Joseph Road Precinct

Development Contributions Plan

July 2019

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1 INTRODUCTION

1.1 Purpose

The Joseph Road Precinct Development Contributions Plan (the 'DCP') has been prepared by the Victorian Planning Authority (VPA) with the assistance of the City of Maribyrnong, service authorities, and other major stakeholders.

The DCP:

- Outlines public realm projects required to assist in meeting the Joseph Road Precinct Objectives and Guidelines;
- Outlines infrastructure projects required to ensure that future residents, visitors and workers in the area can be provided with timely access to infrastructure and services necessary to support a quality and affordable lifestyle;
- Establishes a framework for development proponents to make a financial contribution towards the cost the identified infrastructure projects in the public realm (principally on streets). It ensures that the cost of providing new infrastructure and services is shared equitably between various development proponents in accordance with the demand to be created by each development; and
- Provides the details of the calculation of financial contributions that must be made by future developments towards the nominated projects. In this way, it provides developers, investors and local communities with certainty about development contribution requirements and how these will be administered.

1.2 Report Structure

The DCP document comprises six parts:

Section 2 – Strategic Planning and Justification

Section 2 explains the strategic basis for the DCP, which includes information about the Joseph Road Precinct.

Section 3 – Charge Areas and Development Scenarios

Section 3 sets out the charge areas, development projections and project staging.

Section 4 – Infrastructure Projects and Calculation of Contributions

Section 4 outlines the projects to be funded by the DCP and sets out how the development contributions are calculated and costs apportioned.

Section 5 - Development Contributions Plan Administration and Implementation

Section 5 focuses on administration and implementation of the DCP

Section 6 - Other Information

Section 6 provides other supporting information.

1.3 Planning & Environment Act 1987

The DCP has been prepared in accordance with Part 3B of the *Planning and Environment Act 1987* (the Act) as well as other relevant legislation and has been developed in line with the State and Local Planning

Policy Framework of the Maribyrnong Planning Scheme. It is consistent with the Minister for Planning's Direction on Development Contributions made under section 46M(1) of the Act and has regard to the Victorian Government's Development Contributions Guidelines (the 'DCP Guidelines').

The DCP provides for the charging of a Development Infrastructure Levy pursuant to section 46J(a) of the Act towards works, services and facilities. The DCP will not be providing for the charging of a Community Infrastructure Levy pursuant to section 46J(b) of the Act.

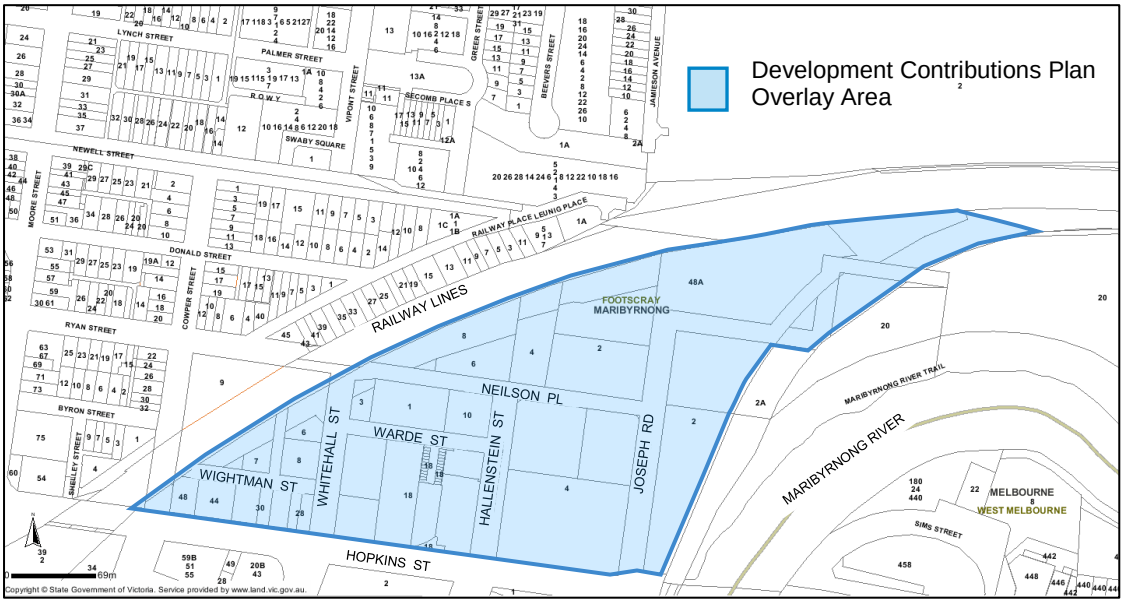
The DCP forms part of the Maribyrnong Planning Scheme pursuant to section 46I of the Act and is an incorporated document under Clause 72.04 of the Maribyrnong Planning Scheme.

1.4 Area to which this Development Contributions Plan applies

The Development Contributions Plan Overlay applies to the area comprising approximately 15 hectares shown in Plan 1.

The area is generally bounded by the public reserves on the west bank of the Maribyrnong River to the east, the railway reserve between Footscray and South Kensington stations to the north and west, and Hopkins Street to the south. In accordance with section 46K(1)(a) of the Act the DCP applies to land shown in Plan 1. The area is also shown on Development Contributions Plan Overlay Schedule 1 of the Maribyrnong Planning Scheme.

Plan 1 Joseph Road Precinct Development Contributions Plan Area



2 STRATEGIC PLANNING AND JUSTIFICATION

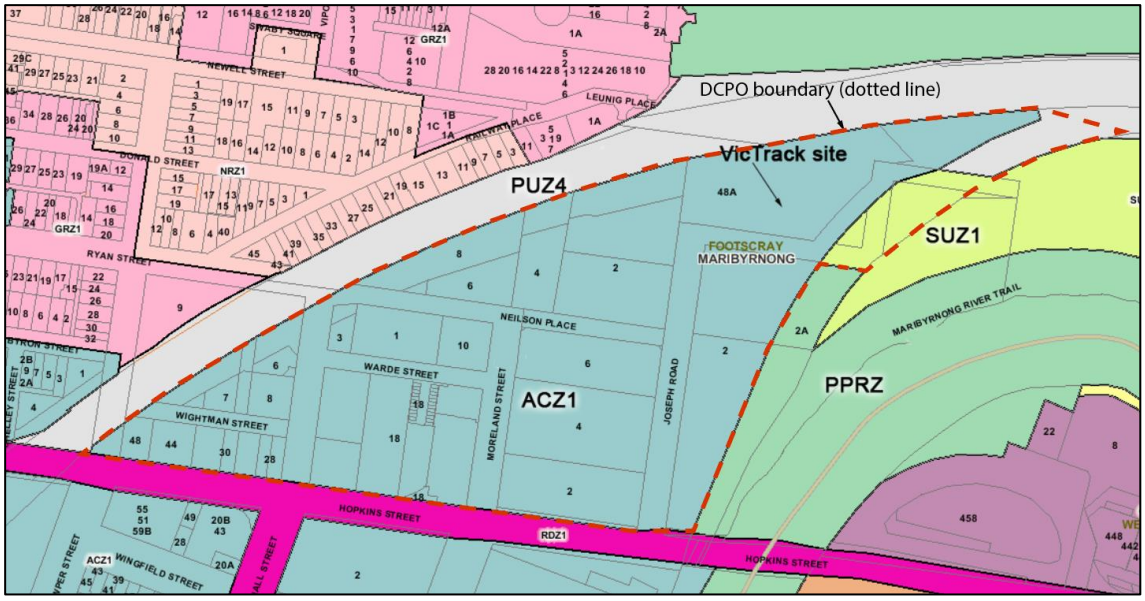
Maribyrnong Planning Scheme

The strategic basis for the DCP is established by the State and Local Planning Policy Framework of the Maribyrnong Planning Scheme. The key sections of the Maribyrnong Planning Scheme are Clause 21.11-1, which is the local areas policy for the Footscray Metropolitan Activity Centre; Clause 21.12, which references the Footscray CAA Structure Plan; and Clause 37.08, the Activity Centre Zone Schedule 1 (ACZ1).

The local area policy explains that the Footscray Metropolitan Activity Centre (FMAC) is the most regionally significant activity centre of Melbourne's west.

The majority of the land in the Joseph Road precinct is affected by the ACZ1 with the exception of the north eastern part of the precinct which is affected by the Special Use Zone Schedule 1 (SUZ1) and Public Use Zone Schedule 4 (PUZ4), as shown in Plan 2.

Plan 2 Planning zones in the Joseph Road Precinct



The ACZ1 identifies the following objectives in the Planning Scheme:

- To create a vibrant, mixed use precinct that complements the role and function of the Footscray Central Activities Area through:
  - a diverse range of higher-density housing development accommodating
  - approximately 4,000 dwellings
  - a viable mix of commercial, retail, community, entertainment, and recreation land uses
  - a wide range of employment opportunities to complement the role of central Footscray.
- To encourage retail, entertainment and recreational uses along the existing and extended Warde Street, and along the riverfront.
- To encourage the provision of showroom, restricted retail and office along the Hopkins Street frontage.
- To establish a robust urban character with:
  - high quality architecture and urban design
  - an active, attractive and accessible riverfront with improved public recreation
  - opportunities and high amenity public spaces and places

- an active and improved frontage to Hopkins Street that marks the precinct as a ‘gateway’ to Footscray.
    - To provide a high amenity, upgraded street and pathway network with improved pedestrian and cyclist connections to areas beyond the precinct.
    - To encourage sustainable development that:
- incorporates best practice energy efficiency and water management measures
- promotes sustainable travel patterns through an integrated approach to transport
- planning
- supports the inclusion of community facilities and housing affordability.
    - To ensure that development responds to the site features and constraints including heritage values of the heritage listed features, potential contamination, flooding, and service infrastructure requirements.
    - To provide built form that does not result in significant overshadowing of the St Monica’s Primary School.

The Joseph Road precinct guidelines envisage the following:

- A network of high amenity public places and pedestrian spaces should be provided as shown in the Precinct Plan.
- Visual and physical connections between the river and the precinct should be provided.
- Active frontages created by retail, entertainment, and recreation uses at ground level are encouraged along the main connections to the river along Warde Street and along Hopkins Street.
- Development proposals should respect planned pedestrian and cycling network.
- Pedestrian/cycle bridges provided across the passenger rail line and crossing points of the freight rail line should be defined by robust landscaping and clear sight lines, and designed to the satisfaction of VicTrack, the Department of Economic Development, Jobs, Transport and Resources and Public Transport Victoria.
- Development proposals with river frontage should include opportunities for activation along the riverside.
- Development should provide a high quality street environment which incorporates, footpaths, cycle paths, and on-street car parking, and maximises opportunities for street planting where appropriate.
- Opportunities should be provided to green the urban environment both in the public realm and as a part of new developments.
- The primary vehicle access point to and from the precinct should be via a signalised intersection at the corner of Hopkins Street and Hallenstein Street, with associated intersection treatments. Secondary vehicle access points should be provided at the intersection of Whitehall Street and Joseph Road, with Hopkins Street.
- On-street car parking should be provided in streets whilst ensuring sufficient width to accommodate parallel car parking spaces as well as bicycle lanes, pedestrian footpaths, and landscaping treatments.

Footscray CAA Structure Plan (2014)

The Footscray CAA Structure Plan is the basis for the local area policy. It is a reference document in Clause 21.12 of the Scheme, under Economic Development.

The vision for the Joseph Road Precinct as stated in the Footscray CAA Structure Plan is for a thriving, vibrant, mixed use precinct, with high quality public areas that is inviting to residents, workers and visitors alike. The Joseph Road Precinct will be home to approximately 4,000 new households which will enjoy proximity and access to the Maribyrnong River, Footscray station and the central precinct.

The Footscray CAA Structure Plan is now reflected in and given effect by the Activity Centre Zone Schedule 1 that was introduced to the Planning Scheme in March 2015.

To realise the Footscray CAA Structure Plan vision for the Joseph Road Precinct, Council has prepared the Joseph Road Precinct Public Realm Plan (2017). This will become an incorporated document in the Planning Scheme. It forms an important strategic foundation for the DCP.

A number of other reports also provide insight into the likely future development trends for the area. These include:

- Forecast of retail commercial and Housing Activity in Footscray CAD (Tim Nott, 2012)
- 22 Hopkins St Footscray Retail Economic Assessment (Essential Economics, 2012)
- Footscray Retail Study (Collie, 2009)
- Review of Retail Development and Activity Centre Policy (Peter McNabb and Associates 2009)
- Priority Development Panel Report on Joseph Road Precinct Footscray (PDP 2009)

These reports have been taken into account in the preparation of the Joseph Road Precinct Public Realm Plan (2017).

Joseph Road Precinct Public Realm Plan (2017)

The Joseph Road Precinct Public Realm Plan provides guidance on the design of the public realm areas and identifies the locations where new roads, footpaths, bike routes, drainage, street lighting and furniture, traffic signals and street trees will be needed.

The design of the Plan has been guided by standards specified in the Maribyrnong City Design Manual and urban design objectives including:

- Providing connections through the precinct and to surrounding areas.
- Providing a seamless transition in activity levels and function between Footscray central and Melbourne's CBD.
- Having regard to the built form outcomes of the Precinct.
- Creating a public realm that complements active ground floor uses, provides for safe and pleasant pedestrian circulation, and encourages wider public access and usage.
- Prioritising pedestrians, cyclists and encourage active transport modes.
- Providing an accessible and equitable public realm.
- Providing services and infrastructure required for the level of development in ways that do not limit opportunities for quality green infrastructure in the streetscape.
- Considering and managing the grading of the site and stormwater drainage in a positive way to contribute towards a resilient city.

Current zoning and proposed land exchange with Department of Economic Development, Jobs, Transport and Resources (DEDJTR) and VicTrack

The boundaries of the Development Contributions Plan Overlay Schedule 1 (DCPO1) closely aligns with those of the ACZ1. However, the north-eastern portion of the DCPO also extends into land zoned Public Use (PUZ4) and Special Use (SUZ1). This is a result of the arrangement of land titles and current alignment of the Joseph Road and its desired future alignment.

The Regional Rail Link project completed in 2015, expanded the width of the rail corridor to the north of the precinct onto land currently zoned ACZ1. Many land parcels affected have not had their title boundaries updated to reflect the expanded corridor. It is understood that VicTrack is working with affected landowners to address this issue along the entire rail corridor.

The Regional Rail Link project also resulted in the north eastern section of Joseph Road to move east, which changed the zoning of the road to SUZ1. The existing cadastral and zoning maps show the road in its former alignment while the Joseph Road Public Realm Plan shows the road in its current alignment. Due to the move, the road is vested in multiple ownerships including Council, VicTrack and DEDJTR. Council is working with VicTrack and DEDJTR to facilitate the exchange of land and update of title boundaries. Once finalised, Council plans to review the cadastral map and determine if any land along the rail corridor is required to be rezoned to ensure it is consistent with the existing use.

3 CHARGE AREAS & DEVELOPMENT SCENARIO

3.1 Main Charge Area

The Joseph Road Precinct DCP has a single Main Charge Area (MCA). Therefore, all demand units within the DCP area will be charged the same rate for all projects.

3.2 Development Projections

A projection of all development within the DCP area has been undertaken to understand:

- what infrastructure will be required to service the new development and calculate the rate per demand unit; and
- the likely duration of the life of the DCP.

The development projection for the DCP area over the next 15 years is for approximately 4,500 dwellings and for complementary retail and office activity. The development projections are based on approved planning permits for a number of sites within the Precinct.

Assumed yields for sites not currently subject of an approved planning permit have been prepared. The scenarios are based on the provisions of the Maribyrnong Planning Scheme.

It is expected that the area will develop over the next 15 years to full build at a rate of approximately 300 dwellings per year.

Table 1 Development Projections over the next 15 years

Parcel #	ADDRESS	SITE AREA (m2 Approx.)	DWELLINGS (Propd)	COMMERCIAL (m2 Propd)	RETAIL (m2 Propd)
Planning Permits					
1	1 Warde Street	2,149	350	-	916
2	10 Moreland Street	1,248	198	-	426
3	2 Neilson Place	6,303	513	3,418	620
4	2 Hopkins Street	9,393	723	197	581
5	4 Hopkins Street (2-6 Hallenstein Street)	12,866	937	1,417	3,421
6	18-24 Hopkins Street	9,459	966	-	4,687
7	7 Wightman Street	710	85	383	178
	SUB-TOTAL	42,128	3,772	5,415	10,829

Other					
a	30-40, 44 Hopkins Street	2,081	209	-	1,041
b	4 Neilson Place	1,742	147	-	151
c	6 Neilson Place	1,511	59	567	-
d	11 Joseph Road (VicTrack site)	4,400	347	1,650	-
	SUB-TOTAL	9,734	762	2,217	1,192
TOTALS		51,862	4,534	7,632	12,021

3.3 Equivalence Ratios and Demand Units

The purpose of this DCP is to ensure that the cost of providing new road and public realm infrastructure is shared between developers on a fair and reasonable basis. As all the new infrastructure demand will be created by the development within the Joseph Road Precinct, it is reasonable that development pays for the full cost of implementing the works identified in the *Joseph Road Precinct Public Realm Plan* (2017) and the *Joseph Road Precinct Preferred WSUD Concepts report* (2017).

All residential, commercial and retail including mixed use development within the charge area is required to pay the Development Infrastructure Levy. One dwelling or one vacant single dwelling lot is equal to one demand unit. Dwelling is as defined in Part 3B of the *Planning and Environment Act 1987* and also includes independent living units within a retirement village. For retail and commercial development, the equivalence ratios for all road, drainage and other public realm infrastructure are indicated in Table 2. The equivalence ratios for retail and office are in accordance with the standard ratios indicated in *Development Contributions Guidelines* (March 2007).

Table 2 Proposed Development

Retail	19 sqm floor space = 1 demand unit
Office/Commercial	121 sqm floor space = 1 demand unit
Source: *Development Contributions Guidelines* (Department of Sustainability and the Environment, March 2007) pp.45-46, available for download from the DELWP website at https://www.planning.vic.gov.au/__data/assets/pdf_file/0022/102982/Preparing_a_Full_Cost_Apportionment_DCP.pdf	

For a mixed use development, the Development Infrastructure Levy is to be based on the total number of demand units comprising the development.

3.4 Items not included in this DCP

The following items are not included in the DCP. These items are considered to be normal to the construction of a development and do not warrant cost sharing arrangements.

Planning permits for development in the area covered by the DCP must contain conditions which require the provision of the infrastructure set out below:

- Waterway management works and drainage systems.
- Water, sewerage, underground power, gas and telecommunications services.
- Basic levelling, provision of biodiversity offsets, water tapping and landscaping of open space.
- Public open space reserve masterplans and any agreed associated works.
- Council's plan checking and supervision fees.
- Bus stops.

3.5 Land or development excluded from this DCP

The following items are exempted from this DCP:

- The extension of a building or extension of works associated with an established use in the area at the date of approval, providing the extension results in no more than a 50% increase in the floor area of the building or works as compared to the floor space at the date of approval.
- Development of land for housing by or for the Department of Health and Human Services, as defined in Ministerial Direction on Development Contributions Plans of 11 October 2016.
- Development of land for a non-government school. In this provision, “non-government school” has the same meaning as in section 1.1.3 of the Education and Training Reform Act 2006.
- Development of land by Council for the area.

3.6 Contributions made under existing Planning Permits or Infrastructure Agreements

There are existing permit with conditions requiring some contributions to the public realm.

Where under such a permit condition, or an agreement entered into under such a permit condition, a monetary contribution is required to be made for public realm improvements or infrastructure works are to be provided in the public realm, those monetary contributions and infrastructure works may be recognised by the Collecting Agency and credited towards an owner’s liability to pay any Development Infrastructure Levy that is imposed pursuant to this DCP provided that the infrastructure which is to be or has been provided is included as infrastructure which is funded by this DCP.

However, where the quantum of any such monetary contribution or the value of the infrastructure works in respect of the public realm are less than the Development Infrastructure Levy required to be paid under this DCP, the development must pay a top-up payment to make the Development Infrastructure Levy in respect of each Demand Unit equal to the amount of the Development Infrastructure Levy required under this DCP.

3.7 Public Open Space Contributions

This DCP does not provide funding towards the cost of public open space. A development that proposes to subdivide land must make a contribution to public open space in an amount specified in the schedule to Clause 53.01 of the Maribyrnong Planning Scheme.

