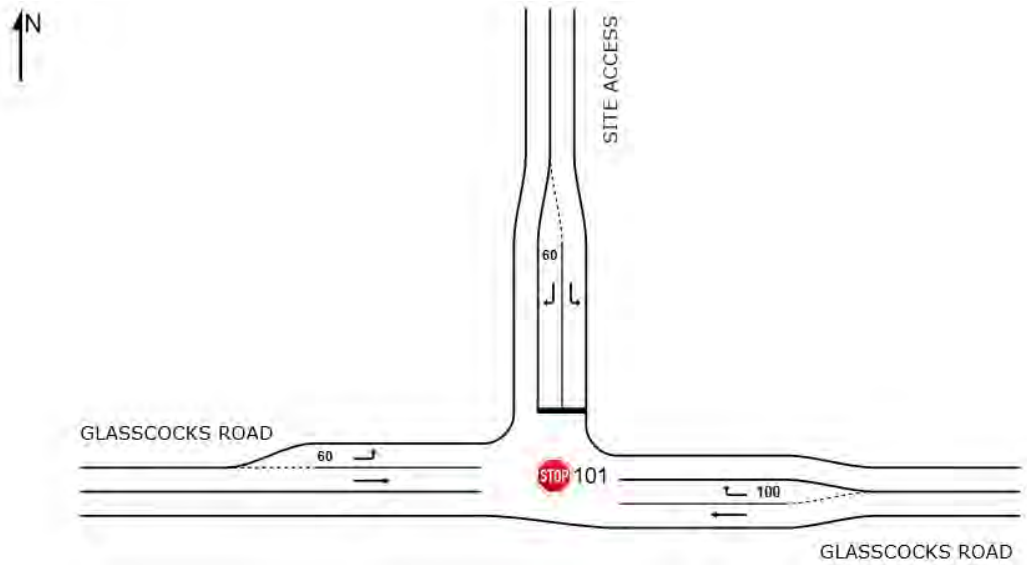
4.3.2 Interim: Glasscocks Road / Site Access

Recognising the land locked nature of the site, with access to Atlas Boulevard only possible via a negotiated outcome with the neighbouring land holder, access to this estate in the interim will be via Glasscocks Road.

In this scenario, assessment assumes that the estate is fully developed with access only possible via Glasscocks Road.

4.3.2.1 Intersection layout

The modelled intersection layout is illustrated below.



4.3.2.2 Existing Volumes

To inform consideration of intersection capacity, reference is made to pneumatic tube count studies undertaken in the period between 28th March 2022 and 4th April 2022. The studies were undertaken along the site's Glasscocks Road frontage.

The study revealed that Glasscocks Road carries on average 3,100 vehicles per day, with average peak hour volumes as shown at Figure 30 overleaf.

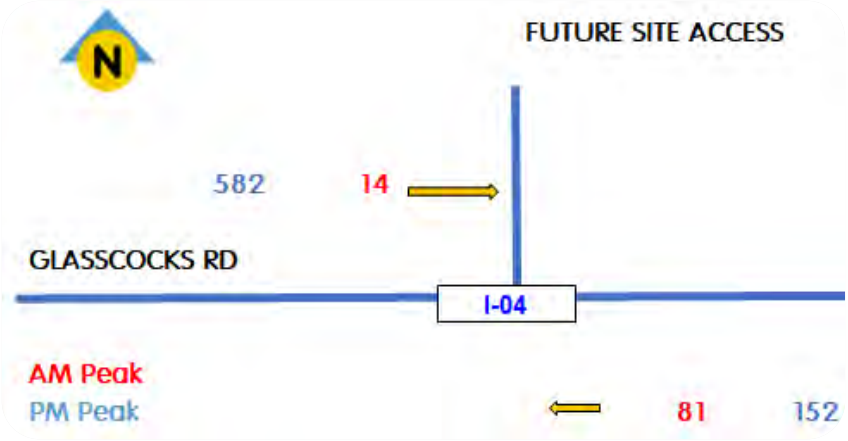


Figure 30 Glasscocks Road Existing Average Peak Hour Volumes

4.3.2.3 Forecast Volumes

The anticipated development volumes are forecast as shown at Figure 31.