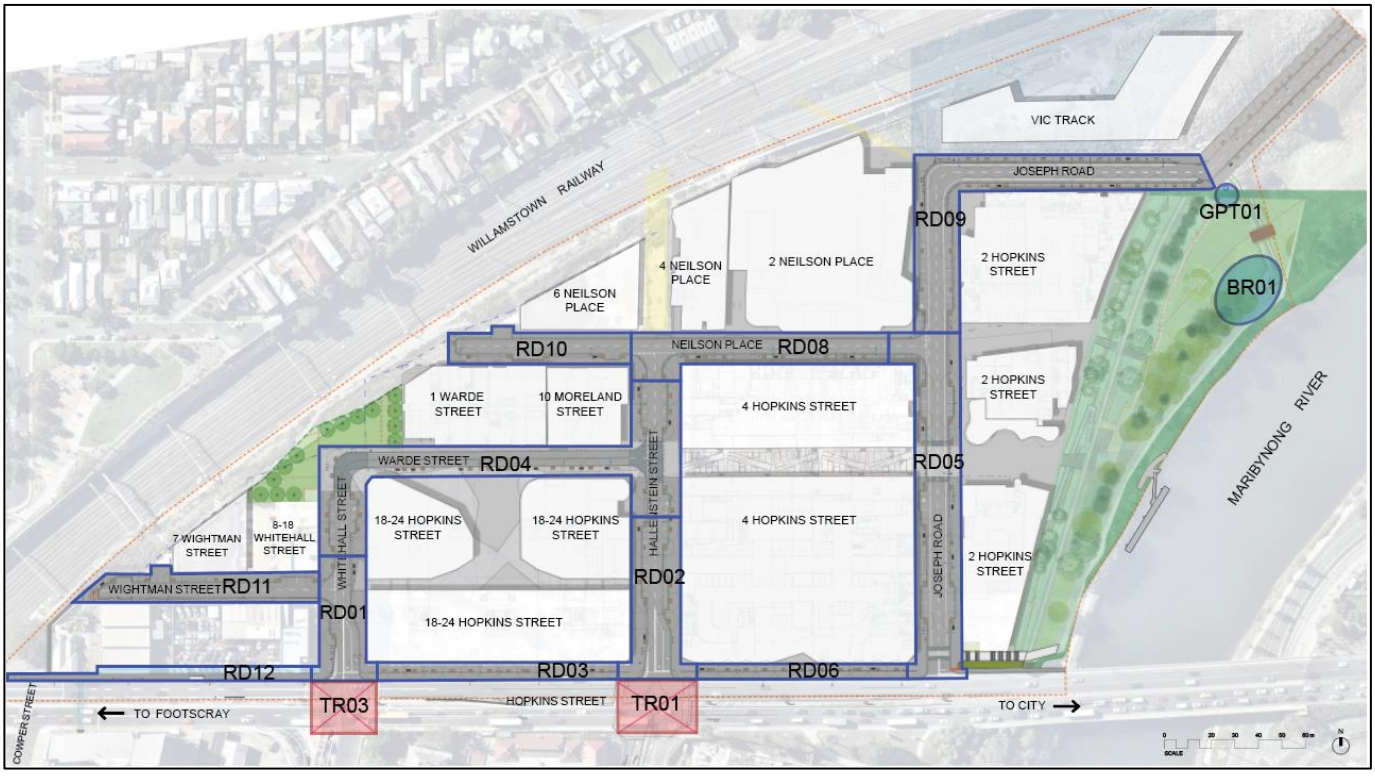
4 INFRASTRUCTURE PROJECTS & CALCULATION OF CONTRIBUTIONS

4.1 Infrastructure Projects

The DCP uses a project identification system of project category and sequential number in its tables and plans. The following types of projects are included in the DCP (refer to Plan 3):

- RD – Road Projects;
- TR – Traffic Improvement Works Projects;
- GPT01 – Gross Pollutant Trap;
- BR01 – Bio-Retention System

Plan 3: DCP infrastructure project areas



4.2 Calculation of costs

The costs of all projects were determined by a detailed costing advice provided by WT Partnership Quantity Surveyor. A copy of the cost estimates used to inform this DCP may be obtained from the City of Maribyrnong upon request.

Further information on the nature of the infrastructure projects which are funded is provided in Attachment 1.

Table 3: Infrastructure Projects and calculation of costs

DCP Project No.	Project	Infrastructure Category	Estimated Project Cost: Construction	% Apportioned to DCP	Total cost recovered by DCP
	Road Projects				
RD01	Whitehall Street	Development	$1,118,039	100.0%	$1,118,039
RD02	Hallenstein Street	Development	$1,664,503	100.0%	$1,664,503
RD03	Hopkins Street (Central West)	Development	$748,152	94.5%	$706,933
RD04	Warde Street	Development	$3,928,592	100.0%	$3,928,592
RD05	South Joseph Road	Development	$3,201,075	100.0%	$3,201,075
RD06	Hopkins Street (Central East)	Development	$696,967	94.8%	$660,555
RD08	Neilson Place (East)	Development	$3,647,787	100.0%	$3,647,787
RD09	North Joseph Road[1]	Development	$3,247,853	100.0%	$3,247,853
RD10	Neilson Place (West)	Development	$1,208,902	100.0%	$1,208,902
RD11	Wightman Street	Development	$1,421,537	100.0%	$1,421,537
RD12	Hopkins Street (Far West)	Development	$871,028	91.5%	$796,921
	Sub-Total Road Projects		**$21,754,435**	**99.3%**	**$21,602,697**
	Traffic Improvement Works				
TR01	Hopkins St & Hallenstein St - Traffic Lights – Construction	Development	$3,131,920	97.7%[2]	$3,058,732
TR03	Hopkins St & Whitehall St signals upgrade	Development	$1,092,752	100%	$1,092,752
	Sub-Total Traffic Improvement Works		**$4,224,672**	**98.3%**	**$4,151,484**
	Drainage Project				
GPT01	Gross Pollutant Trap	Development	$396,211	100.0%	$396,211
BR01	Bio-Retention System	Development	$404,682	100.0%	$404,682
	Sub-Total Infrastructure Project		**$800,893**	**100.0%**	**$800,893**
	Plan Preparation Charge				
PP01	Plan Preparation Charge	Development	$0	-	$0
	Sub-Total Plan Preparation Charges		**$0**	-	**$0**
	TOTALS				
	Total cost all projects		**$26,780,000**	**99.2%**	**$26,555,074**

Notes:

1. The north-east extent of Joseph Road is not funded under this DCP. The road works may be considered for funding by alternative mechanisms such as a planning permit condition or requirement where land abutting the road has sufficient nexus with the need for the road.
2. TR01's percentage apportioned to the DCP is 97.7% because $73,188 was received from the development at 1-11 Moreland Street towards the cost of the traffic signals.

4.3 Cost apportionment

This DCP apportions a charge to all new development within the MCA according to each site's projected shared use of an identified infrastructure item. Costs must be shared in accordance with the projected development outcomes and estimated shared use of each infrastructure project.

The proposed shared bicycle path on the northern side of Hopkins Street that forms part of projects RD03, RD06 and RD12 is likely to be used by cyclists from the precinct and the broader community alike. As a result, a portion of the pavement component of the shared bicycle path is externally apportioned to recognise potential external usage. The external cost apportionment is 76.6% of the pavement component to each project. Specifically, that is $41,219 for RD03, $36,412 for RD06 and $74,107 for RD12. The apportioned percentage takes into consideration the future population of the precinct relative to Footscray suburb, and the externally apportioned amounts have been subtracted from the costs funded under the DCP. For detailed cost information, refer to Attachment 1, Sections 5.1 and 5.2 in the Cost Estimate Report.

A contribution of $73,188 has been received from 1-11 Moreland Street towards the cost of Traffic Improvement Works at the intersection of Hopkins Street and Hallenstein Street (TR01). The site is located adjacent to the precinct and was required to contribute towards the cost of the traffic improvement works when their planning permit was amended in 2016. As such, the cost of TR01 apportioned to the DCP is its estimated project cost minus $73,188.

For all other projects, the full cost of the projects are apportioned to new developments within the precinct given the demand for them is created by these developments.

This DCP calculates what each new development should pay towards the provision of each identified infrastructure project. This is the total cost of the item (after deducting other funding sources and making allowance for any external demand) divided by the total demand units (dwellings, or non-residential floor space) for the main charge area.

4.4 Summary of costs

Table Four sets out a summary of costs payable for each infrastructure category.

Table 4: Summary of total costs by project type

SUMMARY - TOTAL COSTS BY PROJECT TYPE	
Project Type	**Total Costs of Projects**
Road Projects	$21,754,435
Traffic Improvement Works	$4,224,672
Drainage Project	$800,893
Total	**$26,780,000**
Externally apportioned amount	**$151,738**
Traffic Improvement Works Previously Recovered	**$73,188**
Total Cost Recovered by DCP	**$26,555,074**
SUMMARY - TOTAL COSTS BY INFRASTRUCTURE CATEGORY	
Project Type	**Total Costs of Projects**
Total - Development Infrastructure Levy (DIL)	$26,780,000
Total - Community Infrastructure Levy (CIL)	$0
Total	**$26,780,000**
Total Cost Recovered by DCP	**$26,555,074**

4.5 Summary of contributions

The table below sets out charges payable for each main charge area.

Table 5: Summary of contributions rates for development outcomes

SUMMARY - DEVELOPMENT INFRASTRUCTURE LEVY (DIL) BY MAIN CHARGE AREA		
Main Charge Area	**Rate**	
MCA1 (Residential)	$5,077.68	per lot/dwelling
MCA1 (Commercial)	$41.96	per m2 leasable floorspace
MCA1 (Retail)	$267.25	per m2 leasable floorspace
SUMMARY - COMMUNITY INFRASTRUCTURE LEVY (CIL) BY MAIN CHARGE AREA		
Main Charge Area	**Rate**	
MCA1 (Residential)	$0.00	per lot/dwelling

4.6 Project Staging

For the purpose of preparation of the DCP, each item to be funded by the DCP has an assumed indicative provision date specified (Table 6). The indicative timing of the provision of the items is consistent with the information available at the time that this DCP was prepared. The Collecting Agency will monitor and will determine when items should be provided after having regard to funding available through capital works programs, the staging and progression of development and the availability of development contribution funds to undertake the items.

The Collecting Agency may re-order the timing of the delivery of infrastructure works or land where:

- Infrastructure is to be constructed / provided by development proponents as works in kind, as agreed by the Collecting Agency;
- Network priorities require the delivery of works or land in a different order to facilitate broader road network connections.

Every endeavour will be made to provide all items in this DCP as soon as is practicable provided sufficient contributions are available and also having regard to the Development Agency's capacity to source any balance of funds not recovered under this DCP.

All items included in the DCP will be provided before the expiry date of this DCP which is 15 years from when this DCP is incorporated into the Maribyrnong Planning Scheme. If development projections vary as against what is anticipated in this DCP, an application will be made to the Minister pursuant to the Act to extend the life of the DCP.

Table 6: Estimated project staging and sequencing of projects

DCP Project No.	Project	Project Staging	Estimate year of construction works
	Road Projects		
RD01	Whitehall Street	1	2019-2021
RD02	Hallenstein Street	1	2019-2021
RD03	Hopkins Street (Central West)	1	2019-2021
RD04	Warde Street	2	2020-2022
RD05	South Joseph Road	1	2019-2021
RD06	Hopkins Street (Central East)	1	2019-2021
RD08	Neilson Place (East)	2	2020-2022
RD09	North Joseph Road	2	2020-2022
RD10	Neilson Place (West)	3	2021-2024
RD11	Wightman Street	5	2025 or later
RD12	Hopkins Street (Far West)	3	2021-2024
	Traffic Improvement Works		
TR01	Hopkins St & Hallenstein St - Traffic Lights - Construction	1	2019-2021
TR03	Hopkins St & Whitehall St signals upgrade	1	2019-2021
	Drainage Project		
GPT01	Gross Pollutant Trap	2	2020-2022
BR01	Bio-Retention System	4	2023 or later

5 DEVELOPMENT CONTRIBUTIONS PLAN ADMINISTRATION & IMPLEMENTATION

This section sets out how this DCP will be administered and covers the timing of payment, provision of works-in-kind and how funds generated by this DCP will be managed in terms of reporting, indexation and review periods.

The DCP applies to the subdivision and / or development of land.

5.1 Collecting Agency

Maribyrnong City Council is the Collecting Agency pursuant to section 46K(1)(fa) of the *Planning and Environment Act 1987* which means that it is the public authority to whom all levies are payable. As the Collecting Agency, Maribyrnong City Council is also responsible for the administration of the DCP and its enforcement pursuant to Section 46QC of the Act.

5.2 Development Agency

Maribyrnong City Council is the Development Agency pursuant to section 46K(1)(fb) of the *Planning and Environment Act 1987* and is responsible for the provision of all the infrastructure projects identified in this DCP.

5.3 Payment of Contribution Levies and Payment Timing

Where a planning permit is issued, the following conditions must be included on the planning permit:

5.3.1 Planning Permit for subdivision of land

A Development Infrastructure Levy in accordance with the approved Development Contributions Plan which applies to the land must be paid to the Collecting Agency for the land in respect of each demand unit within the following specified time, namely after the certification of the relevant plan of subdivision but no earlier than up to 21 days prior to the issue of a Statement of Compliance for that plan of subdivision.

Where the subdivision is to be developed in stages, the Development Infrastructure Levy for the stage to be developed may only be paid to the Collecting Agency no earlier than up to 21 days prior to the issue of a Statement of Compliance for that stage.

The Collecting Agency may agree to a different time for payment.

A Schedule of Development Contributions must be submitted with each stage of a plan of subdivision. The Schedule of Development Contributions must show the amount of the Development Infrastructure Levy payable for each stage to the satisfaction of the Collecting Agency.

If the Collecting agency agrees to works-in-kind in lieu of the payment of the Development Infrastructure Levy, the owner must enter into an agreement under Section 173 of the *Planning and Environment Act 1987* in respect of the proposed work in kind arrangements.

5.3.2 Planning Permit for development of land

A Development Infrastructure Levy in accordance with the approved Development Contributions Plan which applies to the land must be paid to the Collecting Agency for each demand unit proposed to be developed. The Development Infrastructure Levy must be paid prior to the issue of any Building Approval under the *Building Act 1993* unless the Collecting Agency agrees to a different time for payment.

If the Collecting agency agrees to works-in-kind in lieu of the payment of the Development Infrastructure Levy, the owner must enter into an agreement under Section 173 of the *Planning and Environment Act 1987* in respect of the proposed works-in-kind arrangements.

5.3.3 Where no planning permit is required

Where no planning permit is required to use or develop land, the land may only be used and developed when a Development Infrastructure Levy in accordance with the approved Development Contributions Plan that applies to the land is paid to the Collecting Agency prior to the issue of a Building Approval under the *Building Act 1993* unless the Collecting Agency agrees to any other time for payment.

If the Collecting Agency agrees to works-in-kind in lieu of the payment of the Development Infrastructure Levy, the owner must enter into an agreement under Section 173 of the *Planning and Environment Act 1987* in respect of the proposed work-in-kind arrangement.

5.4 Works-In-Kind

The Collecting Agency may allow a development proponent to satisfy its obligations under this DCP by undertaking building or works provided that:

- The building or works constitute infrastructure funded by this DCP.
- The Collecting Agency agrees that the timing of the building or works would be consistent with the priorities as determined by the Collecting Agency to relevant matters including to this DCP.
- The building or works are defined and agreed in an agreement made under Section 173 of the Act.
- The building or works are to be provided to a standard that accords with this DCP to the satisfaction of the Development Agency, unless an alternative is agreed by both the Development and Collecting Agencies.
- Detailed design are approved by the Development and Collecting Agencies which generally accord with the design upon which this DCP is based unless an alternative is agreed by both the Development and Collecting Agencies.
- The construction of the buildings and works are completed to the satisfaction of the Development and Collecting Agencies.
- There is no negative financial impact on this DCP to the satisfaction of the Collecting Agency.
- Buildings and works will only be accepted in lieu of a financial contribution required by this DCP to the extent that they constitute part or all of the design of an infrastructure funded by this DCP or otherwise reduce the cost to complete that design, to the Collecting Agency's satisfaction. Temporary works will not be accepted as works-in-kind unless they can be incorporated into the final design at no additional cost to the DCP.

5.5 Funds Administration

The administration of the development contributions made under the DCP will be held until required for provision of the items in that class of development (transport, community buildings or sporting reserves). Details of funds received and expenditures will be held by the Collecting Agency in accordance with the provisions of the *Local Government Act 1993* and the Act.

The administration of contributions made under the DCP will be transparent and demonstrate the:

- Amount and timing of funds collected;
- Source of the funds collected;
- Amount and timing of expenditure on specific projects;
- Project on which the expenditure was made;
- Account balances for individual project classes;
- Details of works-in-kind arrangements for project provision;
- Pooling or quarantining of funds to deliver specific projects where applicable.

The Collecting Agency will provide for regular monitoring, reporting and review of the monies received and expended in accordance with this DCP.

The Collecting Agency will establish interest bearing accounts and all monies held in these accounts will be used solely for the provision of infrastructure as itemised in this DCP, as required under Section 46Q of the Act.

Should the Collecting Agency resolve to not proceed with any of the infrastructure projects listed in this DCP, the funds collected for these items will be used for the provision of alternative works in the same infrastructure class as specified in this DCP. Such funds may also be used for the provision of additional works, services or facilities where approved by the Minister responsible for the Act, or will be refunded to owners of land subject to these infrastructure charges.

5.6 Project Indexation

The Development Contributions Levy must be indexed on 1 July 2017 for the 2017/2018 financial year and on 1 July for each subsequent financial year in accordance with the following requirement. The amount of the Development Infrastructure Levy must be indexed using the Producer Price Index Numbers for Road and Bridge construction – Victoria published by the Australian Bureau of Statistics (catalogue 6427.0, Table 17, Output of the Construction of Industries, subdivision and class index numbers) for the June, September, December and March quarters occurring immediately before the beginning of the financial year in respect of which the indexed rate is being determined.

5.7 Development Contributions Plan review period

This DCP adopts a long term outlook for development. It takes into account planned future development in the Joseph Road Precinct. For the purposes of the preparation of this DCP, a 'full development' horizon of fifteen years after gazettal of the DCP has been adopted.

This DCP commences on the Approval Date of the amendment introducing the DCP into the Maribyrnong Planning Scheme. This DCP will end on the 15th anniversary from the Approval Date unless it is extended in accordance with the provision of the Act.

The DCP should be reviewed and if necessary updated every five years (or more frequently if required). This may require an amendment to the Maribyrnong Planning Scheme to amend, review, or replace this document. Any review should have regard to any arrangements (for example an agreement under s173 of the Act) for the implementation of this DCP and the rate that development is occurring including the rate of collection of funds.

The projected development outcome in Table 1 is based on the proposed yield of new developments with planning permits and the expected yield of sites that are likely to be developed but not currently in receipt of a planning permit. In determining the expected yield, preferred maximum height provisions in the Maribyrnong Planning Scheme were used to estimate the number of dwellings that may be developed. If there is evidence to suggest that a site is not likely to be developed within the 15 year time frame of the DCP, it is excluded from DCP calculations.

In the event that the excluded sites are proposed to be developed within the time frame of the DCP, they will be required to pay the relevant contribution and the DCP will be amended (through a planning scheme amendment) accordingly.

6 OTHER INFORMATION

6.1 Supporting Documentation

The DCP is supported by the following documents and reports which together form part of the incorporated document:

- Joseph Road Public Realm Cost Estimate Report by WT Partnership, 17 June 2019 (Attachment 1)
- Joseph Road Precinct Public Realm Plan by Aspect Studios, 7 July 2017 (Attachment 2)
- Joseph Road Precinct Preferred WSUD Concepts Report by Alluvium Consulting, 12 May 2017 (Attachment 3)

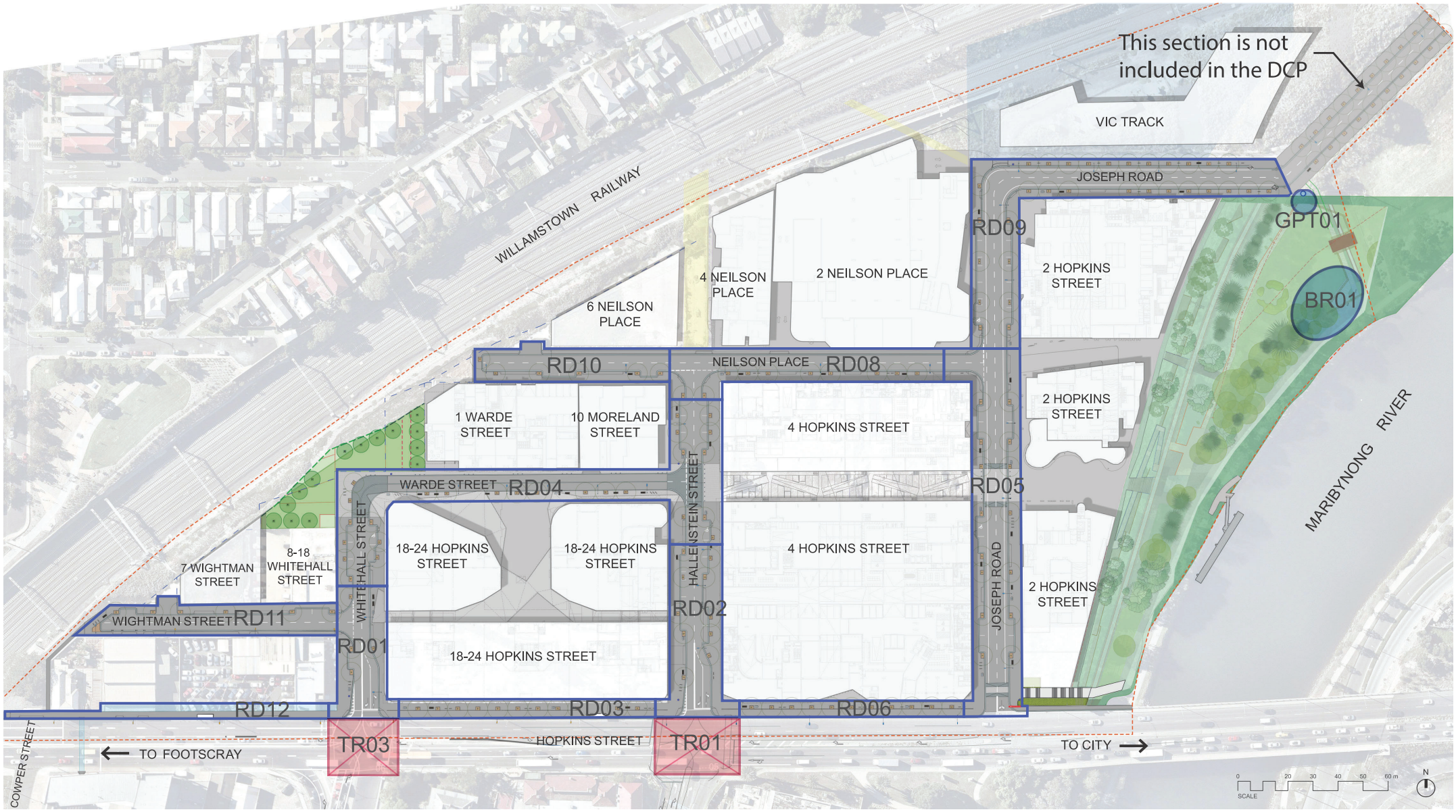

Victorian Planning Authority

Joseph Road Precinct
Development Contributions Plan

Attachment 1

Joseph Road Public Realm Cost Estimate
Report (WT Partnership)

Joseph Road Precinct DCP Project Areas



ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Area Schedule				
2	Basis of Estimate				
3	Exclusions				
4					
5	Whitehall Street Public Realm Works (RD01)	m2	1,090	1,026	1,118,039
6	Hallenstein Street Public Realm Works (RD02)	m2	1,512	1,101	1,664,503
7	Hopkins Street Footpath Update Works (Central West) (RD03)	m2	693	1,080	748,152
8	Warde Street Public Realm Works (RD04)	m2	3,528	1,114	3,928,592
9	South Joseph Road Public Realm Works (RD05)	m2	3,122	1,025	3,201,075
10	Hopkins Street Footpath Upgrade Works (Central East) (RD06)	m2	580	1,202	696,967
11	Hopkins Street Footpath Upgrade Works (East) (RD07) (Project Removed)	Excl			
12	East Neilson Place Public Realm Works (RD08)	m2	1,605	2,273	3,647,787
13	North Joseph Road Public Realm Works (RD09)	m2	3,174	1,023	3,247,853
14	West Neilson Place Public Realm Works (RD10)	m2	1,045	1,157	1,208,902
15	Wightman Street Public Realm Works (RD11)	m2	1,237	1,149	1,421,537
16	Hopkins Street Footpath Upgrade Works (West) (RD12)	m2	673	1,294	871,028
17	Traffic Improvement Works - Traffic Lights at the intersection of Hallenstein Street and Hopkins Street (TR01)	m2	768	4,078	3,131,920
18	Traffic Improvement Works - Pedestrian operated crossing near Cowper Street (TR02) (Project Removed)	Excl			
19	Traffic Improvement Works - Whitehall Street / Hopkins Street signal upgrade (TR03)	m2	760	1,438	1,092,752
20	Gross Pollutant Trap (GPT01)	Item	1	396,211	396,211
21	Bio-Retention Basin (BR01)	Item	1	404,682	404,682

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	19,787	1,353	26,780,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (Detail)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Area Schedule**				
1.1	The following areas have been used in this cost plan:				
	Public Realm area schedule				
1.2	Whitehall Street Public Realm Works (RD01)	m2	1,090		
1.3	Hallenstein Street Public Realm Works (RD02)	m2	1,512		
1.4	Hopkins Street Footpath Update Works (Central West) (RD03)	m2	693		
1.5	Warde Street Public Realm Works (RD04)	m2	3,528		
1.6	South Joseph Road Public Realm Works (RD05)	m2	3,122		
1.7	Hopkins Street Footpath Upgrade Works (Central East) (RD06)	m2	580		
1.8	Hopkins Street Footpath Upgrade Works (East) (RD07) - Removed from scope	Note			
1.9	East Neilson Place Public Realm Works (RD08)	m2	1,605		
1.10	North Joseph Road Public Realm Works (RD09)	m2	3,174		
1.11	West Neilson Place Public Realm Works (RD10)	m2	1,045		
1.12	Wightman Street Public Realm Works (RD11)	m2	1,237		
1.13	Hopkins Street Footpath Upgrade Works (West) (RD12)	m2	673		
1.14	Traffic Improvement Works - Traffic Lights at the intersection of Hallenstein Street and Hopkins Street (TR01)	m2	768		
1.15	Traffic Improvement Works - Pedestrian operated crossing near Cowper Street (TR02) - Removed from scope	Note			
1.16	Traffic Improvement Works - Whitehall Street / Hopkins Street signal upgrade (TR03)	m2	760		
	TOTAL AREA	m2	19,787		
2	**Basis of Estimate**				
2.1	The following information forms the basis of this cost plan:				

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (Detail)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $

2 Basis of Estimate *(Continued)*

2.2	DCP Project Areas (Revised) - Public Realm Plan dated received 6 June 2019
2.3	Joseph Road DCP Project Areas high quality print received 6 June 2019
2.4	TTW Minor Stormwater (5 Year) Drainage Concept Plan - Sheet 1 dated 11 January 2017
2.5	TTW Minor Stormwater (5 Year) Drainage Concept Plan - Sheet 2 dated 11 January 2017
2.6	Maribyrnong City Council Public Realm Plan - Concept Design Report dated 7 July 2017
2.7	Catchment Flow Calcs - 12D Model - Hydraulic Design Sheet dated 18 January 2017
2.8	LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16 June 2017
2.9	One Mile Grid Hopkins Street / Whitehall Street Maribyrnong City Traffic Signal Plan dated 20 November 2018
2.10	One Mile Grid Hopkins Street / Hallenstein Street Maribyrnong City Traffic Signal Plan dated 20 November 2018
2.11	Alluvium Consulting Preferred WSUD Concepts dated 12 May 2017 (Bio-Retention Basin Design)
2.12	Jemena Overhead/Underground Joseph RD Precinct - Package B Footscray drawings dated 13 September 2018
2.13	Project Area RD09 update revsion 3 dated recevied 29 May 2019
2.14	C145 Josesph Road Precinct DCP - Quantity Surveyor Brief May 2019 recevied 29 May 2019

3 Exclusions

3.1	The following items are specifically excluded from this cost plan:
3.2	Trunk services into the development lots; all services stop at the perimeter boundary of the development lots

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (Detail)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $

3 Exclusions *(Continued)*

3.3	Substations
3.4	Heritage restoration works
3.5	Works within development lots
3.6	Works to railway corridor
3.7	Works to banks of Maribynong river such as scour protection, groins, etc.
3.8	Marine works
3.9	Open space land purchase
3.10	Public open space works adjacent the Maribyrnong river
3.11	Costs associated with Archaeological excavations
3.12	Cost impact of Cultural heritage management plan
3.13	Works outside site boundary except traffic signalisation
3.14	Works outside of designated work areas
3.15	Roadworks to Hopkins St except traffic signalisation
3.16	Tram works
3.17	Work out of normal working hours
3.18	Fibre to the home
3.19	Sewer, water, gas and communications to the public realm as advised by Maribyrnong City Council (2 February 2017)
3.20	Authority and Headwork charges as these costs are assumed to be borne by developers and are not apart of the DCP
3.21	CCTV as advised by Maribyrnong City Council (2 February 2017)
3.22	Contamination remediation and removal to ground within the development lots
3.23	Removal of Non-Rippable rock
3.24	Latent Conditions
3.25	Remediation of ground water

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (Detail)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

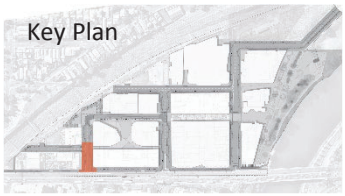
Item	Section	Unit	Qty	Rate	Cost $

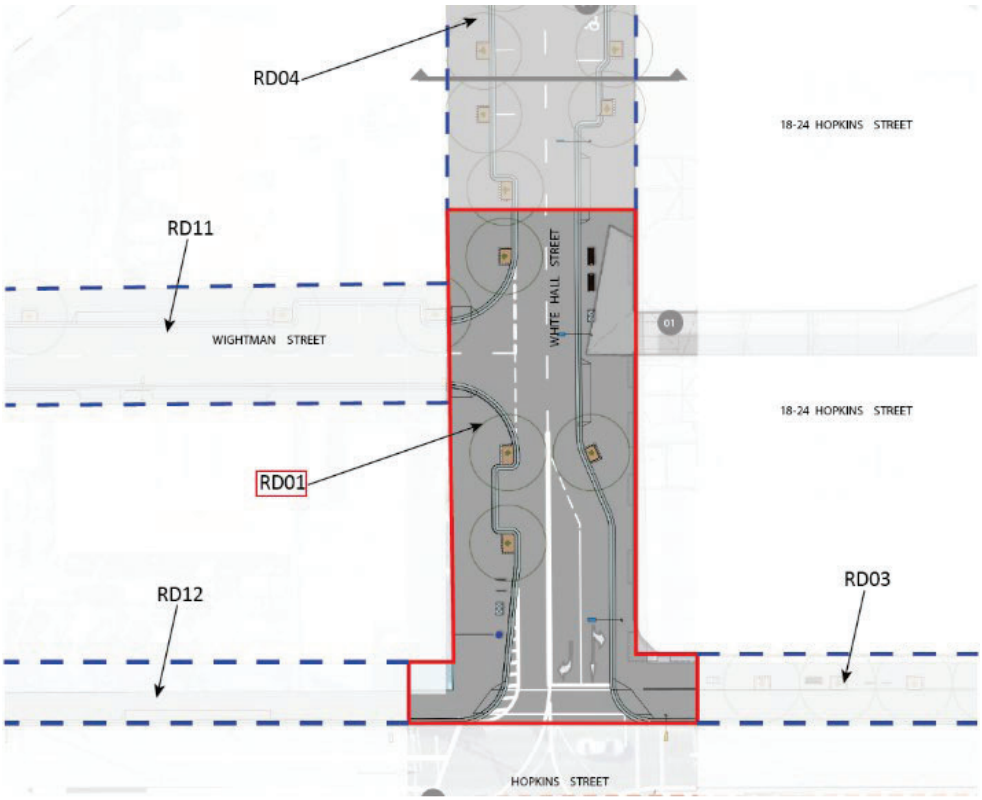
3 Exclusions *(Continued)*

3.26	Cost escalation beyond July 2017
3.27	Retention of existing infrastructure
3.28	GST

PROJECT AREA: RD01

Description: Whitehall Street Public Realm Works
Drawing Ref: Page 12 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 3





ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,090.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	1,090	91.49	99,725
2	Contamination	m3	545	313.00	170,585
3	Groundworks	m3	164	433.33	70,850
4	Roadworks	m2	644	254.10	163,643
5	Pavements	m2	438	115.23	50,470
6	Street Furniture	m2	1,090	19.54	21,300
7	Street lighting (Electrical Measured Separately)	No	2	5,000.00	10,000
8	Traffic Signalisation - Measured separately	N/A			
9	Landscaping	m2	1,090	5.76	6,280
10	Power	m2	1,090	37.30	40,658
11	Stormwater	m2	1,090	36.89	40,215
12	Sewer	m2	1,090		
13	Water	m2	1,090		
14	Gas	m2	1,090		
15	Communications	m2	1,090		
	SUB-TOTAL TRADE WORKS	**m2**	**1,090**	**618.10**	**673,726**
16	Design Development Contingency	%	10.0	673,726.00	67,373
17	Temporary works	%	2	741,098.60	14,822
18	Preliminaries and Supervision	%	8	755,921	60,474
19	Builder's Margin	%	5	816,394	40,820
20	Cost Escalation (FEB - JUL)	%	1	857,214	8,572
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**1,090**	**794.30**	**865,786**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	865,786	129,868
22	Design and Consultant Fees	%	9	995,654	89,609
23	Project Management Fees	%	3	1,085,263	32,776

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,090.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	1,090	1,025.72	1,118,039
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	1,090	1,025.72	1,118,039

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,090.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	1,090	20.00	21,800
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
1.3	Demolition of existing stormwater pipework including redundant pit removal	m	39	75.00	2,925
					99,725
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities and disposal methodology at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of RD01 area @ 0.50m deep is contaminated: 1,090m2 x 100% x 0.50m deep = 545m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	27	1,700	46,325
2.5	Allow Nil% at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	518	240	124,260
					170,585
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of RD01 area @ 0.50m deep is affected: 1,090m2 x 30% x 0.50m deep = 164m3 approx	m3	164	100.00	16,350
3.3	Allowance for engineered fill in lieu of contamination removal	m3	545	100.00	54,500

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,090.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks** *(Continued)*				
					70,850
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 400mm crushed rock sub-base including associated excavation works	m2	644	165.00	106,260
4.2	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	119	350.00	41,650
4.3	Allowance for linemarking to the extent of the works	m2	644	10.00	6,440
4.4	Allowance for traffic signage	Item	1	5,500.00	5,500
4.5	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.6	We have allowed for rippable rock to 10% of road excavation	Note			
4.7	Allowance for trenching in rock	m3	32	120.00	3,793
					163,643
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	438	65.00	28,470
5.2	E/O Vehicle Crossover	No	1	10,000.00	10,000
5.3	E/O Pram/Pedestrian Crossover (assumed sloped into asphalt pavement as per Maribyrnong City Design Manual SF 003)	No	4	3,000.00	12,000
					50,470
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	2	750.00	1,500
6.2	Aluminium framed waste unit - Single (SF 301 & 302)	No	2	2,500.00	5,000
6.3	Aluminium framed recycling unit - Single (SF 301 & 302)	No	2	2,650.00	5,300
6.4	Butt Out Bin fixed to waste units	No	2	450.00	900
6.5	Promenade seating including back rest (SF 201)	No	2	2,100.00	4,200

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,090.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
6	**Street Furniture**				*(Continued)*
6.6	Way finding signage (SF 701)	No	1	2,500.00	2,500
6.7	Traffic Sign - As advised by Maribyrnong City Council	No	2	250.00	500
6.8	Parking Sign - As advised by Maribyrnong City Council	No	7	200.00	1,400
					21,300
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole including luminaries - Power supply measured in Power trade	No	2	5,000.00	10,000
					10,000
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per tree advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	4	450.00	1,800
8.3	Granitic gravel mixture to tree base	m2	8	100.00	800
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	23	160.00	3,680
					6,280
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	LV 1x150 conduit run including trenching and cable installation	m	27	315	8,505
9.4	Allowance for cable joints	No	3	750	2,250
9.5	Pulling of cables undertaken by Authority	EXCL			
	Pits				

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,090.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power** *(Continued)*				
9.6	Allowance for precast pits	Item	1	10,000.00	10,000
	Street Lighting				
9.7	Allowance for luminary fitting to light pole	No	2	1,500.00	3,000
9.8	Allowance work in connecting to street mains	No	2	450.00	900
9.9	LV cabling ran within street light poles (assumed standard 11m height)	No	2	460.00	920
9.10	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	20	350.00	7,000
	Misc				
9.11	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.12	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.13	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.14	We have allowed for rippable rock to 30% of trench excavation	Note			
9.15	Allowance for trenching in rock in assumed 600 wide	m3	5	120.00	583
					40,658
10	**Stormwater**				
	Stormwater				
	Pits				
10.1	New stormwater pits	No	7	4,000.00	28,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Existing				
10.3	300 dia concrete pipe including excavation and backfill - Existing	m	32		
10.4	375 dia concrete pipe including excavation and backfill - Existing	m			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,090.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater**				*(Continued)*
10.5	450 dia concrete pipe including excavation and backfill - Existing	m	26		
10.6	600 dia concrete pipe including excavation and backfill - Existing	m			
10.7	675 dia concrete pipe including excavation and backfill - Existing	m			
10.8	1250 dia concrete pipe including excavation and backfill - Existing	m			
	Proposed				
10.9	300 dia concrete pipe including excavation and backfill	m	28	130.00	3,640
10.10	375 dia concrete pipe including excavation and backfill	m	3	135.00	405
10.11	450 dia concrete pipe including excavation and backfill	m		175.00	
10.12	525 dia concrete pipe including excavation and backfill	m		200.00	
10.13	600 dia concrete pipe including excavation and backfill	m		350.00	
10.14	675 dia concrete pipe including excavation and backfill	m		410.00	
	Misc				
10.15	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.16	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.17	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
10.18	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.19	We have allowed for rippable rock to 30% of trench excavation	Note			
10.20	Allowance for trenching in rock in assumed 600 wide	m3	6	120.00	670
					40,215

11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,090.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $

11 Sewer *(Continued)*

12 Water

	Water Supply	
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note

13 Gas

	Gas	
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note

14 Communications

	Communications	
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note

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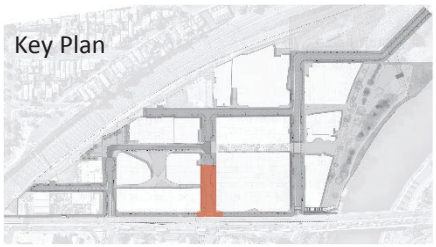
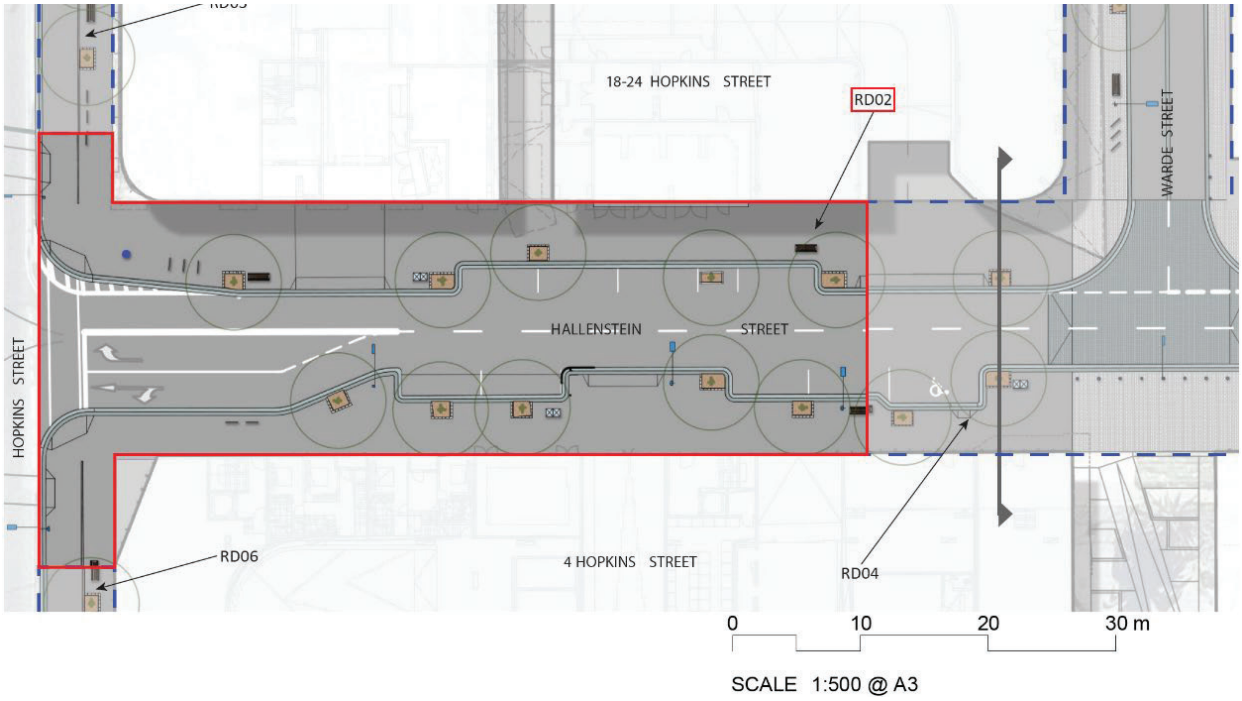
PROJECT AREA: RD02

Description: Hallenstein Street Public Realm Works
Drawing Ref: Page 16 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 3





ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD02)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,512.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	1,512	72.13	109,065
2	Contamination	m3	756	313.00	236,628
3	Groundworks	m3	227	433.33	98,280
4	Roadworks	m2	1,052	253.82	267,018
5	Pavements	m2	710	110.07	78,150
6	Street Furniture	m2	1,512	17.36	26,250
7	Street lighting (Electrical Measured Separately)	No	6	4,166.67	25,000
8	Traffic Signalisation	N/A			
9	Landscaping	m2	1,512	10.78	16,300
10	Power	m2	1,512	73.72	111,470
11	Stormwater	m2	1,512	23.10	34,927
12	Sewer	m2	1,512		
13	Water	m2	1,512		
14	Gas	m2	1,512		
15	Communications	m2	1,512		
	SUB-TOTAL TRADE WORKS	**m2**	**1,512**	**663.42**	**1,003,088**
16	Design Development Contingency	%	10	1,003,087.62	100,309
17	Temporary works	%	2	1,103,396.38	22,068
18	Preliminaries and Supervision	%	8	1,125,464	90,037
19	Builder's Margin	%	5	1,215,501	60,775
20	Cost Escalation (FEB - JUL)	%	1	1,276,277	12,763
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**1,512**	**852.54**	**1,289,039**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	1,289,039	193,356
22	Design and Consultant Fees	%	9	1,482,395	133,416
23	Project Management Fees	%	3	1,615,811	48,692

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD02)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,512.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	1,512	1,100.86	1,664,503
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	1,512	1,100.86	1,664,503

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD02)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,512.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	1,512	20.00	30,240
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
1.3	Demolition of existing stormwater pipework including redundant pit removal	m	51	75.00	3,825
					109,065
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities and disposal methodology at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of RD02 area @ 0.50m deep is contaminated: 1,512m2 x 100% x 0.50m deep = 756m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	38	1,700	64,260
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	718	240	172,368
					236,628
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of RD02 area affected @ 0.50m deep : 1,512m2 x 30% x 0.50m deep = 227m3 approx	m3	227	100.00	22,680
3.3	Allowance for engineered fill in lieu of contamination removal	m3	756	100.00	75,600

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD02)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,512.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks** *(Continued)*				
					98,280
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 480mm crushed rock sub-base including associated excavation works	m2	1,052	180.00	189,360
4.2	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	159	350.00	55,650
4.3	Allowance for linemarking to the extent of the works	m2	1,052	10.00	10,520
4.4	Allowance for traffic signage	Item	1	5,500.00	5,500
4.5	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.6	We have allowed for rippable rock to 10% of road excavation	Note			
4.7	Allowance for trenching in rock	m3	50	120.00	5,988
					267,018
5	**Pavements**				
	Pavement				
5.1	Cobblestone footpaths included under roadworks	Note			
5.2	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	710	65.00	46,150
5.3	E/O Vehicle Crossover	No	2	10,000.00	20,000
5.4	E/O Pram/Pedestrian Crossover (assumed sloped into asphalt pavement as per Maribyrnong City Design Manual SF 003)	No	4	3,000.00	12,000
					78,150
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	5	750.00	3,750
6.2	Aluminium framed waste unit - Single (SF 301 & 302)	No	2	2,500.00	5,000
6.3	Aluminium framed recycling unit - Single (SF 301 & 302)	No	2	2,650.00	5,300
6.4	Butt Out Bin fixed to waste units	No	2	450.00	900