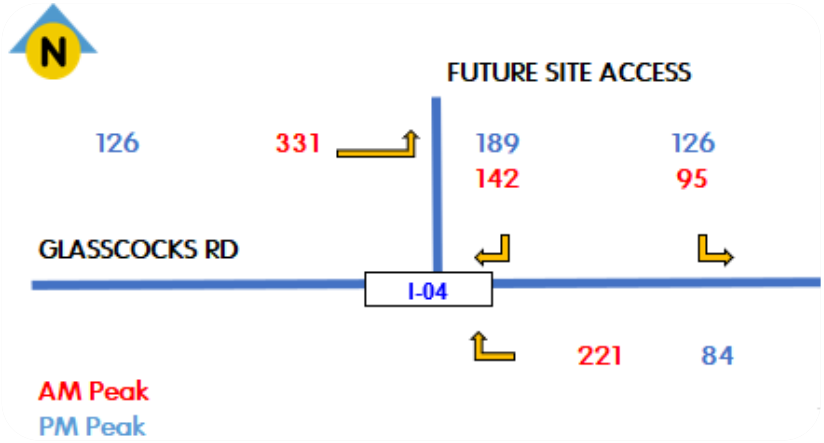


Figure 31 Forecast Development Peak Hour Volumes

4.3.2.4 Post Development Volumes

The post development volumes, generated by superimposing the existing flows on top of the forecast volumes are shown at Figure 32.

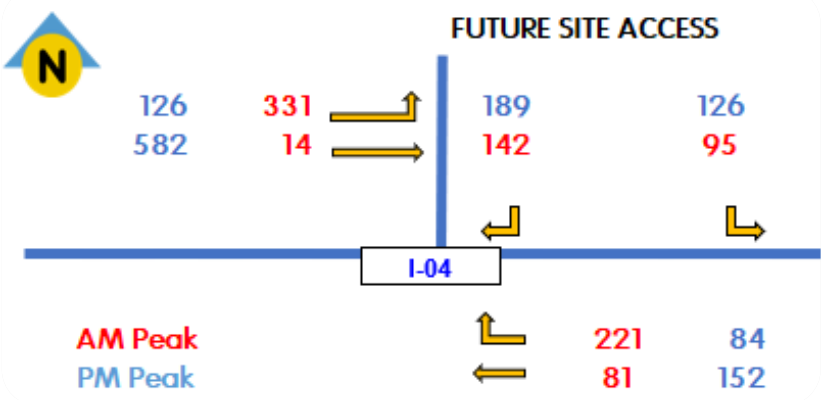


Figure 32 Post Development Peak Hour Volumes

4.3.2.5 Capacity Assessment

To understand the existing operating conditions of the road network, a capacity analysis was undertaken using SIDRA Intersection Software.

Critical outputs of this network analysis software are:

Degree of Saturation (D.O.S) - Defined as the ratio of the volume of traffic observed making a movement compared to the maximum capacity for that movement. These are rated as follows:

D.O.S	Rating
Up to 0.6	Excellent
0.6 to 0.7	Very Good
0.7 to 0.8	Good
0.8 to 0.9	Fair
0.9 to 1.0	Poor
Above 1.0	Very Poor

A degree of saturation (D.O.S) greater than 1.0 indicates oversaturated conditions. In evaluating intersection performance during capacity analysis and design the target maximum degree of saturation of the critical (maximum) movement is:

- Unsignalised Intersection: 0.8 (desirable) and 0.85 (maximum)

95th Percentile (95%ile) Queue - Defined as the maximum queue length, in metres, that can be expected in 95% of observed queue lengths in the peak hour; and

Average Delay - Defined as the delay time, in seconds, which can be expected over all vehicles making a movement in the peak hour.

The intersection capacity is observed as follows:

Table 2 SIDRA Summary - Post Development Conditions: Glasscocks Road / Interim Site Access

	Approach	Degree of Saturation	95th%ile Queue (m)	Average Delay (s)
AM Peak	East	0.24	8	6
	North	0.31	11	12
	West	0.19	0	5
Intersection		0.31	11	5
PM Peak	East	0.11	4	3
	North	0.69	32	24
	West	0.40	0	1
Intersection		0.69	32	7

As shown above, the proposed site access to Glasscocks Road will operate satisfactorily with a Degree of Saturation up to 0.69, and queues of up to 32 metres.

4.3.3 Ultimate: Atlas Boulevard / Site Access

In the ultimate condition, access to this estate will be facilitated exclusively from Atlas Boulevard, where two road links will be provided as shown at Figure 33.