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD02)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,512.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
6	**Street Furniture**				*(Continued)*
6.5	Promenade seating including back rest (SF 201)	No	3	2,100.00	6,300
6.6	Way finding signage (SF 701)	No	1	2,500.00	2,500
6.7	Traffic Sign - As advised by Maribyrnong City Council	No	2	250.00	500
6.8	Parking Sign - As advised by Maribyrnong City Council	No	10	200.00	2,000
					26,250
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole including luminaries - Power supply measured in Power trade	No	5	5,000.00	25,000
					25,000
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	10	450.00	4,500
8.3	Gravel / Sand mixture to tree base	m2	22	100.00	2,200
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	60	160.00	9,600
					16,300
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	LV 1x63 conduit run including trenching and cable installation	m	14	200	2,804
9.4	LV 1x150 conduit run including trenching and cable installation	m	25	315	7,875

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD02)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,512.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power** *(Continued)*				
9.5	HV 4x150 conduit run including trenching and cable installation	m	60	760	45,585
9.6	Allowance for cable joints	No	5	750	3,750
9.7	Pulling of cables undertaken by Authority	EXCL			
	Pits				
9.8	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.9	Allowance for luminary fitting to light pole	No	5	1,500.00	7,500
9.10	Allowance for work in connecting to street mains	No	5	450.00	2,250
9.11	LV cabling ran within street light poles (assumed standard 11m height)	No	5	460.00	2,300
9.12	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	50	350.00	17,500
	Misc				
9.13	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.14	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.15	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.16	We have allowed for rippable rock to 30% of trench excavation	Note			
9.17	Allowance for trenching in rock in assumed 600 wide	m3	37	120.00	4,406
					111,470
10	**Stormwater**				
	Stormwater				
	Pits				
10.1	New stormwater pits	No	4	4,000.00	16,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD02)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,512.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater** *(Continued)*				
	Proposed				
10.3	300 dia concrete pipe including excavation and backfill	m	19	130.00	2,470
10.4	600 dia concrete pipe including excavation and backfill	m	23	350.00	8,050
	Misc				
10.5	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.6	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.7	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
10.8	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.9	We have allowed for rippable rock to 30% of trench excavation	Note			
10.10	Allowance for trenching in rock in assumed 600 wide	m3	8	120.00	907
					34,927
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
13	**Gas**				
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD02)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,512.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $

14 Communications

	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

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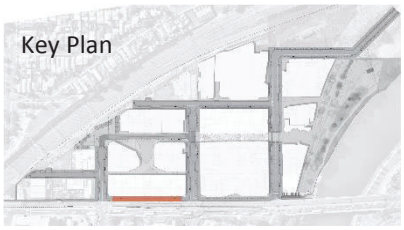
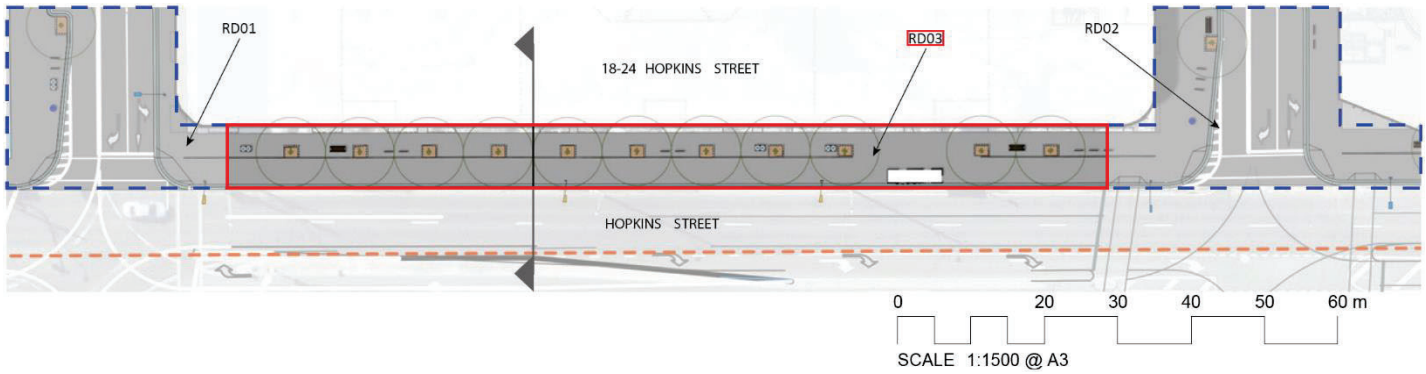
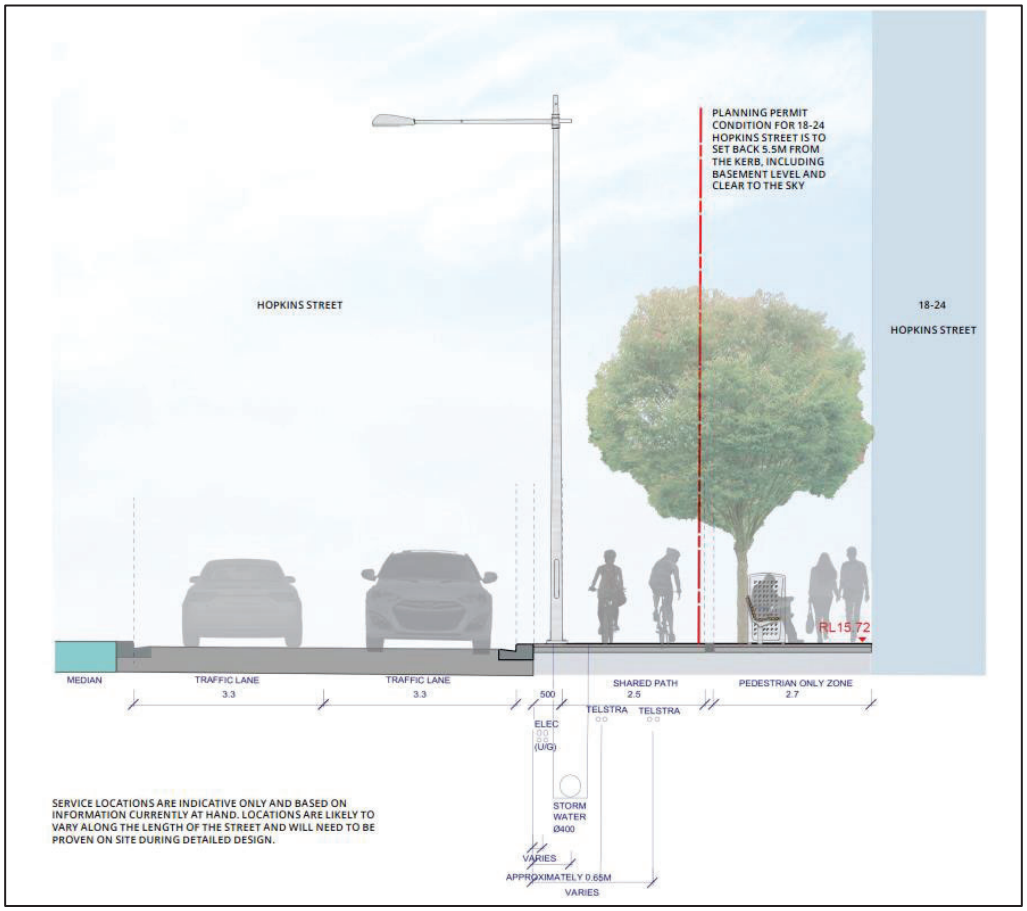
PROJECT AREA: RD03

Description: Hopkins Street Footpath Upgrade Works (Central West)
Drawing Ref: Pages 26 & 28 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 3







ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 693.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	693	128.23	88,860
2	Contamination	m3	347	313.00	108,455
3	Groundworks	m3	104	433.33	45,045
4	Roadworks	m2	693	54.40	37,700
5	Pavements	m2	670	80.31	53,810
6	Street Furniture	m2	693	45.53	31,550
7	Street lighting (Electrical Measured Separately)	m2	693		
8	Traffic Signalisation	N/A			
9	Landscaping	m2	693	25.24	17,490
10	Power	m2	693	87.13	60,381
11	Stormwater	m2	693	10.82	7,500
12	Sewer	m2	693		
13	Water	m2	693		
14	Gas	m2	693		
15	Communications	m2	693		
	SUB-TOTAL TRADE WORKS	**m2**	**693**	**650.49**	**450,790**
16	Design Development Contingency	%	10.0	450,790.10	45,079
17	Temporary works	%	2	495,869.11	9,917
18	Preliminaries and Supervision	%	8	505,786	40,463
19	Builder's Margin	%	5	546,249	27,312
20	Cost Escalation (FEB - JUL)	%	1	573,562	5,736
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**693**	**835.93**	**579,298**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	579,298	86,895
22	Design and Consultant Fees	%	9	666,192	59,957
23	Project Management Fees	%	3	726,149	22,003

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 693.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	693	1,079.58	748,152
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	693	1,079.58	748,152

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 693.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	693	20.00	13,860
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
					88,860
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities and disposal methodology at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assumed RD03 has the same contamination classification as RD01 & RD02	Note			
2.4	Assume 100% of RD03 area @ 0.50m deep is contaminated: 693m2 x 100% x 0.50m deep = 347m3 approx	Note			
2.5	Allow 5% at Cat A [$850/t]	m3	17	1,700	29,453
2.6	Allow Nil at Cat B	m3	Nil		
2.7	Allow 95% at Cat C [$140/t]	m3	329	240	79,002
					108,455
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of public realm area affected @ 0.50m deep : 693m2 x 30% x 0.50m deep = 104m3 approx	m3	104	100.00	10,395
3.3	Allowance for engineered fill in lieu of contamination removal	m3	347	100.00	34,650

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 693.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks** *(Continued)*				
					45,045
4	**Roadworks**				
	Road				
4.1	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	92	350.00	32,200
4.2	Allowance for traffic signage	Item	1	5,500.00	5,500
					37,700
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	670	65.00	43,550
5.2	300 wide sawn bluestone banding within Asphalt including mortar bedding, 32 MPa concrete pad and crushed rock subbase	m	76	135.00	10,260
5.3	The cost of the pavement (5.1 & 5.2) will be externally apportioned through Amendment C145 at 76.6% ($41,219)	Note			
					53,810
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	7	750.00	5,250
6.2	Aluminium framed waste unit - Single (SF 301 & 302)	No	2	2,500.00	5,000
6.3	Aluminium framed recycling unit - Single (SF 301 & 302)	No	2	2,600.00	5,200
6.4	Butt Out Bin fixed to waste unit	No	2	450.00	900
6.5	Promenade seating including back rest (SF 201)	No	2	2,100.00	4,200
6.6	Bus shelter (SF 801)	No	1	10,000.00	10,000
6.7	Parking Sign - As advised by Maribyrnong City Council	No	5	200.00	1,000
					31,550
7	**Street lighting (Electrical Measured Separately)**				
7.1	Street lights shown within RD03 are existing	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 693.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
7	**Street lighting (Electrical Measured Separately)**				*(Continued)*
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	11	450.00	4,950
8.3	Gravel / Sand mixture to tree base	m2	23	100.00	2,300
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	64	160.00	10,240
					17,490
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	LV 1x150 conduit run including trenching and cable installation	m	91	315	28,665
9.4	Allowance for cable joints	No	3	750	2,250
9.5	Pulling of cables undertaken by Authority	EXCL			
	Pits				
9.6	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.7	Allowance to connect existing street lights to newly proposed underground cables	Item	1	10,000.00	10,000
	Misc				
9.8	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.9	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 693.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power** *(Continued)*				
9.10	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.11	We have allowed for rippable rock to 30% of trench excavation	Note			
9.12	Allowance for trenching in rock in assumed 600 wide	m3	16	120.00	1,966
					60,381
10	**Stormwater**				
	Stormwater				
	Pipework				
10.1	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Existing				
10.2	450 dia concrete pipe including excavation and backfill - Existing	m	106		
	Misc				
10.3	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.4	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.5	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
					7,500
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 693.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $

12 Water *(Continued)*

13 Gas

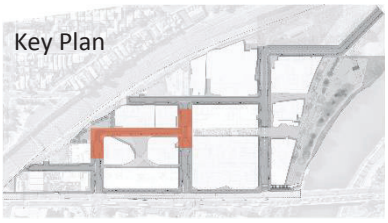
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

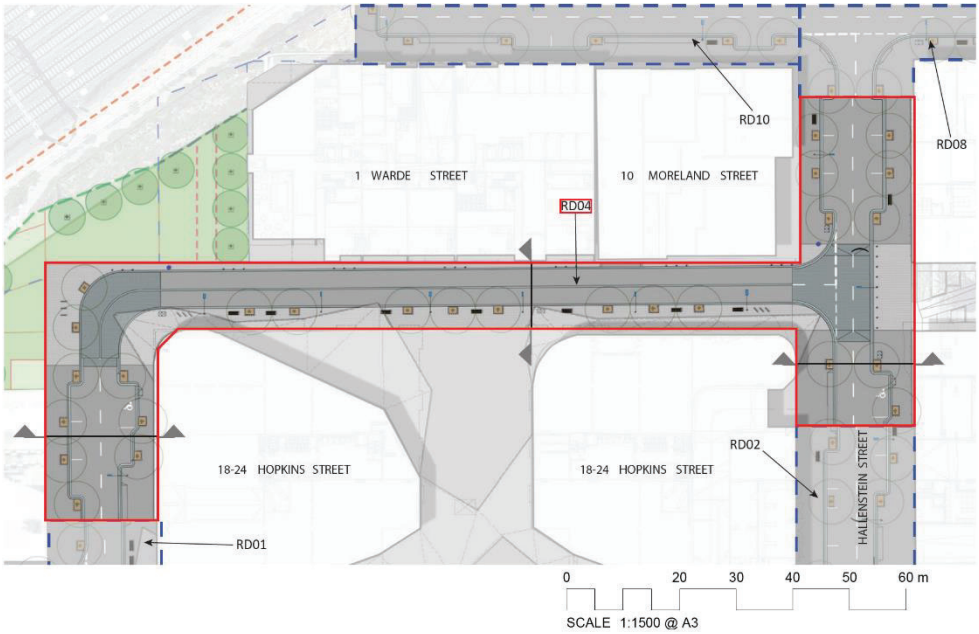
14 Communications

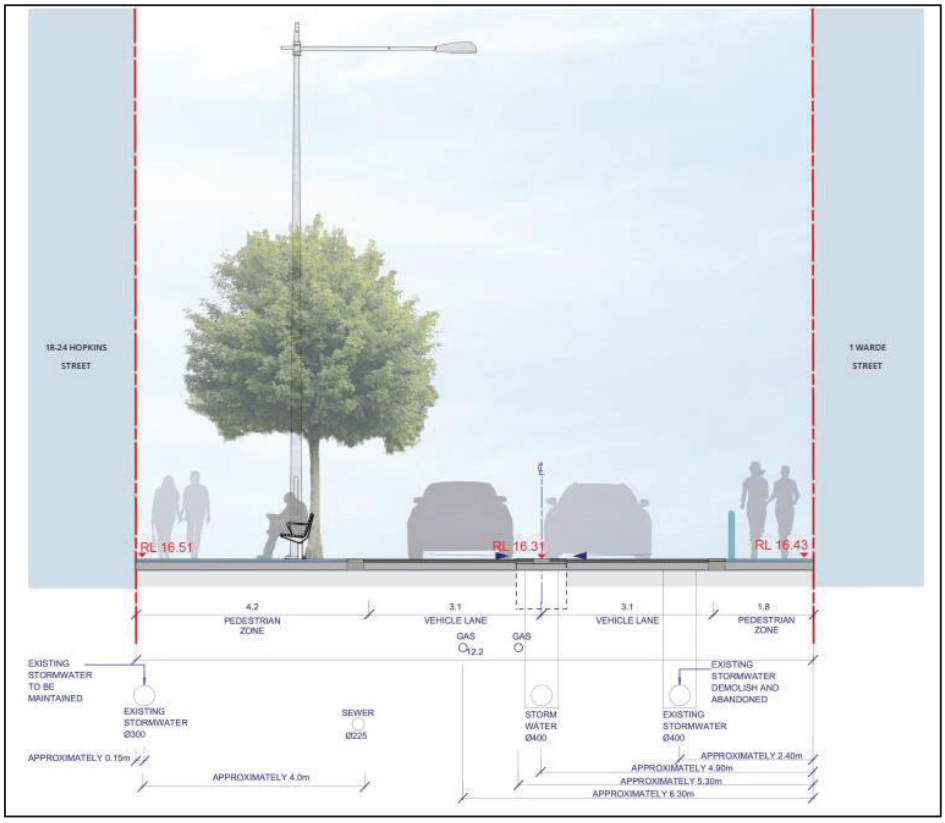
	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

PROJECT AREA: RD04

Description: Warde Street Public Realm Works
Drawing Ref: Pages 12, 14, 15, 16 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 3







ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD04)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,528.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	3,528	43.32	152,835
2	Contamination	m3	1,764	313.00	552,132
3	Groundworks	m3	529	433.33	229,320
4	Roadworks	m2	1,523	273.43	416,434
5	Pavements	m2	1,958	282.22	552,580
6	Street Furniture	m2	3,528	31.60	111,500
7	Street lighting (Electrical Measured Separately)	No	9	5,000.00	45,000
8	Traffic Signalisation	N/A			
9	Landscaping	m2	3,528	11.04	38,960
10	Power	m2	3,528	60.48	213,360
11	Stormwater	m2	3,528	15.75	55,565
12	Sewer	m2	3,528		
13	Water	m2	3,528		
14	Gas	m2	3,528		
15	Communications	m2	3,528		
	SUB-TOTAL TRADE WORKS	**m2**	**3,528**	**671.11**	**2,367,685**
16	Design Development Contingency	%	10.0	2,367,685.49	236,769
17	Temporary works	%	2	2,604,454.04	52,089
18	Preliminaries and Supervision	%	8	2,656,543	212,523
19	Builder's Margin	%	5	2,869,067	143,453
20	Cost Escalation (FEB - JUL)	%	1	3,012,520	30,125
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**3,528**	**862.43**	**3,042,645**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	3,042,645	456,397
22	Design and Consultant Fees	%	9	3,499,042	314,914
23	Project Management Fees	%	3	3,813,956	114,636

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD04)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,528.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	3,528	1,113.55	3,928,592
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	3,528	1,113.55	3,928,592

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD04)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,528.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	3,528	20.00	70,560
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
1.3	Demolition of existing stormwater pipework including redundant pit removal	m	97	75.00	7,275
					152,835
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of RD04 area @ 0.50m deep is contaminated: 3,528m2 x 100% x 0.50m deep = 1,764m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	88	1,700	149,940
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	1,676	240	402,192
					552,132
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of public RD04 affected @ 0.50m deep : 3,528m2 x 30% x 0.50m deep = 529m3 approx	m3	529	100.00	52,920
3.3	Allowance for engineered fill in lieu of contamination removal	m3	1,764	100.00	176,400

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD04)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,528.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks** *(Continued)*				
					229,320
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 360mm crushed rock sub-base including associated excavation works	m2	1,225	160.00	196,000
4.2	Bluestone pavement including subbase (Warde / Hallenstein Street Intersection & Joseph Road)	m2	262	350.00	91,700
4.3	Bluestone cobble pavement including subbase (Bluestone pavement (Warde / Hallenstein Intersection & Joseph Road)	m2	36	400.00	14,400
4.4	300 wide flush bluestone kerb strip including 150 thick concrete footing on 75 thick crushed rock base	m	246	275.00	67,650
4.5	150 wide bluestone spoon drain including 150 thick concrete footing on 75 thick crushed rock base and drainage channel	m	123	155.00	19,065
4.6	Allowance for linemarking to the extent of the works	m2	1,225	10.00	12,250
4.7	Allowance for traffic signage	Item	1	5,500.00	5,500
4.8	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.9	We have allowed for rippable rock to 10% of road excavation	Note			
4.10	Allowance for trenching in rock	m3	82	120.00	9,869
					416,434
5	**Pavements**				
	Pavement				
5.1	Bluestone pavement including subbase (Warde / Hallenstein Street Intersection & Joseph Road)	m2	1,366	350.00	478,100
5.2	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	592	65.00	38,480
5.3	E/O Vehicle Crossover	No	3	10,000.00	30,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD04)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,528.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
5	**Pavements** *(Continued)*				
5.4	E/O Pram/Pedestrian Crossover (assumed sloped into asphalt pavement as per Maribyrnong City Design Manual SF 003)	No	2	3,000.00	6,000
					552,580
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	9	750.00	6,750
6.2	Stainless steel bollards including bollard caps (SF 501)	No	30	1,800.00	54,000
6.3	Aluminium framed waste unit - Single (SF 301 & 302)	No	4	2,500.00	10,000
6.4	Aluminium framed recycling unit - Single (SF 301 & 302)	No	4	2,650.00	10,600
6.5	Butt Out Bin fixed to waste unit	No	4	450.00	1,800
6.6	Promenade seating including back rest (SF 201)	No	9	2,100.00	18,900
6.7	Way finding signage (SF 701)	No	2	2,500.00	5,000
6.8	Traffic Sign - As advised by Maribyrnong City Council	No	1	250.00	250
6.9	Parking Sign - As advised by Maribyrnong City Council	No	21	200.00	4,200
					111,500
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole including luminaries - Power supply measured in Power trade	No	9	5,000.00	45,000
					45,000
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	26	450.00	11,700
8.3	Gravel / Sand mixture to tree base	m2	47	100.00	4,700
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	141	160.00	22,560
					38,960

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD04)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,528.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	LV 1x150 conduit run including trenching and cable installation	m	18	315	5,670
9.4	HV 4x150 conduit run including trenching and cable installation	m	171	760	129,917
9.5	Allowance for cable joints	No	4	750	3,000
9.6	Pulling of cables undertaken by Authority	EXCL			
	Pits				
9.7	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.8	Allowance for luminary fitting to light pole	No	9	1,500.00	13,500
9.9	Allowance for connection to street mains	No	9	450.00	4,050
9.10	LV cabling ran within street light poles (assumed standard 11m height)	No	9	460.00	4,140
9.11	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	90	350.00	31,500
	Misc				
9.12	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.13	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.14	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.15	We have allowed for rippable rock to 30% of trench excavation	Note			
9.16	Allowance for trenching in rock in assumed 600 wide	m3	34	120.00	4,082
					213,360

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD04)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,528.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater**				
	Stormwater				
	Pits				
10.1	New stormwater pits	No	9	4,000.00	36,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Existing				
10.3	300 dia concrete pipe including excavation and backfill - Existing	m	113		
	Proposed				
10.4	300 dia concrete pipe including excavation and backfill	m	30	130.00	3,900
10.5	375 dia concrete pipe including excavation and backfill	m	48	135.00	6,480
	Misc				
10.6	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.7	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.8	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
10.9	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.10	We have allowed for rippable rock to 30% of trench excavation	Note			
10.11	Allowance for trenching in rock in assumed 600 wide	m3	14	120.00	1,685
					55,565
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD04)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,528.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
13	**Gas**				
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
14	**Communications**				
	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

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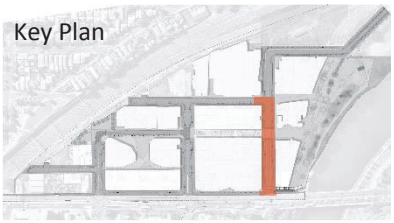
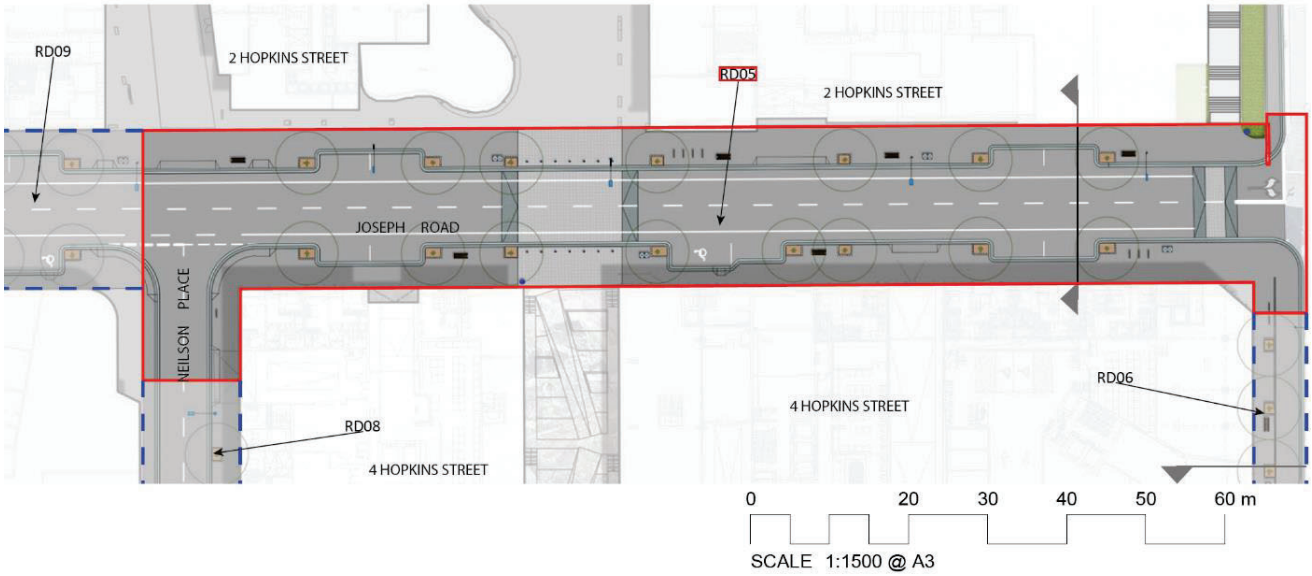
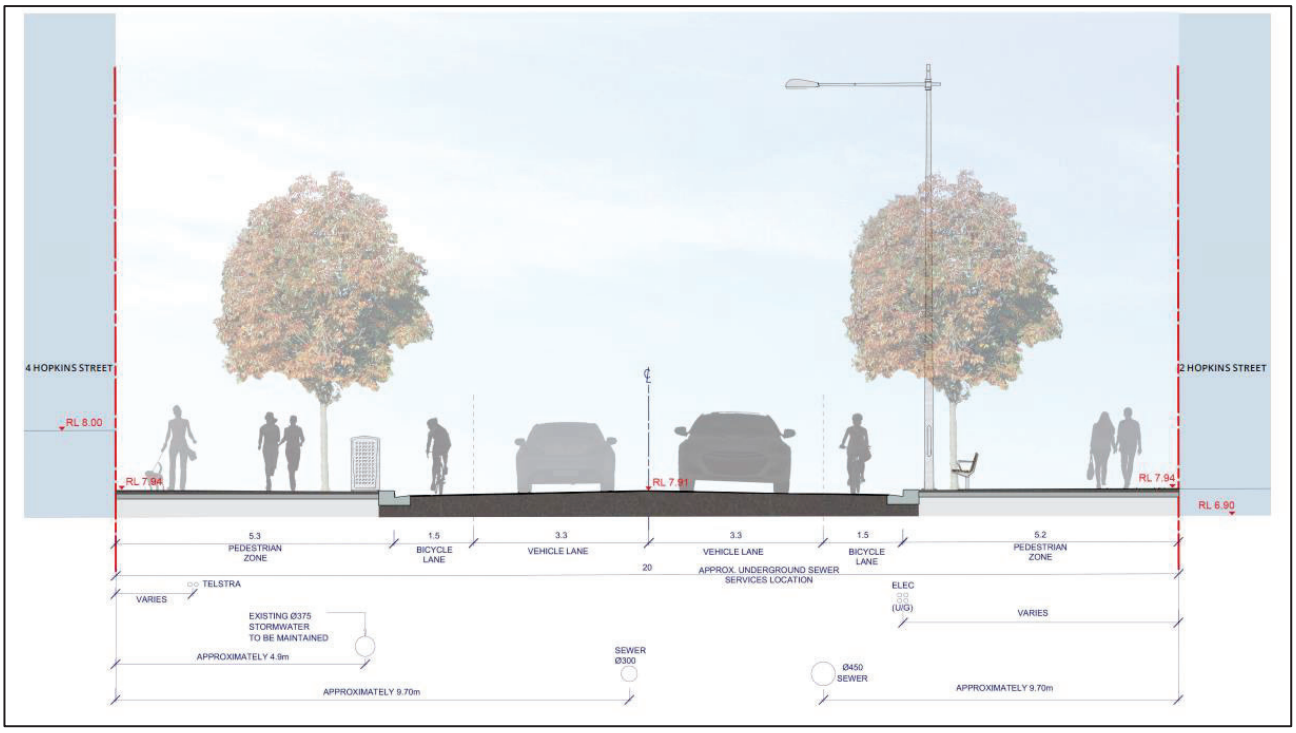
PROJECT AREA: RD05

Description: South Joseph Road Public Realm Works
Drawing Ref: Pages 20 & 22 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 3







ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD05)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,122.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	3,122	46.89	146,390
2	Contamination	m3	1,561	313.00	488,593
3	Groundworks	m3	468	433.33	202,930
4	Roadworks	m2	2,092	264.70	553,744
5	Pavements	m2	1,001	164.32	164,485
6	Street Furniture	m2	3,122	25.21	78,700
7	Street lighting (Electrical Measured Separately)	No	4	5,000.00	20,000
8	Traffic Signalisation	N/A			
9	Landscaping	m2	3,122	7.40	23,090
10	Power	m2	3,122	55.79	174,191
11	Stormwater	m2	3,122	24.69	77,078
12	Sewer	m2	3,122		
13	Water	m2	3,122		
14	Gas	m2	3,122		
15	Communications	m2	3,122		
	SUB-TOTAL TRADE WORKS	**m2**	**3,122**	**617.94**	**1,929,201**
16	Design Development Contingency	%	10.0	1,929,200.60	192,920
17	Temporary works	%	2	2,122,120.66	42,442
18	Preliminaries and Supervision	%	8	2,164,563	173,165
19	Builder's Margin	%	5	2,337,728	116,886
20	Cost Escalation (FEB - JUL)	%	1	2,454,615	24,546
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**3,122**	**794.09**	**2,479,161**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	2,479,161	371,874
22	Design and Consultant Fees	%	9	2,851,035	256,593
23	Project Management Fees	%	3	3,107,628	93,447

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD05)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,122.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	3,122	1,025.33	3,201,075
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	3,122	1,025.33	3,201,075

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD05)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,122.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	3,122	20.00	62,440
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
1.3	Demolition of existing stormwater pipework including redundant pit removal	m	86	75.00	6,450
1.4	Demolition of existing concrete pillar	Item	1	2,500	2,500
					146,390
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017				
2.3	Assume 100% of RD05 area @ 0.50m deep is contaminated: 3,122m2 x 100% x 0.50m deep = 1,561m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	78	1,700	132,685
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	1,483	240	355,908
					488,593
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of public RD05 affected @ 0.50m deep : 3,122m2 x 30% x 0.50m deep = 468m3 approx	m3	468	100.00	46,830

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD05)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,122.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks**				*(Continued)*
3.3	Allowance for engineered fill in lieu of contamination removal	m3	1,561	100.00	156,100
					202,930
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 480mm crushed rock sub-base including associated excavation works	m2	1,919	180.00	345,420
4.2	Bluestone pavement (Warde / Hallenstein Street Intersection & Joseph Road)	m2	119	350.00	41,650
4.3	Bluestone cobble pavement (Bluestone pavement (Warde / Hallenstein Street Intersection & Joseph Road)	m2	54	400.00	21,600
4.4	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	297	350.00	103,950
4.5	Allowance for linemarking to the extent of the works	m2	1,919	10.00	19,190
4.6	Allowance for traffic signage	Item	1	5,500.00	5,500
4.7	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.8	We have allowed for rippable rock to 10% of road excavation	Note			
4.9	Allowance for trenching in rock	m3	137	120.00	16,434
					553,744
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	891	65.00	57,915
5.2	Bluestone pavement (Warde / Hallenstein Street Intersection & Joseph Road)	m2	110	350.00	38,500
5.3	300 wide sawn bluestone banding within Asphalt including mortar bedding, 32 MPa concrete pad and crushed rock subbase	m	82	135.00	11,070
5.4	E/O Vehicle Crossover	No	4	10,000.00	40,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD05)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,122.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
5	**Pavements** *(Continued)*				
5.5	E/O Pram/Pedestrian Crossover (assumed sloped into asphalt pavement as per Maribyrnong City Design Manual SF 003)	No	4	3,000.00	12,000
5.6	E/O Pram/Pedestrian Crossover - Extended	No	1	5,000.00	5,000
					164,485
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	9	750.00	6,750
6.2	Stainless steel bollards including bollard caps (SF 501)	No	14	1,800.00	25,200
6.3	Aluminium framed waste unit - Single (SF 301 & 302)	No	4	2,500.00	10,000
6.4	Aluminium framed recycling unit - Single (SF 301 & 302)	No	4	2,650.00	10,600
6.5	Butt Out Bin fixed to waste unit	No	4	450.00	1,800
6.6	Promenade seating including back rest (SF 201)	No	6	2,100.00	12,600
6.7	Way finding signage (SF 701)	No	2	2,500.00	5,000
6.8	Traffic Sign - As advised by Maribyrnong City Council	No	7	250.00	1,750
6.9	Parking Sign - As advised by Maribyrnong City Council	No	25	200.00	5,000
					78,700
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole - Power supply measured elsewhere	No	4	5,000.00	20,000
					20,000
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	15	450.00	6,750
8.3	Gravel / Sand mixture to tree base	m2	29	100.00	2,900
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	84	160.00	13,440
					23,090

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD05)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,122.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	HV Power Conduits including associated trenching	m	191	675.00	128,925
9.4	Pulling of cables undertaken by Authority	EXCL			
	Pits				
9.5	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.6	Allowance for luminary fitting to light pole	No	4	1,500.00	6,000
9.7	Allowance for connection to street mains	No	4	450.00	1,800
9.8	LV cabling ran within street light poles (assumed standard 11m height)	No	4	460.00	1,840
9.9	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	40	350.00	14,000
	Misc				
9.10	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.11	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.12	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.13	We have allowed for rippable rock to 30% of trench excavation	Note			
9.14	Allowance for trenching in rock in assumed 600 wide	m3	34	120.00	4,126
					174,191
10	**Stormwater**				
	Stormwater				
	Pits				

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD05)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,122.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater** *(Continued)*				
10.1	New stormwater pits	No	12	4,000.00	48,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Existing				
10.3	375 dia concrete pipe including excavation and backfill - Existing	m	73		
	Proposed				
10.4	300 dia concrete pipe including excavation and backfill	m	28	130.00	3,640
10.5	375 dia concrete pipe including excavation and backfill	m	20	135.00	2,700
10.6	600 dia concrete pipe including excavation and backfill	m	35	350.00	12,250
	Misc				
10.7	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.8	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.9	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
10.10	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.11	We have allowed for rippable rock to 30% of trench excavation	Note			
10.12	Allowance for trenching in rock in assumed 1000 wide	m3	25	120.00	2,988
					77,078

Item	Section	Unit	Qty	Rate	Cost $
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD05)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,122.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
13	**Gas**				
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
14	**Communications**				
	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

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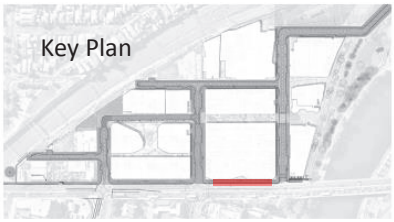
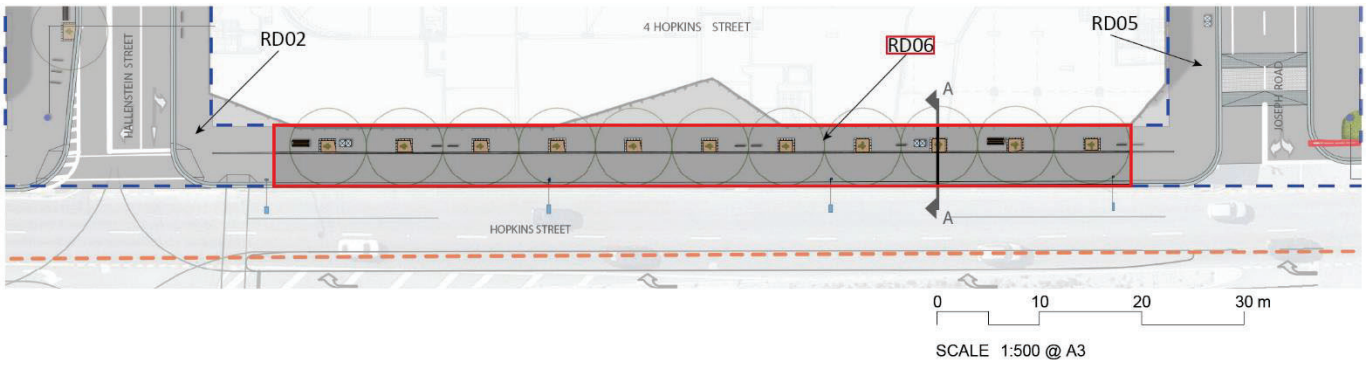
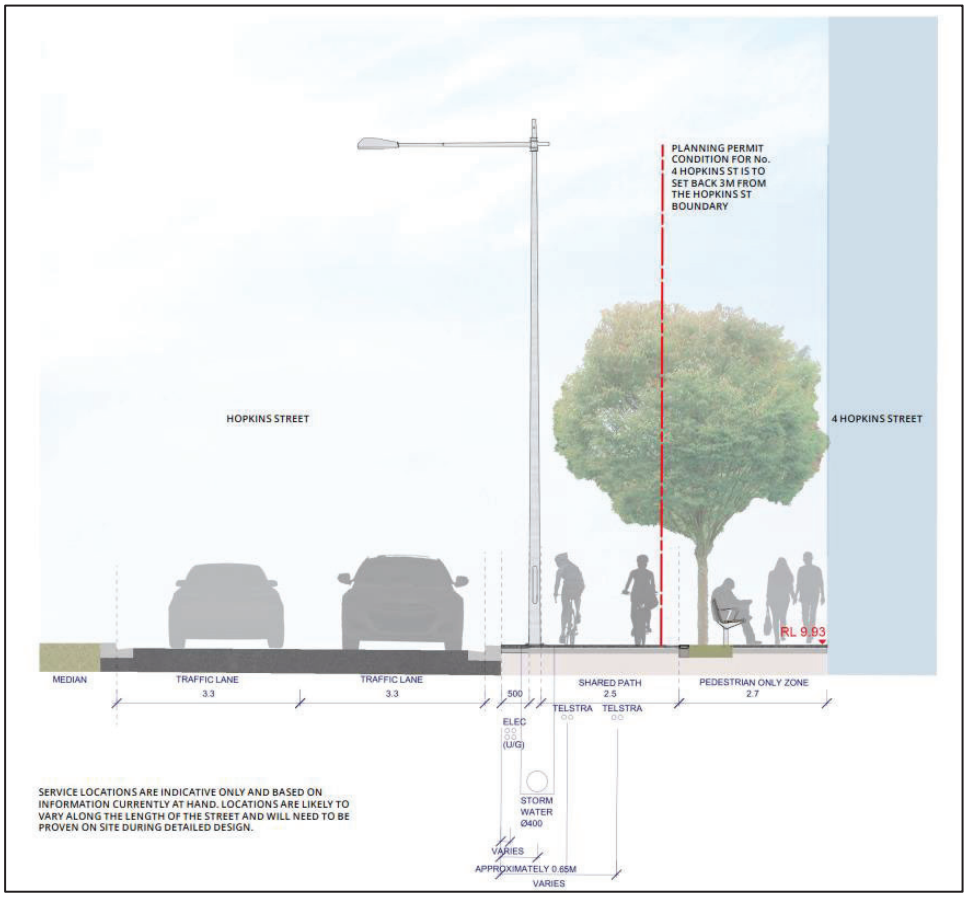
PROJECT AREA: RD06

Description: Hopkins Street Footpath Upgrade Works (Central East)
Drawing Ref: Pages 26-27 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 3







ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD06)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 580.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	580	149.31	86,600
2	Contamination	m3	290	313.00	90,770
3	Groundworks	m3	87	433.33	37,700
4	Roadworks	m2	580	58.97	34,200
5	Pavements	m2	651	73.02	47,535
6	Street Furniture	m2	580	35.43	20,550
7	Street lighting (Electrical Measured Separately)	No	4	3,750.00	15,000
8	Traffic Signalisation	N/A			
9	Landscaping	m2	580	27.81	16,130
10	Power	m2	580	103.37	59,955
11	Stormwater	m2	580	19.83	11,500
12	Sewer	m2	580		
13	Water	m2	580		
14	Gas	m2	580		
15	Communications	m2	580		
	SUB-TOTAL TRADE WORKS	**m2**	**580**	**724.04**	**419,940**
16	Design Development Contingency	%	10.0	419,940.40	41,994
17	Temporary works	%	2	461,934.44	9,239
18	Preliminaries and Supervision	%	8	471,173	37,694
19	Builder's Margin	%	5	508,867	25,443
20	Cost Escalation (FEB - JUL)	%	1	534,310	5,343
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**580**	**930.44**	**539,653**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	539,653	80,948
22	Design and Consultant Fees	%	9	620,601	55,854
23	Project Management Fees	%	3	676,456	20,511

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD06)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 580.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	580	1,201.67	696,967
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	580	1,201.67	696,967

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD06)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 580.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	580	20.00	11,600
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
					86,600
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of RD06 area @ 0.50m deep is contaminated: 580m2 x 100% x 0.50m deep = 290m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	15	1,700	24,650
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	276	240	66,120
					90,770
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of RD06 area affected @ 0.50m deep : 580m2 x 30% x 0.50m deep = 87m3 approx	m3	87	100.00	8,700
3.3	Allowance for engineered fill in lieu of contamination removal	m3	290	100.00	29,000
					37,700

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD06)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 580.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
4	**Roadworks**				
	Road				
4.1	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	82	350.00	28,700
4.2	Allowance for traffic signage	Item	1	5,500.00	5,500
					34,200
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	561	65.00	36,465
5.2	300 wide sawn bluestone banding within Asphalt including mortar bedding, 32 MPa concrete pad and crushed rock subbase	m	82	135.00	11,070
5.3	The cost of the pavement (5.1 & 5.2) will be externally apportioned through Amendment C145 at 76.6% ($36,412)	Note			
					47,535
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	6	750.00	4,500
6.2	Aluminium framed waste unit - Single (SF 301 & 302)	No	2	2,500.00	5,000
6.3	Aluminium framed recycling unit - Single (SF 301 & 302)	No	2	2,650.00	5,300
6.4	Butt Out Bin fixed to waste unit	No	2	450.00	900
6.5	Promenade seating including back rest (SF 201)	No	2	2,100.00	4,200
6.6	Traffic Sign - As advised by Maribyrnong City Council	No	1	250.00	250
6.7	Parking Sign - As advised by Maribyrnong City Council	No	2	200.00	400
					20,550
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole - Power supply measured elsewhere	No	3	5,000.00	15,000
					15,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD06)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 580.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	11	450.00	4,950
8.3	Gravel / Sand mixture to tree base	m2	19	100.00	1,900
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	58	160.00	9,280
					16,130
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	LV 1x150 conduit run including trenching and cable installation	m	69	315	21,735
9.4	Allowance for cable joints	No	2	750	1,500
9.5	Pulling of cables undertaken by Authority	EXCL			
	Pits				
9.6	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.7	Allowance for luminary fitting to light pole	No	3	1,500.00	4,500
9.8	Allowance for connection to street mains	No	3	450.00	1,350
9.9	LV cabling ran within street light poles (assumed standard 11m height)	No	3	460.00	1,380
9.10	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	30	350.00	10,500
	Misc				
9.11	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD06)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 580.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power** *(Continued)*				
9.12	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.13	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.14	We have allowed for rippable rock to 30% of trench excavation	Note			
9.15	Allowance for trenching in rock in assumed 600 wide	m3	12	120.00	1,490
					59,955
10	**Stormwater**				
	Stormwater				
	Pits				
10.1	New stormwater pits	No	1	4,000.00	4,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Existing				
10.3	600 dia concrete pipe including excavation and backfill - Existing	m	114		
	Misc				
10.4	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.5	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.6	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
10.7	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.8	We have allowed for rippable rock to 30% of trench excavation	Note			
					11,500