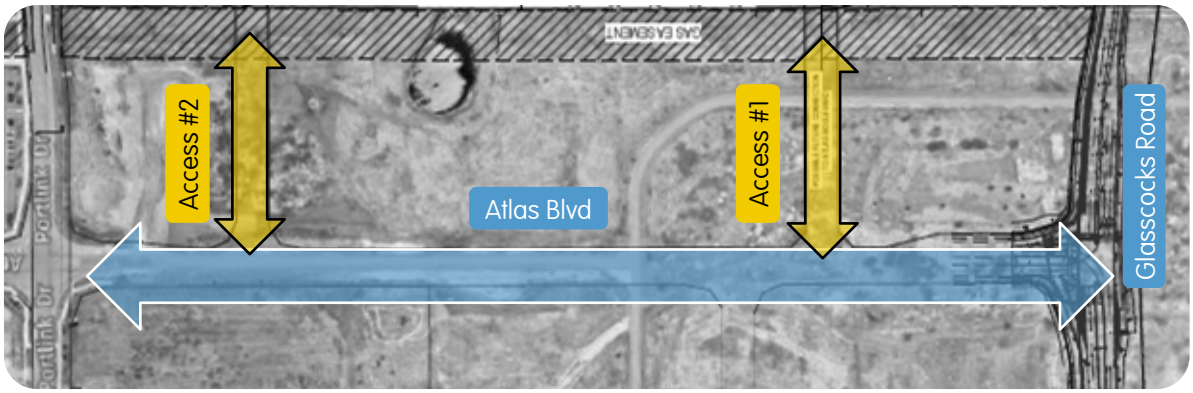
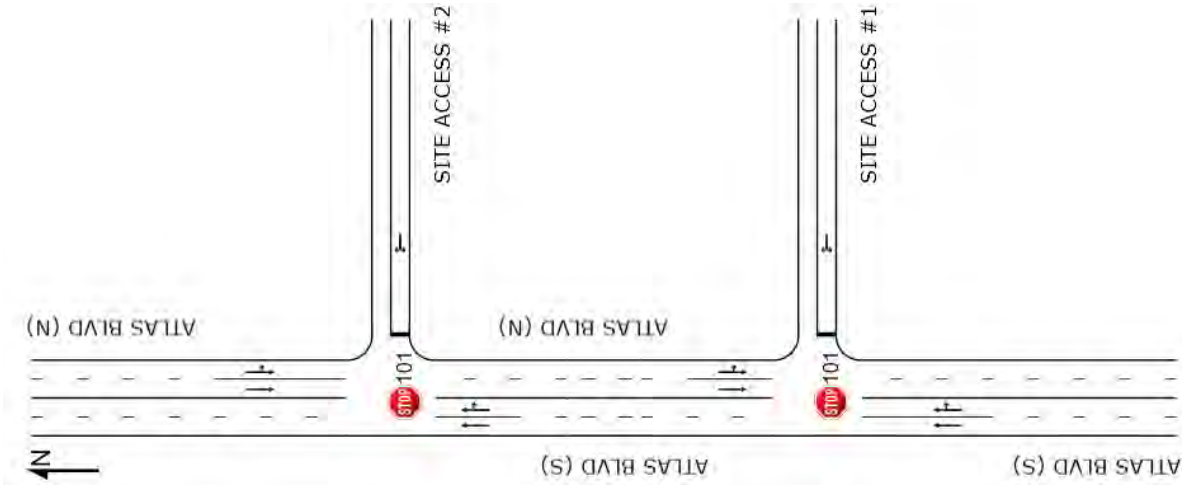


Figure 33 Ultimate Access Arrangements

As with the previous scenario, assessment assumes that the estate is fully developed with access via these two road connections to Atlas Boulevard.

4.3.3.1 Intersection layout

The modelled intersection layout is illustrated below.



4.3.3.2 Existing Volumes

Base volumes have been derived from assessment undertaken by Cardno in the Integrated Transport Plan (Dec 2011) prepared to inform the Lyndhurst Inland Port & Industrial Subdivision Development Plan. The peak hour volumes as shown at Figure 34.