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD06)

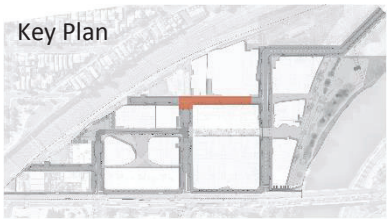
Job No: 16291
Cost Base Date: July 2017
GFA (m2): 580.00

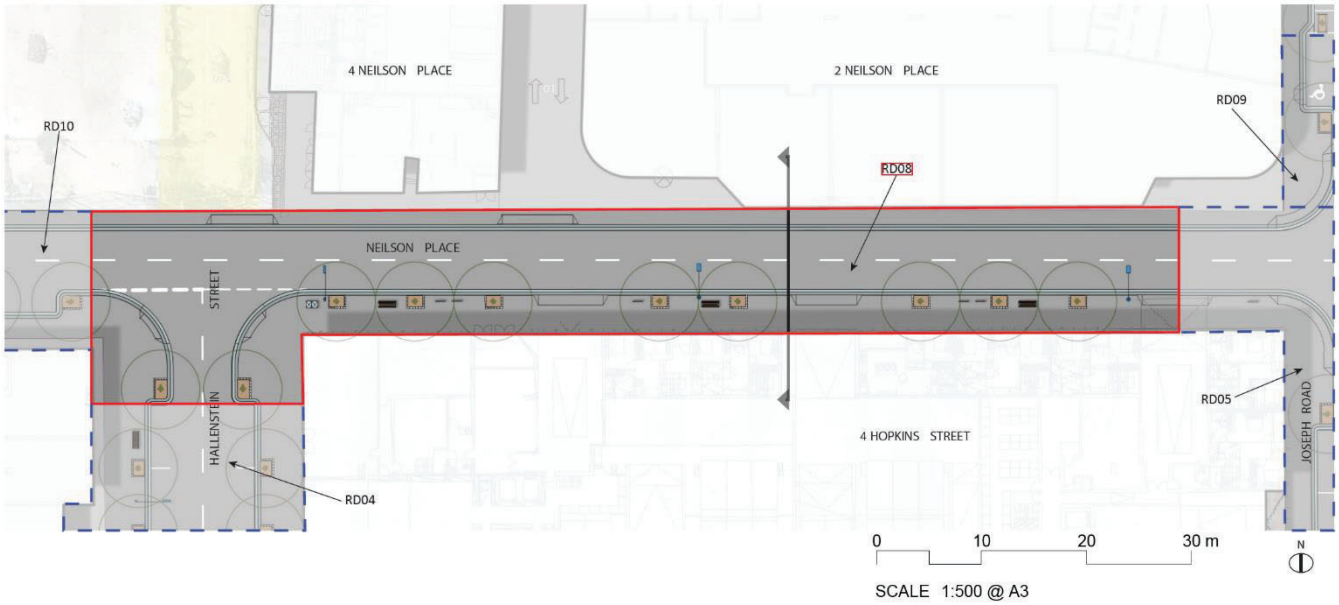
Date Printed: 17/06/2019

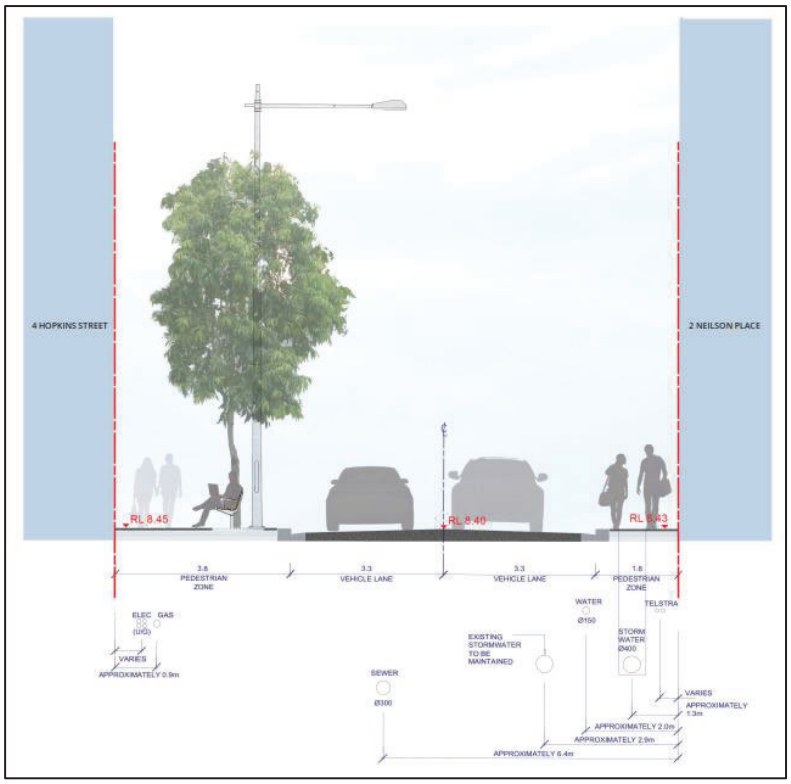
Item	Section	Unit	Qty	Rate	Cost $
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
13	**Gas**				
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
14	**Communications**				
	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

PROJECT AREA: RD08

Description: East Neilson Place Public Realm Works
Drawing Ref: Pages 18-19 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 2 July 2017
Revision: 3







ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD08)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,605.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	1,605	73.22	117,525
2	Contamination	m3	803	1,512.29	1,213,609
3	Groundworks	m3	241	433.33	104,325
4	Roadworks	m2	1,064	391.41	416,465
5	Pavements	m2	522	172.28	89,930
6	Street Furniture	m2	1,605	11.28	18,100
7	Street lighting (Electrical Measured Separately)	No	3	5,000.00	15,000
8	Traffic Signalisation	N/A			
9	Landscaping	m2	1,605	9.47	15,200
10	Power	m2	1,605	88.36	141,810
11	Stormwater	m2	1,605	41.42	66,476
12	Sewer	m2	1,605		
13	Water	m2	1,605		
14	Gas	m2	1,605		
15	Communications	m2	1,605		
	SUB-TOTAL TRADE WORKS	**m2**	**1,605**	**1,369.74**	**2,198,440**
16	Design Development Contingency	%	10.0	2,198,439.96	219,844
17	Temporary works	%	2	2,418,283.96	48,366
18	Preliminaries and Supervision	%	8	2,466,650	197,332
19	Builder's Margin	%	5	2,663,982	133,199
20	Cost Escalation (FEB - JUL)	%	1	2,797,181	27,972
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**1,605**	**1,760.22**	**2,825,152**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	2,825,152	423,773
22	Design and Consultant Fees	%	9	3,248,925	292,403
23	Project Management Fees	%	3	3,541,329	106,458

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD08)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,605.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	1,605	2,272.76	3,647,787
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	1,605	2,272.76	3,647,787

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD08)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,605.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	1,605	20.00	32,100
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
1.3	Demolition of existing stormwater pipework including redundant pit removal	m	139	75.00	10,425
					117,525
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	The below quantities have been based of the information provided within LR Pardo & Associates Technical Report 1710011 Joseph Rd/1	Note			
2.4	Assume 100% of RD08 area @ 0.50m deep is contaminated: 1,605m2 x 100% x 0.50m deep = 803m3 approx	Note			
2.5	Allow 66% at Cat A including asbestos removal [$925/t]	m3	538	1,850	995,624
2.6	Allow Nil at Cat B	m3	Nil		
2.7	Allow 33% at Cat C including asbestos removal [$185/t]	m3	265	370	97,985
2.8	Allowance for additional preliminaries in regards to asbestos removal (approx $3,000 per day)	Item	1	120,000.00	120,000
					1,213,609

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD08)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,605.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of RD08 area affected @ 0.50m deep : 1,617m2 x 30% x 0.50m deep = 243m3 approx	m3	241	100.00	24,075
3.3	Allowance for engineered fill in lieu of contamination removal	m3	803	100.00	80,250
					104,325
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 480mm crushed rock sub-base including associated excavation works	m2	1,064	180.00	191,520
4.2	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	215	350.00	75,250
4.3	Allowance for linemarking to the extent of the works	m2	1,064	10.00	10,640
4.4	Allowance for traffic signage	Item	1	5,500.00	5,500
4.5	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.6	We have allowed for rippable rock to 10% of road excavation	Note			
4.7	Allowance for trenching in rock	m3	53	120.00	6,360
4.8	E/O for removal of asbestos during excavation [$120/t]	m3	530	240.00	127,195
					416,465
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	522	65.00	33,930
5.2	E/O Vehicle Crossover	No	5	10,000.00	50,000
5.3	E/O Pram/Pedestrian Crossover (assumed sloped into asphalt pavement as per Maribyrnong City Design Manual SF 003)	No	2	3,000.00	6,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD08)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,605.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
5	**Pavements**				*(Continued)*
					89,930
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	5	750.00	3,750
6.2	Aluminium framed waste unit - Single (SF 301 & 302)	No	1	2,500.00	2,500
6.3	Aluminium framed recycling unit - Single (SF 301 & 302)	No	1	2,650.00	2,650
6.4	Butt Out Bin fixed to waste unit	No	1	450.00	450
6.5	Promenade seating including back rest (SF 201)	No	3	2,100.00	6,300
6.6	Traffic Sign - As advised by Maribyrnong City Council	No	1	250	250
6.7	Parking Sign - As advised by Maribyrnong City Council	No	11	200.00	2,200
					18,100
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole - Power supply measured elsewhere	No	3	5,000.00	15,000
					15,000
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	10	450.00	4,500
8.3	Gravel / Sand mixture to tree base	m2	19	100.00	1,900
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	55	160.00	8,800
					15,200
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD08)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,605.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power** *(Continued)*				
	Underground Power Distribution				
9.3	HV Power Conduits including associated trenching	m	153	675.00	103,275
9.4	Pulling of cables undertaken by Authority	EXCL			
	Pits				
9.5	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.6	Allowance for luminary fitting to light pole	No	3	1,500.00	4,500
9.7	Allowance for connection to street mains	No	3	450.00	1,350
9.8	LV cabling ran within street light poles (assumed standard 11m height)	No	3	460.00	1,380
9.9	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	30	350.00	10,500
	Misc				
9.10	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.11	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.12	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.13	We have allowed for rippable rock to 30% of trench excavation	Note			
9.14	Allowance for trenching in rock in assumed 600 wide	m3	28	120.00	3,305
					141,810
10	**Stormwater**				
	Stormwater				
	Pits				
10.1	New stormwater pits	No	8	4,000.00	32,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD08)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,605.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater** *(Continued)*				
	Proposed				
10.3	300 dia concrete pipe including excavation and backfill	m	9	130.00	1,170
10.4	375 dia concrete pipe including excavation and backfill	m	13	135.00	1,755
10.5	450 dia concrete pipe including excavation and backfill	m	32	175.00	5,600
10.6	525 dia concrete pipe including excavation and backfill	m	78	200.00	15,600
10.7	600 dia concrete pipe including excavation and backfill	m		350.00	
	Misc				
10.8	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.9	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.10	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
10.11	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.12	We have allowed for rippable rock to 30% of trench excavation	Note			
10.13	Allowance for trenching in rock in assumed 600 wide	m3	24	120.00	2,851
					66,476
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD08)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,605.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $

13 Gas

	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

14 Communications

	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

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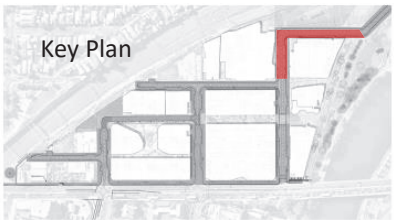
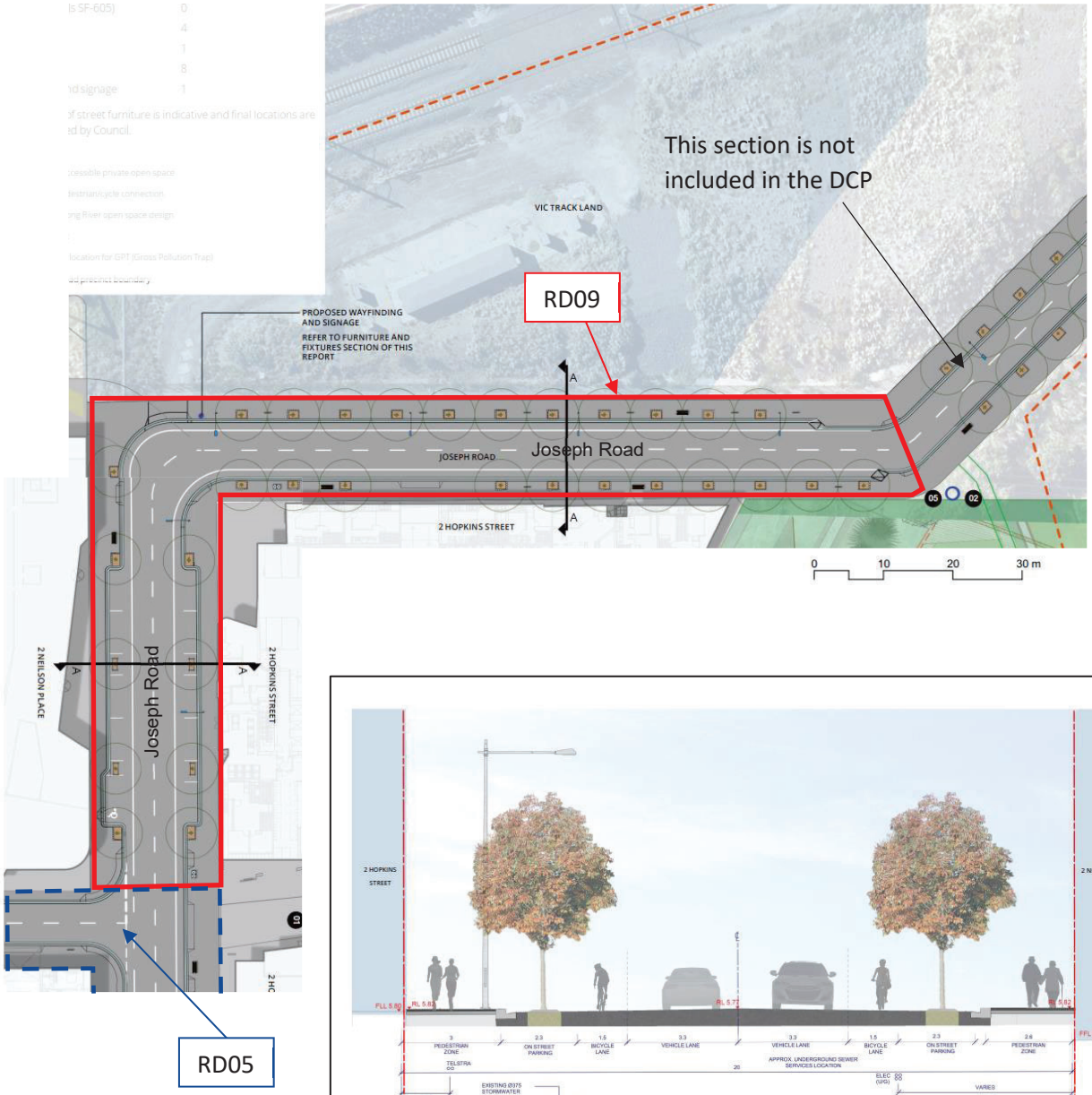
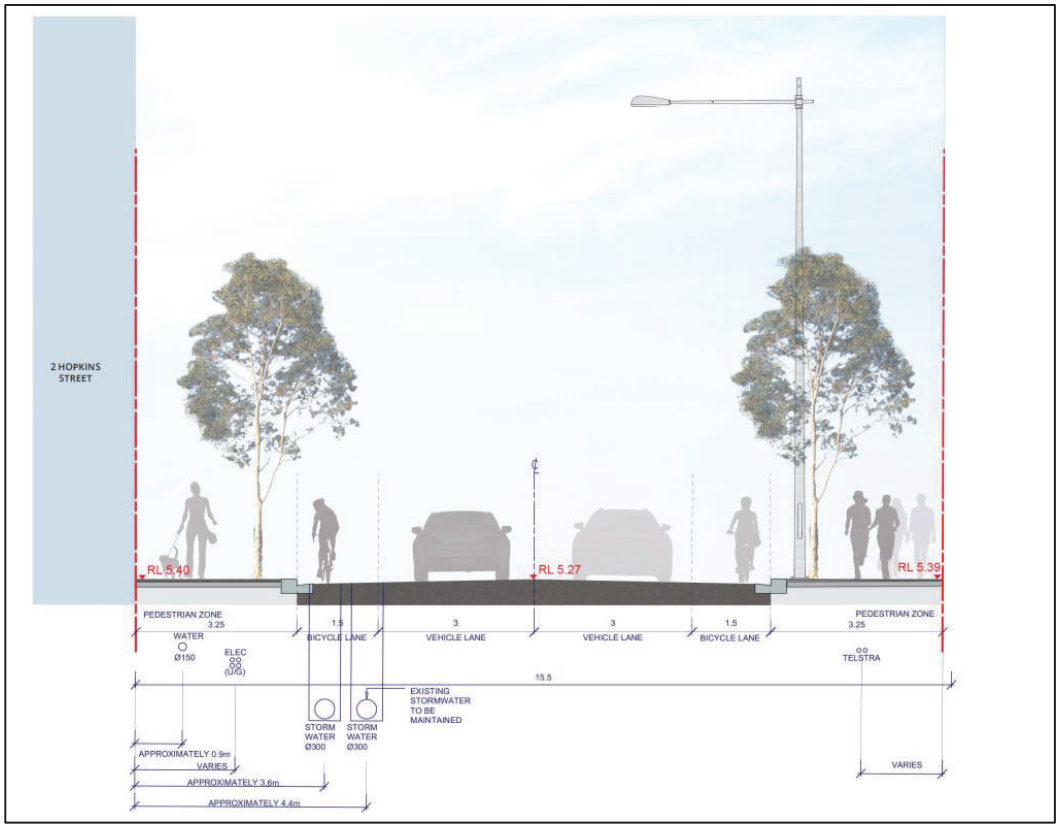
PROJECT AREA: RD09

Description: North Joseph Road Public Realm Works
Drawing Ref: Pages 20-21, 23-25 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 February 2017
Revision: 3





Typical section across Joseph Road, from page 21 of the Joseph Road Public Realm Plan



Section AA across North Joseph Road, from page 24 of the Joseph Road Public Realm Plan

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD09)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,174.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	3,174	48.80	154,912
2	Contamination	m3	1,587	313.00	496,789
3	Groundworks	m3	476	433.33	206,335
4	Roadworks	m2	2,141	240.76	515,476
5	Pavements	m2	975	115.26	112,375
6	Street Furniture	m2	3,174	10.43	33,100
7	Street lighting (Electrical Measured Separately)	No	7	5,000.00	35,000
8	Traffic Signalisation	N/A			
9	Landscaping	m2	3,174	14.56	46,230
10	Power	m2	3,174	67.70	214,908
11	Stormwater	m2	3,174	43.58	138,328
12	Sewer	m2	3,174		
13	Water	m2	3,174		
14	Gas	m2	3,174		
15	Communications	m2	3,174		
	SUB-TOTAL TRADE WORKS	**m2**	**3,174**	**615.38**	**1,953,454**
16	Design Development Contingency	%	10.0	1,953,453.62	195,345
17	Temporary works	%	2	2,148,798.98	42,976
18	Preliminaries and Supervision	%	8	2,191,775	175,342
19	Builder's Margin	%	5	2,367,117	118,356
20	Cost Escalation (FEB - JUL)	%	1	2,485,473	24,855
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**3,174**	**790.81**	**2,510,328**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	2,510,328	376,549
22	Design and Consultant Fees	%	9	2,886,877	259,819
23	Project Management Fees	%	3	3,146,696	101,158

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD09)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,174.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	3,174	1,023.15	3,247,853
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	3,174	1,023.15	3,247,853

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD09)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,174.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	3,174	20.00	63,487
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
1.3	Demolition of existing stormwater pipework including redundant pit removal	m	219	75.00	16,425
					154,912
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of RD09 area @ 0.50m deep is contaminated: 3,174m2 x 100% x 0.50m deep = 1,587m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	79	1,700	134,911
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	1,508	240	361,878
					496,789
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of RD09 area affected @ 0.50m deep : 3,174m2 x 30% x 0.50m deep = 476m3 approx	m3	476	100.00	47,616
3.3	Allowance for engineered fill in lieu of contamination removal	m3	1,587	100.00	158,719

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD09)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,174.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks** *(Continued)*				
					206,335
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 400mm crushed rock sub-base including associated excavation works	m2	2,141	165.00	353,265
4.2	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	344	350.00	120,400
4.3	Allowance for linemarking to the extent of the works	m2	2,141	10.00	21,410
4.4	Allowance for traffic signage	Item	1	5,500.00	5,500
4.5	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.6	We have allowed for rippable rock to 10% of road excavation	Note			
4.7	Allowance for trenching in rock	m3	124	120.00	14,901
					515,476
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	975	65.00	63,375
5.2	E/O Vehicle Crossover	No	2	10,000.00	20,000
5.3	E/O Pram/Pedestrian Crossover (assumed sloped into asphalt pavement as per Maribyrnong City Design Manual SF 003)	No	8	3,000.00	24,000
5.4	E/O Pram/Pedestrian Crossover - Extended	No	1	5,000.00	5,000
					112,375
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	8	750.00	6,000
6.2	Aluminium framed waste unit - Single (SF 301 & 302)	No	2	2,500.00	5,000
6.3	Aluminium framed recycling unit - Single (SF 301 & 302)	No	2	2,650.00	5,300
6.4	Butt Out Bin fixed to waste unit	No	2	450.00	900