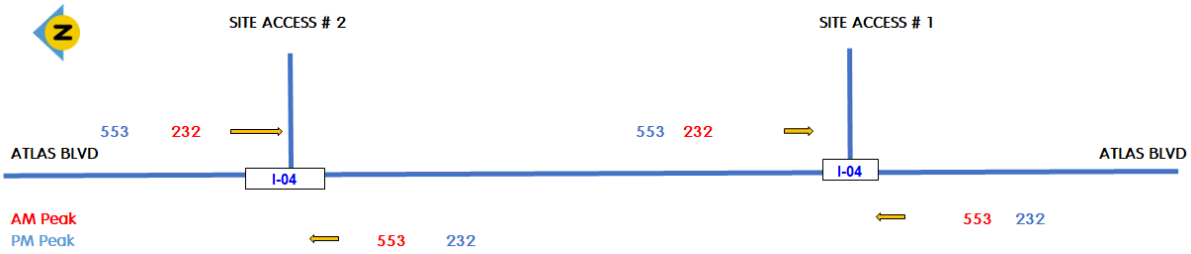


Figure 34 Atlas Boulvard Forcast Peak Hour Volumes

4.3.3.3 Forecast Volumes

As described at Section 4.2, we envisage that volumes to / from the site will be split as follows:

TO / FROM	SPLIT
WESTERN PORT HIGHWAY	40%
FRANKSTON-DANDENONG ROAD	30%
ABBOTTS ROAD VIA TAYLORS ROAD	30%

At the site access intersections with Atlas Boulevard volumes to Western Port Highway and Frankston Dandenong Road will have origins and destinations to/ from the south, whilst volumes to Abbotts Road will have origins and destinations to/ from the north. The anticipated development volumes are forecast as shown at Figure 35.

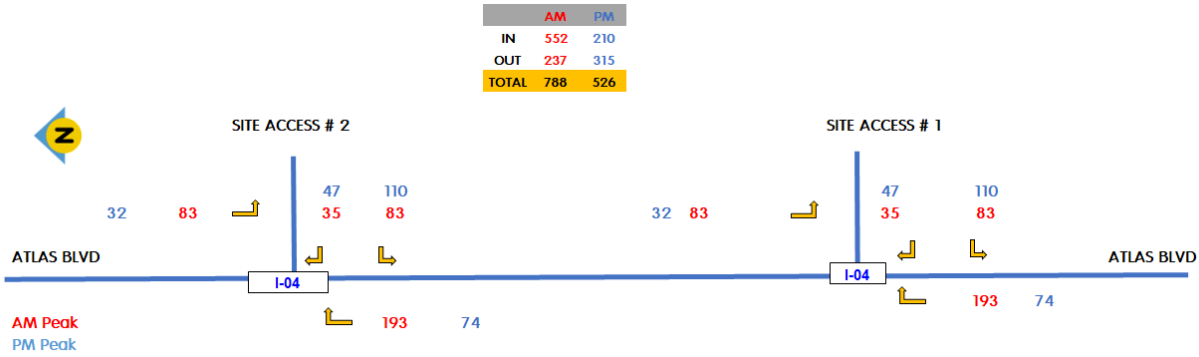


Figure 35 Atlas Boulvard Forecast Development Peak Hour Volumes

4.3.3.4 Post Development Volumes

The post development volumes, generated by superimposing the existing flows on top of the forecast volumes are shown at Figure 36.

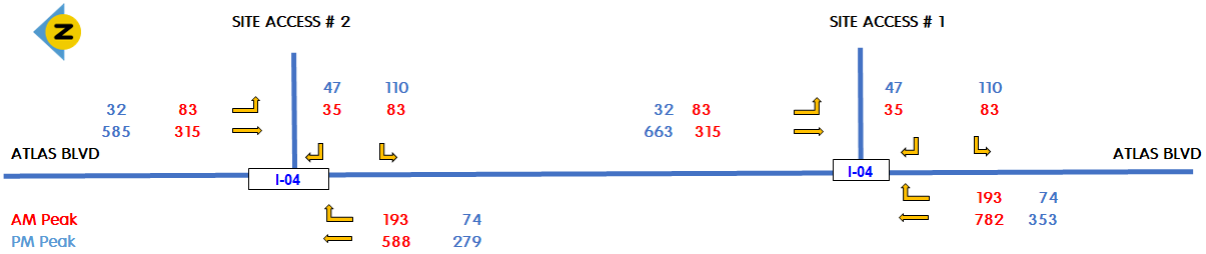


Figure 36 Atlas Boulvard Post Development Peak Hour Volumes

4.3.3.5 Capacity Assessment

To understand the existing operating conditions of the road network, a capacity analysis was undertaken using SIDRA Intersection Software.