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD09)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,174.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
6	**Street Furniture**				*(Continued)*
6.5	Promenade seating including back rest (SF 201)	No	4	2,100.00	8,400
6.6	Way finding signage (SF 701)	No	1	2,500.00	2,500
6.7	Traffic Sign - As advised by Maribyrnong City Council	No	8	250.00	2,000
6.8	Parking Sign - As advised by Maribyrnong City Council	No	15	200.00	3,000
					33,100
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole - Power supply measured elsewhere	No	7	5,000.00	35,000
					35,000
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	31	450.00	13,950
8.3	Gravel / Sand mixture to tree base	m2	59	100.00	5,900
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	153	160.00	24,480
8.5	135 wide 300 deep concrete surround to tree base within road including concrete colouring	m	20	95.00	1,900
					46,230
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	HV Power Conduits including associated trenching	m	224	675.00	151,200
9.4	Pulling of cables undertaken by Authority	EXCL			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD09)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,174.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power** *(Continued)*				
	Pits				
9.5	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.6	Allowance for luminary fitting to light pole	No	7	1,500.00	10,500
9.7	Allowance for connection to street mains	No	7	450.00	3,150
9.8	LV cabling ran within street light poles (assumed standard 11m height)	No	7	460.00	3,220
9.9	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	70	350.00	24,500
	Misc				
9.10	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.11	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.12	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.13	We have allowed for rippable rock to 30% of trench excavation	Note			
9.14	Allowance for trenching in rock in assumed 600 wide	m3	40	120.00	4,838
					214,908
10	**Stormwater**				
	Stormwater				
	Pits				
10.1	New stormwater pits	No	10	4,000.00	40,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Existing				
10.3	1800 dia open drain - Existing	m	64		
	Proposed				

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD09)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,174.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater** *(Continued)*				
10.4	300 dia concrete pipe including excavation and backfill	m	24	130.00	3,120
10.5	600 dia concrete pipe including excavation and backfill	m	69	350.00	24,150
10.6	675 dia concrete pipe including excavation and backfill	m	135	410.00	55,350
	Misc				
10.7	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.8	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.9	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
10.10	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.11	We have allowed for rippable rock to 30% of trench excavation	Note			
10.12	Allowance for trenching in rock in assumed 1000 wide	m3	68	120.00	8,208
					138,328
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
13	**Gas**				
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD09)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 3,174.00

Date Printed: 17/06/2019

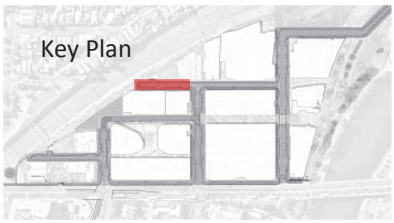
Item	Section	Unit	Qty	Rate	Cost $

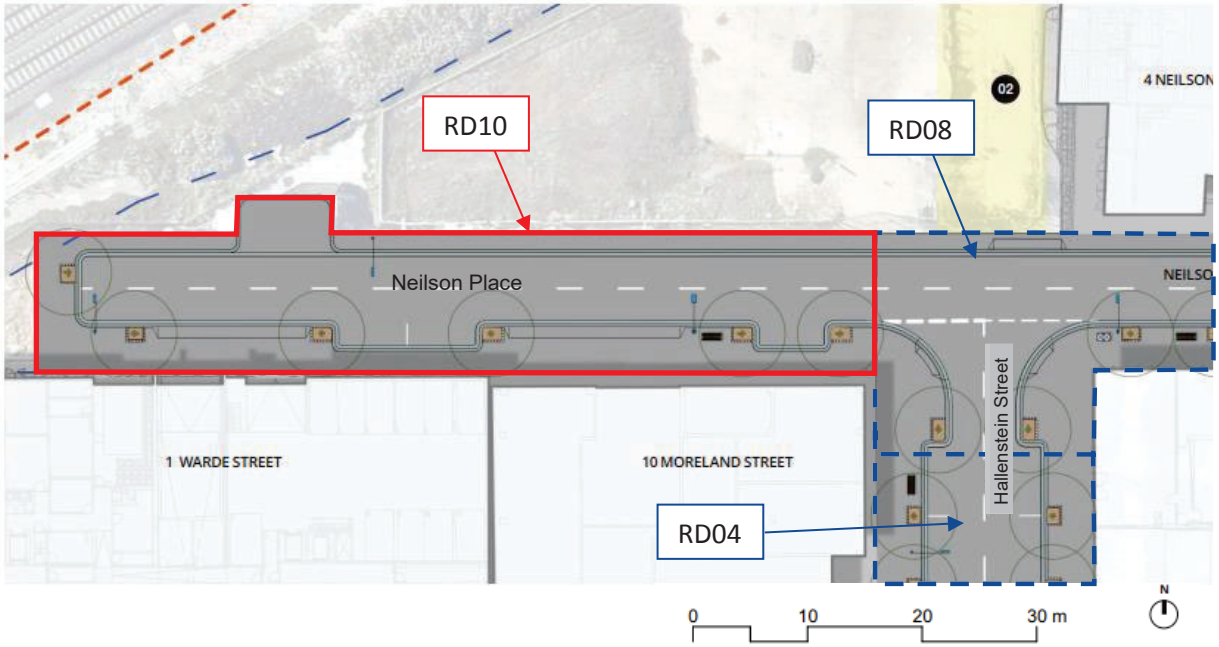
14 Communications

	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

PROJECT AREA: RD10

Description: West Neilson Place Public Realm Works
Drawing Ref: Page 18 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 2





ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD10)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,045.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	1,045	93.21	97,400
2	Contamination	m3	523	313.00	163,699
3	Groundworks	m3	157	433.12	68,000
4	Roadworks	m2	637	293.84	187,175
5	Pavements	m2	394	191.90	75,610
6	Street Furniture	m2	1,045	4.50	4,700
7	Street lighting (Electrical Measured Separately)	No	3	5,000.00	15,000
8	Traffic Signalisation	N/A			
9	Landscaping	m2	1,045	9.44	9,860
10	Power	m2	1,045	68.38	71,453
11	Stormwater	m2	1,045	34.06	35,593
12	Sewer	m2	1,045		
13	Water	m2	1,045		
14	Gas	m2	1,045		
15	Communications	m2	1,045		
	SUB-TOTAL TRADE WORKS	**m2**	**1,045**	**697.12**	**728,490**
16	Design Development Contingency	%	10.0	728,490.44	72,849
17	Temporary works	%	2	801,339.48	16,027
18	Preliminaries and Supervision	%	8	817,366	65,389
19	Builder's Margin	%	5	882,756	44,138
20	Cost Escalation (FEB - JUL)	%	1	926,893	9,269
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**1,045**	**895.85**	**936,162**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	936,162	140,424
22	Design and Consultant Fees	%	9	1,076,587	96,893
23	Project Management Fees	%	3	1,173,479	35,423

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD10)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,045.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	1,045	1,156.84	1,208,902
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	1,045	1,156.84	1,208,902

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD10)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,045.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	1,045	20.00	20,900
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
1.3	Demolition of existing stormwater pipework including redundant pit removal	m	20	75.00	1,500
					97,400
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of RD10 area @ 0.50m deep is contaminated: 1,045m2 x 100% x 0.50m deep = 523m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	26	1,700	44,455
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	497	240	119,244
					163,699
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of RD10 area affected @ 0.50m deep : 1,045m2 x 30% x 0.50m deep = 157m3 approx	m3	157	100.00	15,700
3.3	Allowance for engineered fill in lieu of contamination removal	m3	523	100.00	52,300

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD10)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,045.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks** *(Continued)*				
					68,000
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 480mm crushed rock sub-base including associated excavation works	m2	637	180.00	114,660
4.2	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	151	350.00	52,850
4.3	300 Flush bluestone kerb strip including 150 thick concrete footing on 75 thick crushed rock base (assumed reduced footing size in lieu of concrete channel)	m	10	275.00	2,750
4.4	Allowance for linemarking to the extent of the works	m2	637	10.00	6,370
4.5	Allowance for traffic signage	Item	1	5,500.00	5,500
4.6	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.7	We have allowed for rippable rock to 10% of road excavation	Note			
4.8	Allowance for trenching in rock	m3	42	120.00	5,045
					187,175
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	394	65.00	25,610
5.2	E/O Vehicle Crossover	No	4	10,000.00	40,000
5.3	Allowance for additional works associated with custom vehicle crossover (surface measured under asphalt pavement - subbase non specified)	Item	1	10,000.00	10,000
					75,610
6	**Street Furniture**				
6.1	Promenade seating including back rest (SF 201)	No	1	2,100.00	2,100
6.2	Parking Sign - As advised by Maribyrnong City Council	No	13	200.00	2,600
					4,700

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD10)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,045.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole - Power supply measured elsewhere	No	3	5,000.00	15,000
					15,000
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	6	450.00	2,700
8.3	Gravel / Sand mixture to tree base	m2	14	100.00	1,400
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	36	160.00	5,760
					9,860
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	HV Power Conduits including associated trenching	m	52	675.00	35,100
9.4	Pulling of cables undertaken by Authority	EXCL			
	Pits				
9.5	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.6	Allowance for luminary fitting to light pole	No	3	1,500.00	4,500
9.7	Allowance for connection to street mains	No	3	450.00	1,350
9.8	LV cabling ran within street light poles (assumed standard 11m height)	No	3	460.00	1,380

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD10)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,045.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power**				*(Continued)*
9.9	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	30	350.00	10,500
	Misc				
9.10	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.11	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.12	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.13	We have allowed for rippable rock to 30% of trench excavation	Note			
9.14	Allowance for trenching in rock in assumed 600 wide	m3	9	120.00	1,123
					71,453
10	**Stormwater**				
	Stormwater				
	Pits				
10.1	New stormwater pits	No	6	4,000.00	24,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Existing				
10.3	300 dia concrete pipe including excavation and backfill - Existing	m	72		
	Proposed				
10.4	300 dia concrete pipe including excavation and backfill	m	27	130.00	3,510
	Misc				
10.5	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.6	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.7	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD10)

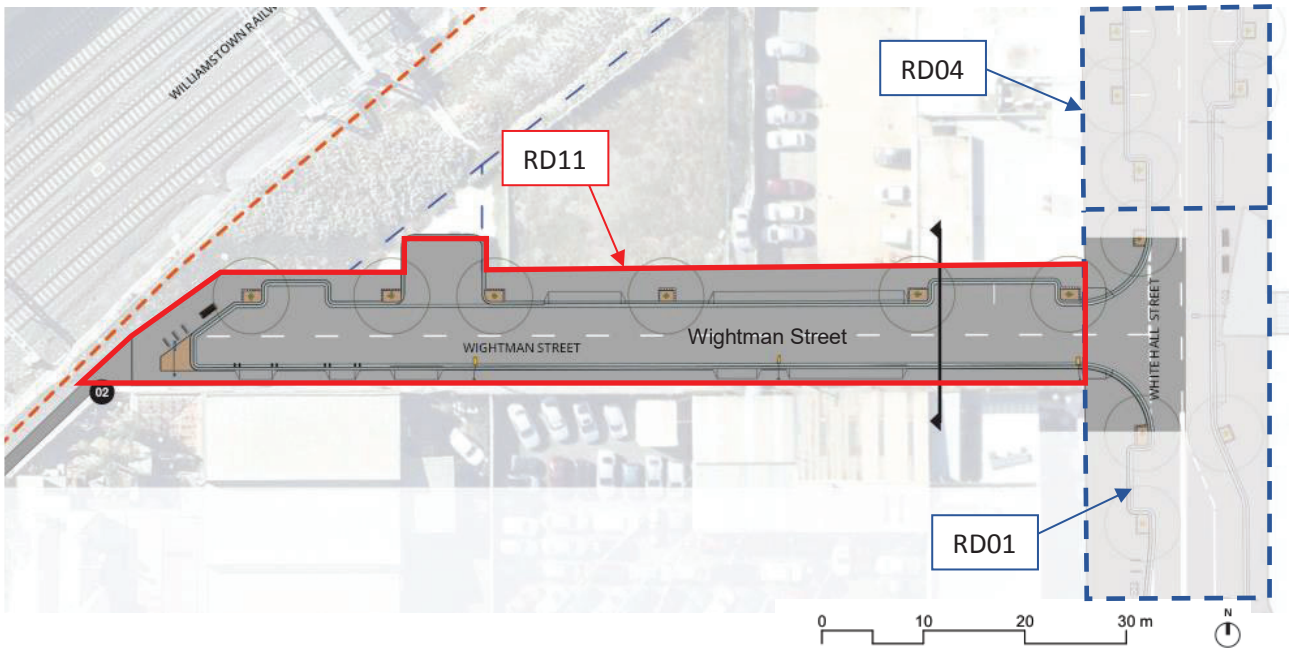
Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,045.00

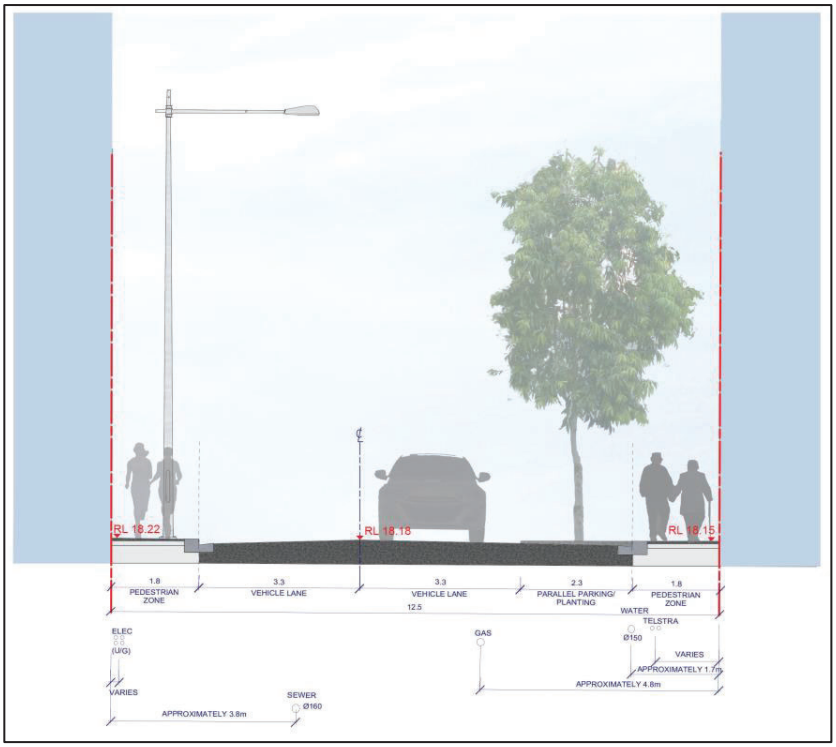
Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater** *(Continued)*				
10.8	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.9	We have allowed for rippable rock to 30% of trench excavation	Note			
10.10	Allowance for trenching in rock in assumed 600 wide	m3	5	120.00	583
					35,593
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
13	**Gas**				
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
14	**Communications**				
	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

PROJECT AREA: RD11

Description: Wightman Street Public Realm Works
Drawing Ref: Pages 10-11 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 2





ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD11)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,237.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	1,237	81.60	100,940
2	Contamination	m3	619	313.00	193,747
3	Groundworks	m3	186	432.80	80,500
4	Roadworks	m2	783	272.36	213,259
5	Pavements	m2	431	320.22	138,015
6	Street Furniture	m2	1,237	6.10	7,550
7	Street lighting (Electrical Measured Separately)	No	1	5,000.00	5,000
8	Traffic Signalisation	N/A			
9	Landscaping	m2	1,237	9.09	11,240
10	Power	m2	1,237	67.35	83,318
11	Stormwater	m2	1,237	18.66	23,080
12	Sewer	m2	1,237		
13	Water	m2	1,237		
14	Gas	m2	1,237		
15	Communications	m2	1,237		
	SUB-TOTAL TRADE WORKS	**m2**	**1,237**	**692.52**	**856,648**
16	Design Development Contingency	%	10.0	856,648.44	85,665
17	Temporary works	%	2	942,313.28	18,846
18	Preliminaries and Supervision	%	8	961,160	76,893
19	Builder's Margin	%	5	1,038,052	51,903
20	Cost Escalation (FEB - JUL)	%	1	1,089,955	10,900
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**1,237**	**889.94**	**1,100,854**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	1,100,854	165,128
22	Design and Consultant Fees	%	9	1,265,983	113,938
23	Project Management Fees	%	3	1,379,921	41,616

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD11)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,237.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	1,237	1,149.18	1,421,537
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	1,237	1,149.18	1,421,537

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD11)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,237.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	1,237	20.00	24,740
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
1.3	Demolition of existing stormwater pipework including redundant pit removal	m	16	75.00	1,200
					100,940
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	The below quantities have been based of the information provided within LR Pardo & Associates Technical Report 1710011 Joseph Rd/1	Note			
2.4	Assume 100% of RD11 area @ 0.50m deep is contaminated: 1,237m2 x 100% x 0.50m deep = 619m3 approx	Note			
2.5	Allow 5% at Cat A [$850/t]	m3	31	1,700	52,615
2.6	Allow Nil at Cat B	m3	Nil		
2.7	Allow 95% at Cat C [$140/t]	m3	588	240	141,132
					193,747
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD11)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,237.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
3	**Groundworks** *(Continued)*				
3.2	Assume 30% of RD11 area affected @ 0.50m deep : 1,237m2 x 30% x 0.50m deep = 186m3 approx	m3	186	100.00	18,600
3.3	Allowance for engineered fill in lieu of contamination removal	m3	619	100.00	61,900
					80,500
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 360mm crushed rock sub-base including associated excavation works	m2	783	160.00	125,280
4.2	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	187	350.00	65,450
4.3	300 Flush bluestone kerb strip including 150 thick concrete footing on 75 thick crushed rock base (assumed reduced footing size in lieu of concrete channel)	m	15	275.00	4,125
4.4	Allowance for linemarking to the extent of the works	m2	783	10.00	7,830
4.5	Allowance for traffic signage	Item	1	5,500.00	5,500
4.6	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.7	We have allowed for rippable rock to 10% of road excavation	Note			
4.8	Allowance for trenching in rock	m3	42	120.00	5,074
					213,259
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	431	65.00	28,015
5.2	E/O Vehicle Crossover	No	10	10,000.00	100,000
5.3	Allowance for additional works associated with custom vehicle crossover (surface measured under asphalt pavement - subbase non specified)	Item	1	10,000.00	10,000
					138,015

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD11)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,237.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
6	**Street Furniture**				
6.1	Stainless steel bicycle hoops (SF 401)	No	3	750.00	2,250
6.2	Promenade seating including back rest (SF 201)	No	1	2,100.00	2,100
6.3	Parking Sign - As advised by Maribyrnong City Council	No	16	200.00	3,200
					7,550
7	**Street lighting (Electrical Measured Separately)**				
7.1	Aluminium Light Pole - Power supply measured elsewhere	No	1	5,000.00	5,000
7.2	Aluminium light pole all other street lights shown as existing	Note			
					5,000
8	**Landscaping**				
	Street Landscaping				
8.1	Allowance of $450 per plant advised by Footscray City Council dated 22 August 2016	note			
8.2	75L Tree including 2 year establishment and ongoing maintenance	No	6	450.00	2,700
8.3	Gravel / Sand mixture to tree base	m2	23	100.00	2,300
8.4	40 thick Bluestone surround to tree base including mortar bedding	m	39	160.00	6,240
					11,240
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	HV Power Conduits including associated trenching	m	86	675.00	58,050
9.4	Pulling of cables undertaken by Authority	EXCL			
	Pits				

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD11)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,237.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power** *(Continued)*				
9.5	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.6	Allowance for luminary fitting to light pole	No	1	1,500.00	1,500
9.7	Allowance for connection to street mains	No	1	450.00	450
9.8	LV cabling ran within street light poles (assumed standard 11m height)	No	1	460.00	460
9.9	Conduit including LV cabling ran from light pole base to street mains (assumed 10 m per pole)	m	10	350.00	3,500
	Misc				
9.10	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.11	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.12	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.13	We have allowed for rippable rock to 30% of trench excavation	Note			
9.14	Allowance for trenching in rock in assumed 600 wide	m3	15	120.00	1,858
					83,318
10	**Stormwater**				
	Stormwater				
	Pits				
10.1	New stormwater pits	No	2	4,000.00	8,000
	Pipework				
10.2	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Proposed				
10.3	300 dia concrete pipe including excavation and backfill	m	50	130.00	6,500
	Misc				

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD11)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,237.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater** *(Continued)*				
10.4	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.5	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
10.6	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
10.7	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
10.8	We have allowed for rippable rock to 30% of trench excavation	Note			
10.9	Allowance for trenching in rock in assumed 600 wide	m3	9	120.00	1,080
					23,080
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
13	**Gas**				
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
14	**Communications**				
	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD11)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 1,237.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $

14 Communications *(Continued)*

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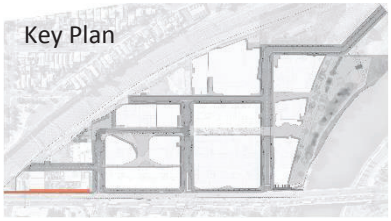
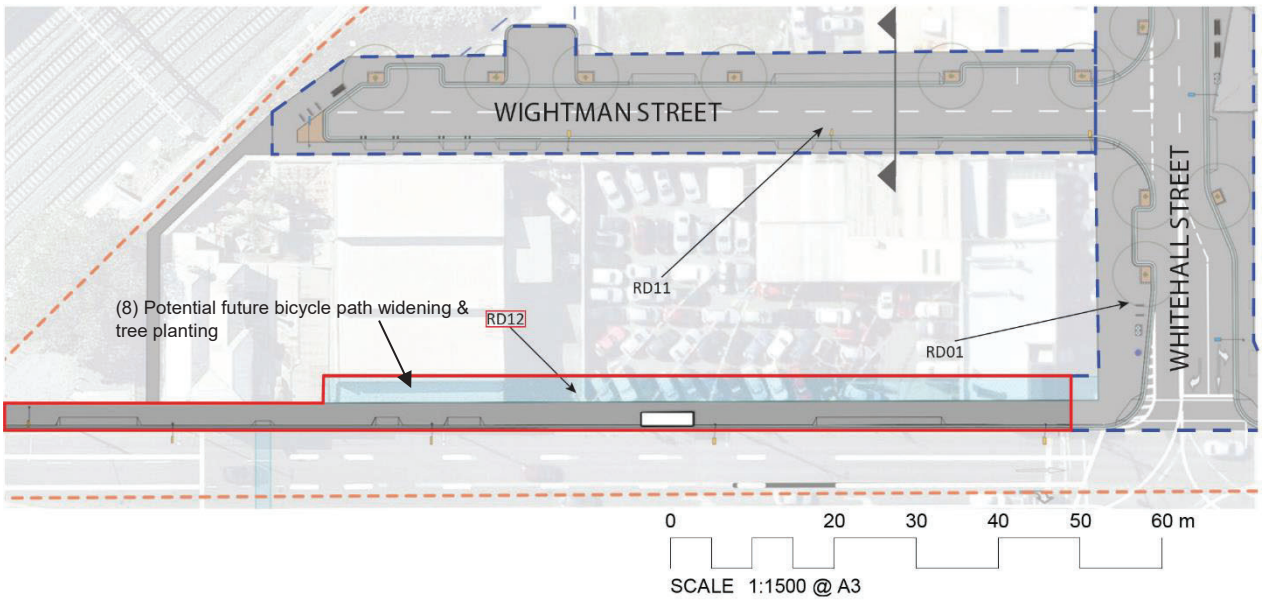
PROJECT AREA: RD12

Description: Hopkins Street Footpath Upgrade Works (West)
Drawing Ref: Page 8, 26 of the Joseph Road Public Realm Plan (Aspect Studios)
Date: 7 July 2017
Revision: 3





Note:

The cost estimate for RD12 includes the area coloured in light blue. The area represents the future widened footpath should the properties fronting Hopkins Street be redeveloped within the life of the DCP. The assumption that the footpath will be widened is in accordance with the Schedule to Clause 37.08 of the Maribyrnong Planning Scheme, which requires all new developments to be set back by 3m from their frontages to Hopkins Street. The widened footpath will facilitate the continuation of the shared bike path in front of 18-24 Hopkins Street and the planting of trees and the provision of street furniture in the project area. For this reason, the cost estimate includes allowances for future bike path, street trees, and street furniture.