The intersection capacity is observed as follows:

Table 3 SIDRA Summary - Post Development Conditions: Atlas Boulevard / Site Access # 1

	Approach	Degree of Saturation	95th%ile Queue (m)	Average Delay (s)
AM Peak	South	0.38	21	3
	East	0.71	45	66
	North	0.13	0	1
Intersection		0.71	45	7
PM Peak	South	0.19	7	3
	East	0.67	36	38
	North	0.22	0	0
Intersection		0.67	36	6

As shown above, the Site Access #1 to Atlas Boulevard will operate satisfactorily with a Degree of Saturation up to 0.71, and queues of up to 45 metres.

Table 4 SIDRA Summary - Post Development Conditions: Atlas Boulevard / Site Access # 2

	Approach	Degree of Saturation	95th%ile Queue (m)	Average Delay (s)
AM Peak	South	0.32	17	3
	East	0.70	43	63
	North	0.13	0	1
Intersection		0.70	43	8
PM Peak	South	0.16	7	3
	East	0.59	29	31
	North	0.19	0	1
Intersection		0.59	29	5

As shown above, the Site Access #2 to Atlas Boulevard will operate satisfactorily with a Degree of Saturation up to 0.70, and queues of up to 43 metres.

5 Other Matters - Road Mitigation Measures

5.1 Dandenong Hastings Road / Glasscocks Road

The Dandenong South Industrial Area Extension Structure Plan contemplates the upgrade of Glasscocks Road in the section between Dandenong Hastings Road (Western Port Highway) and Frankston -Dandenong Road

The upgrade of Glasscocks Road includes mitigation works at the Dandenong Hastings Road (Western Port Highway) / Glasscocks Road Intersection.

The geometry of the upgraded Dandenong Hastings Road (Western Port Highway) / Glasscocks Road Intersection is shown at Figure 37

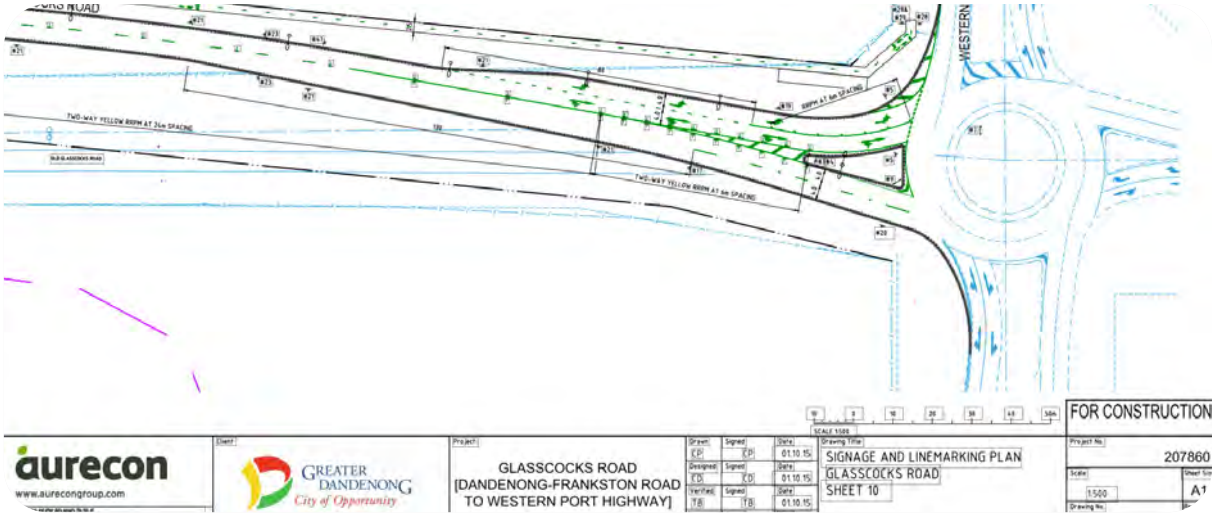


Figure 37 Dandenong Hastings Road (Western Port Highway) / Glasscocks Road Mitigation Works

As part of the development of this site, the mitigation measures for the intersection of Dandenong Hastings Road/ Glasscocks Road specified in the Dandenong South Industrial Area Extension DCP will be provided as necessary to the satisfaction of the Head, Transport for Victoria.

6 Assessment Against Schedule 6, Clause 43.04 Development Plan Overlay

Schedule 6 to Clause 43.04 Development Plan Overlay requires the following:

SCHEDULE 6 TO CLAUSE 43.04 DEVELOPMENT PLAN OVERLAY DANDENONG SOUTH INDUSTRIAL AREA EXTENSION - KEYSBOROUGH & LYNDHURST SITES	**Integrated Transport Plan** An Integrated Transport Plan generally in accordance with the Dandenong South Industrial Area Extension Structure Plan (January 2009). The Integrated Transport Plan should take into account all transport modes and include an indicative public transport, road, bicycle and pedestrian network showing, as appropriate: — Provision of access to the existing road network. — Provision of adequate pedestrian and cycle ways and accommodation for potential public transport routes and public transport infrastructure. — Integration with the Principal Public Transport Network. — Any other matters as required by the responsible authority, Roads Corporation and the Department of Transport.

The foregoing assessment has responds appropriately to the above requires with responses as follows.

Requirement	
Integrated Transport Plan An Integrated Transport Plan generally in accordance with the Dandenong South Industrial Area Extension Structure Plan (January 2009).	
The Integrated Transport Plan should take into account all transport modes and include an indicative public transport, road, bicycle and pedestrian network showing, as appropriate:	**Response** All Transport Modes have been considered, with an indicative public transport, road, bicycle and pedestrian network shown.
— Provision of access to the existing road network.	Provision of access to the existing road network has been considered. In the ultimate scenario, access to and from the site as contemplated in the Structure plan will be provided via Atlas Boulevard which will in turn provide access to the broader local and arterial road network including Glasscocks Road. Assessment of this ultimate scenario has been undertaken. This assessment shows that the proposed site access points to Atlas Boulevard will operate satisfactorily with a Degree of Saturation up to 0.71, and queues of up to 45 metres.

	Notwithstanding this assessment, Atlas Boulevard has yet to be delivered in a manner that can be relied on for access to the site. Furthermore, a connection to Atlas Boulevard would need to traverse private land to the west. These constraints preclude the realisation of the ultimate access scenario in the short to medium term. We observe that whilst the site has a frontage to Portlink Drive along the site's northern boundary, Portlink Drive is a private road controlled and maintained by Salta Properties. Accordingly, reliance on this road for access would be subject to the similar constraints that affect the delivery of the ultimate access scenario. In the absence of a legitimate connection to Atlas Boulevard or Portlink Drive, access to the site will be provided directly from Glasscocks Road until such time as the ultimate outcome is possible. Given the 'land locked' nature of the site, it is reasonable to consider that access in a temporary manner via Glasscocks Road could be permitted and delivered as part of the Glasscocks Road upgrade works. On this basis, the masterplan contemplates direct access to Glasscocks Road. Notwithstanding these constraints, the mitigation measures for the intersection of Dandenong Hastings Road/ Glasscocks Road specified in the Dandenong South Industrial Area Extension DCP will be provided as necessary to the satisfaction of the Head, Transport for Victoria.
— Provision of adequate pedestrian and cycle ways and accommodation for potential public transport routes and public transport infrastructure	Adequate pedestrian and cycle ways have been provided. In relation to public transport bus routes are expected to be located on connector and arterial road. The subject site is not planned with connector or arterial road within the site. Accordingly, potential public transport routes and infrastructure could be provided along Glasscocks Road, Taylors Road, Abbots Road and Dandenong Frankston Road
— Integration with the Principal Public Transport Network.	The potential service route integrates with Principal Public Transport Network at two locations namely, at Lynbrook Train Station, where metropolitan train services are provided and at Dandenong Frankston Road where SmartBus services are provided
— Any other matters as required by the responsible authority, Roads Corporation and the Department of Transport.	Assessment of the proposed interim access to Glasscocks Road has been undertaken. This assessment shows that the proposed site access to Glasscocks Road will operate satisfactorily with a Degree of Saturation up to 0.69, and queues of up to 32 metres.

Based on the above we are satisfied that the Development Plan satisfactorily responds to requirements at Schedule 6 to Clause 43.04 Development Plan Overlay.