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD12)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 673.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	673	131.44	88,460
2	Contamination	m3	337	313.00	105,325
3	Groundworks	m3	101	433.33	43,745
4	Roadworks	m2	673	86.70	58,350
5	Pavements	m2	673	143.75	96,745
6	Street Furniture	m2	673	45.77	30,800
7	Street lighting (Electrical Measured Separately)	m2	673		
8	Traffic Signalisation	N/A			
9	Landscaping	m2	673	22.29	15,000
10	Power	m2	673	124.70	83,925
11	Stormwater	m2	673	3.71	2,500
12	Sewer	m2	673		
13	Water	m2	673		
14	Gas	m2	673		
15	Communications	m2	673		
	SUB-TOTAL TRADE WORKS	**m2**	**673**	**779.86**	**524,849**
16	Design Development Contingency	%	10.0	524,849.10	52,485
17	Temporary works	%	2	577,334.01	11,547
18	Preliminaries and Supervision	%	8	588,881	47,110
19	Builder's Margin	%	5	635,991	31,800
20	Cost Escalation (FEB - JUL)	%	1	667,791	6,678
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**673**	**1,002.18**	**674,469**
21	Construction Contingency (As advised by Maribyrnong City Council)	%	15	674,469	101,170
22	Design and Consultant Fees	%	9	775,639	69,808
23	Project Management Fees	%	3	845,446	25,582

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD12)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 673.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	673	1,294.25	871,028
24	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	673	1,294.25	871,028

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD12)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 673.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for demolition of roads and pavement	m2	673	20.00	13,460
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
					88,460
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	Due to the preliminary nature of the project, WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of RD12 area @ 0.50m deep is contaminated: 673m2 x 100% x 0.50m deep = 337m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	17	1,700	28,603
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	320	240	76,722
					105,325
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of RD12 area affected @ 0.50m deep : 673m2 x 30% x 0.50m deep = 101m3 approx	m3	101	100.00	10,095
3.3	Allowance for engineered fill in lieu of contamination removal	m3	337	100.00	33,650
					43,745

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD12)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 673.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
4	**Roadworks**				
	Road				
4.1	Road kerbing consisting of 300 wide sawn bluestone block and 300 wide concrete channel including 150 thick concrete footing on 75 thick crushed rock base	m	151	350.00	52,850
4.2	Allowance for traffic signage	Item	1	5,500.00	5,500
					58,350
5	**Pavements**				
	Pavement				
5.1	50 thick asphalt pavement including 75 thick crushed rock subbase	m2	673	65.00	43,745
5.2	E/O Vehicle Crossover	No	5	10,000.00	50,000
5.3	E/O Pram/Pedestrian Crossover (assumed sloped into asphalt pavement as per Maribyrnong City Design Manual SF 003)	No	1	3,000.00	3,000
5.4	The cost of the pavement (5.1, 5.2 & 5.3) will be externally apportioned through Amendment C145 at 76.6% ($74,107)	Note			
					96,745
6	**Street Furniture**				
6.1	Bus shelter (SF 801)	No	1	10,000.00	10,000
6.2	Parking Sign - As advised by Maribyrnong City Council	No	4	200.00	800
6.3	Allowance for street furniture to future proposed bike path	Item	1	20,000.00	20,000
					30,800
7	**Street lighting (Electrical Measured Separately)**				
7.1	Street lights shown within RD12 are existing	Note			
8	**Landscaping**				
8.1	Allowance for misc landscaping to future proposed bike path	Item	1	15,000.00	15,000
					15,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD12)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 673.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
9	**Power**				
	General				
9.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
9.2	Allowance for substations	Excl			
	Underground Power Distribution				
9.3	HV Power Conduits including associated trenching	m	81	675.00	54,675
9.4	Pulling of cables undertaken by Authority	EXCL			
	Pits				
9.5	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Street Lighting				
9.6	Allowance to connect existing street lights to newly proposed underground cables	Item	1	10,000.00	10,000
	Misc				
9.7	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
9.8	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
9.9	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
9.10	We have allowed for rippable rock to 30% of trench excavation	Note			
9.11	Allowance for trenching in rock in assumed 600 wide	m3	15	120.00	1,750
					83,925
10	**Stormwater**				
	Pipework				
10.1	The below stormwater reticulation is as per TTW Stormwater Drainage Concept Plan read in conjunction with Maribynong City Council drainage network	Note			
	Existing				
10.2	450 dia concrete pipe including excavation and backfill - Existing	m	95		

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (RD12)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 673.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
10	**Stormwater** *(Continued)*				
	Misc				
10.3	Allowance for the reconnection of development space stormwater services to new pits and pipes - Bourne by developers	Excl			
10.4	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500
					2,500
11	**Sewer**				
	Sewer				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Water**				
	Water Supply				
12.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
13	**Gas**				
	Gas				
13.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
14	**Communications**				
	Communications				
14.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			

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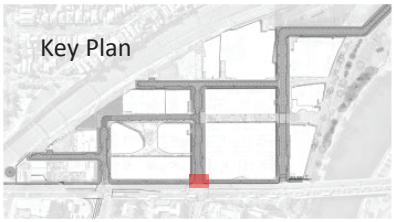
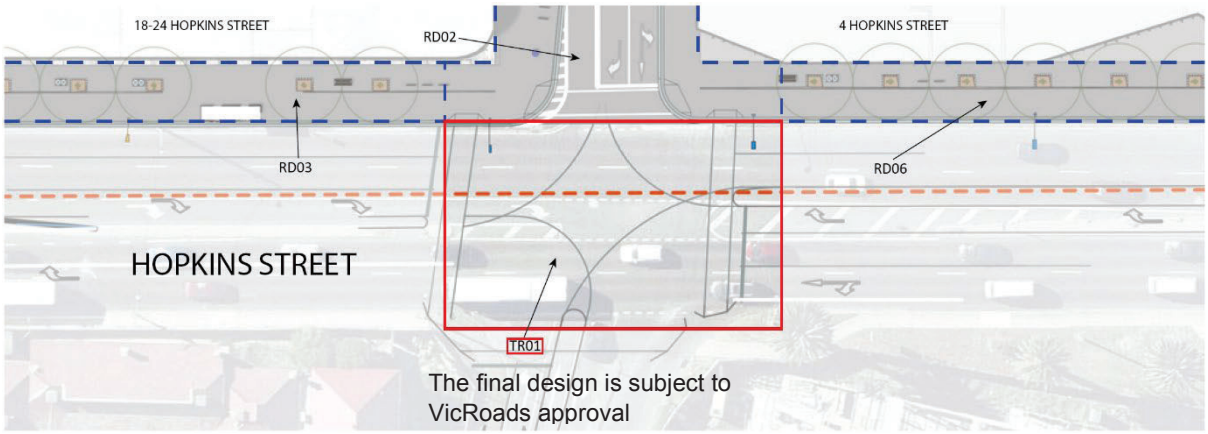
PROJECT AREA: TR01

Description: Traffic Lights at the Intersection of Hallenstein St and Hopkins St

Drawing Ref: Hopkins Street / Moreland Street /Hallenstein Street Maribyrnong City Traffic Signal Plan (One Mile Grid) Drawing No. 170820TSP201, 25.07.18.

Date: As above





For details please refer to the traffic signals plan (One Mile Grid)

ISSUE	APP'D	DATE	AMENDMENT

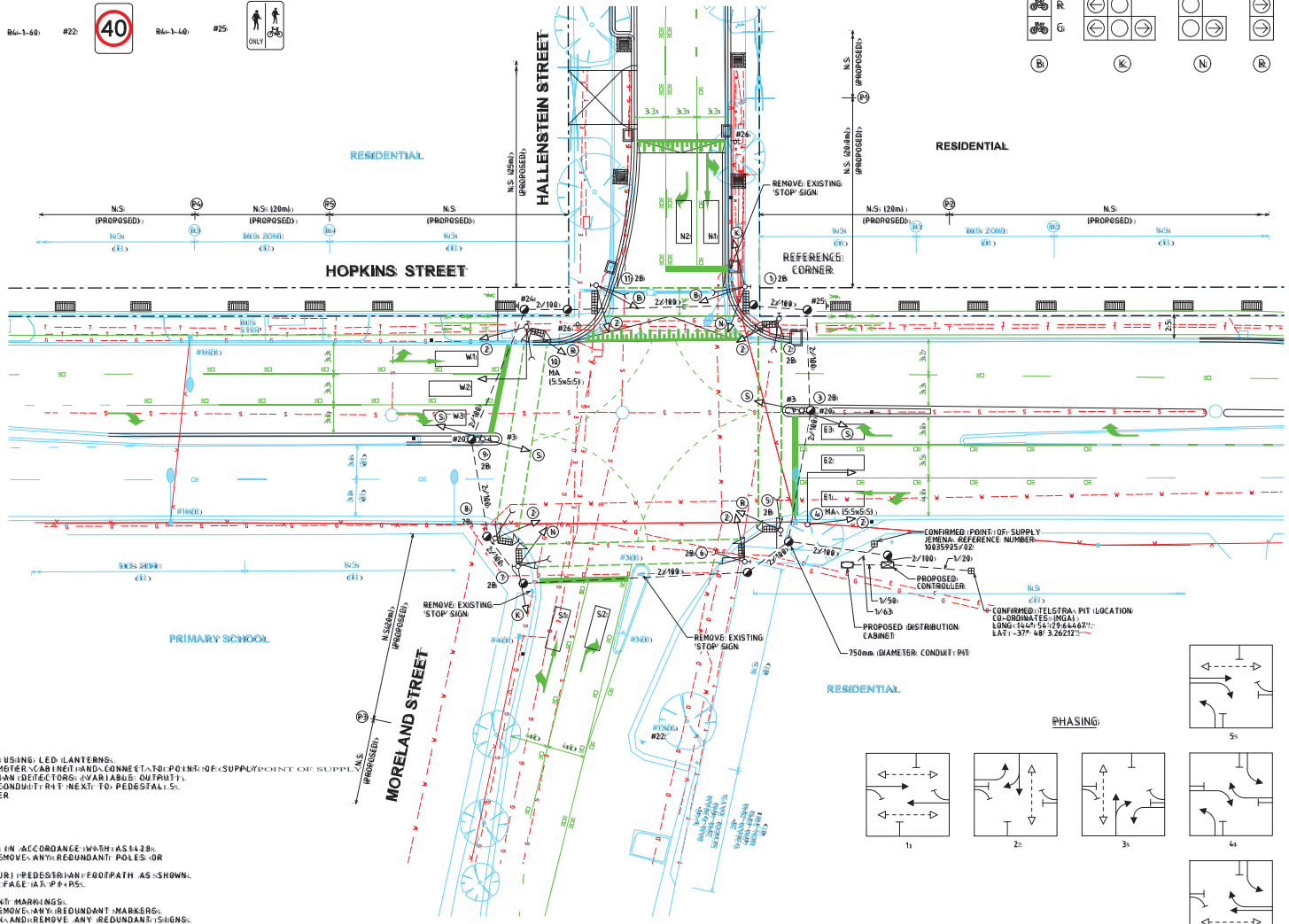
SIGN SCHEDULE

#3: KEEP LEFT R2-3(L) | #15: W3-4 | #20: U TURN MUST GIVE WAY R2-V115 | #24: ONLY | #26: W5-10

#4: R4-1-2 | #16: 60 R4-1-60 | #22: 40 R4-1-40 | #25: ONLY

LANTERNS

Bi K N R S Z



PHASING

INSTALLATION NOTES:

A. SIGNAL CONTRACTOR

1. SUPPLY AND INSTALL NEW HARDWARE AS SHOWN USING LED LANTERNS.
2. SUPPLY AND INSTALL TRAFFIC MAINS SUPPLY METER CABINET AND CONNECT TO POINT OF SUPPLY POINT OF SUPPLY.
3. SUPPLY AND INSTALL AUDIBLE TACTILE PEDESTRIAN DETECTORS (VARIABLE OUTPUT).
4. SUPPLY AND INSTALL 1 No 750mm DIAMETER CONDUIT PIT NEXT TO PEDESTAL 5x.
5. ARRANGE FOR INSTALLATION OF NEW CONTROLLER

B. CIVIL CONTRACTOR

1. CONSTRUCT ROADWORKS AS SHOWN.
2. CONSTRUCT DDA COMPLIANT PRAM CROSSINGS IN ACCORDANCE WITH AS1428.
3. SUPPLY AND INSTALL PUBLIC LIGHTING AND REMOVE ANY REDUNDANT POLES OR EQUIPMENT. SEE GENERAL NOTES.
4. CONSTRUCT (SUPPLY ALL MATERIALS AND LABOUR) PEDESTRIAN FOOTPATH AS SHOWN.
5. SUPPLY AND INSTALL PARKING SIGN, POLE AND FACE IAW P+P.
6. REMOVE PARKING SIGN AND POLE FROM R1-R4
7. LINEMARK AS SHOWN AND REMOVE ANY REDUNDANT MARKINGS.
8. SUPPLY AND INSTALL RRPMS AS SHOWN AND REMOVE ANY REDUNDANT MARKERS.
9. SUPPLY AND INSTALL ROAD SIGNS WHERE SHOWN AND REMOVE ANY REDUNDANT SIGNS.

C. VICROADS

(i) METROPOLITAN NORTH WEST REGION
1. SUPPLY NEW LED COMPATIBLE CONTROLLER (DEVELOPER FUNDED)
2. CONNECT CONTROLLER TO SCATS.

(ii) SIGNALS SERVICES - WEST

1. PROGRAM NEW CONTROLLER

onemilegrid
TRAFFIC ENGINEERING
56 Down Street, Collingwood, VIC 3066
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Phone (03) 9939 8250

DATE: 25.07.18 | onemilegrid DRAWN: TCW | onemilegrid CHECKED: RBH
onemilegrid DRAWING No.: 170820TSP201
onemilegrid Revision: H1

NOTE
PROPOSED SIGNAL HARDWARE LOCATIONS ARE INDICATIVE ONLY
The actual locations of proposed pedestals, conduits/pits, conduit details etc shall be determined on site at pre-installation meeting (Haidi Point).

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

LEGEND

- PEDESTAL - EXISTING, NEW, JOINT USE
- 3 ASPECT LANTERN - 200mm, 300mm
- MAST ARM (OUTREACH AS INDICATED)
- PEDESTRIAN PUSH BUTTON & LANTERN
- VEHICLE GROUP - ACTIVE, PROHIBITED
- PERMITTED PEDESTRIAN MOVEMENT
- PROPOSED STREET LIGHT LUMINAIRE
- EXISTING STREET LIGHT LANTERN
- DETECTOR LOOP - PROPOSED, EXISTING
- TRAFFIC SIGNAL CONTROLLER
- 2/100 CONDUIT WITH NUMBER/DUCT DIAMETER
- PIT - CONDUIT, DETECTOR
- POLE - TRAMWAY/ELECTRICITY
- E.O. INTERNALLY ILLUMINATED SIGN - FIBRE OPTIC
- N.R.T. NO RIGHT TURN
- G.W.T.P. GIVE WAY TO PEDESTRIANS
- N.S. NO STOPPING
- PAVEMENT MARKER - RAISED, RAISED REFLECTIVE
- SEWERAGE PIT
- F.H. FIRE - PLUG, HYDRANT
- S.V. STOP VALVE
- GAS VALVE
- ELECTRICITY SUPPLY PIT
- UTILITY UNCLASSIFIED
- (E) EXISTING FEATURE
- OVERHEAD SERVICE
- D.S. DIRECTIONAL SIGN
- I.S. INFORMATION SIGN
- FENCE
- UNDERGROUND SEWER MAIN
- UNDERGROUND ELECTRICITY
- UNDERGROUND GAS
- UNDERGROUND WATER
- UNDERGROUND TELECOMMUNICATIONS
- TELECOMMUNICATIONS - PIT, PILLAR
- DRAINAGE PIT - SIDE ENTRY, GRATED
- TGSI - WARNING, DIRECTIONAL

GENERAL NOTES:

1. BASE INFORMATION SUPPLIED BY MOONLAND GROUP, REFERENCE: M1127
2. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS OTHERWISE NOTED.
3. DECLARED ROAD - HOPKINS STREET (SPEED ZONE: 60KM/H)
   - LOCAL ROAD - MORELAND STREET (SPEED ZONE: 60KM/H)
   - LOCAL ROAD - HALLENSTEIN STREET (SPEED ZONE: 50KM/H)

DESIGNED: TREVOR WAUGH (ONE MILE GRID)
APPROVED:
CAT: METRO NORTH WEST
PROJ: TRAFFIC
FILE:

vicroads

SCALE OF METRES: HOR. 0 5 10

HOPKINS STREET / MORELAND STREET / HALLENSTEIN STREET
MARIBYRNONG CITY
TRAFFIC SIGNAL PLAN

FILE NO.	SITE NO.	SHEET NO.	DRAWING NO.	ISSUE
	3754	1 OF 1		

Attachment 1

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ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 768.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	768	132.66	101,880
2	Contamination	m3	384	313.00	120,192
3	Groundworks	m3	115	433.33	49,920
4	Roadworks	m2	768	210.94	162,003
5	Pavements	m2	768	15.63	12,000
6	Street lighting (Electrical Measured Separately)	N/A			
7	Street Furniture	N/A			
8	Traffic Signalisation	Item	1	372,870.00	372,870
9	Traffic Signalisation - Traffic Management	Weeks	3	14,000.00	42,000
10	Landscaping	N/A			
11	Power	m2	768	34.71	26,656
12	Stormwater	N/A			
13	Sewer	m2	768		
14	Water	m2	768		
15	Gas	m2	768		
16	Communications	Item	1	1,000,000.00	1,000,000
	SUB-TOTAL TRADE WORKS	**m2**	**768**	**2,457.71**	**1,887,520**
17	Design Development Contingency	%	10.0	1,887,520.06	188,752
18	Temporary works	%	2	2,076,272.07	41,525
19	Preliminaries and Supervision	%	8	2,117,798	169,424
20	Builder's Margin	%	5	2,287,221	114,361
21	Cost Escalation (FEB - JUL)	%	1	2,401,582	24,016
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**768**	**3,158.33**	**2,425,598**
22	Construction Contingency (As advised by Maribyrnong City Council)	%	15	2,425,598	363,840
23	Design and Consultant Fees	%	9	2,789,438	251,049

ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 768.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
24	Project Management Fees	%	3	3,040,487	91,433
25					
	SUB-TOTAL DESIGN & CONSTRUCT COST	m2	768	4,078.02	3,131,920
26	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	m2	768	4,078.02	3,131,920

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 768.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for Demolition and Alteration works to roads and pavement to allow for traffic signalisation works including making good	m2	768	35.00	26,880
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
					101,880
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of TR01 area @ 0.50m deep is contaminated: 768m2 x 100% x 0.50m deep = 384m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	19	1,700	32,640
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	365	240	87,552
					120,192
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of public realm area affected @ 0.50m deep : 768m2 x 30% x 0.50m deep = 115m3 approx	m3	115	100.00	11,520
3.3	Allowance for engineered fill in lieu of contamination removal	m3	384	100.00	38,400
					49,920

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 768.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 480mm crushed rock sub-base including associated excavation works	m2	768	180.00	138,240
4.2	Allowance for linemarking to the extent of the works	m2	768	10.00	7,680
4.3	Additional linemarking to roads leading into newly proposed intersection	Item	1	10,000.00	10,000
4.4	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.5	We have allowed for rippable rock to 10% of road excavation	Note			
4.6	Allowance for trenching in rock	m3	51	120.00	6,083
					162,003
5	**Pavements**				
	Pavement				
5.1	Allowance for Pram/Pedestrian Crossover (assumed sloped into asphalt pavement as per Maribyrnong City Design Manual SF 003)	No	4	3,000.00	12,000
					12,000
6	**Traffic Signalisation**				
	Allowance for traffic signalisation to the Hopkins street / Whitehall Street intersection including the following:				
6.1	1 No. 20 dia signal/power conduits including trenching	m	10	110	1,100
6.2	1 No. 50 dia signal/power conduits including trenching	m	5	110	550
6.3	1 No. 64 dia signal/power conduits including trenching	m	4	110	440
6.4	2 No. 100 dia signal/power conduits including trenching	m	127	140	17,780
6.5	Conduit Pits	No	11	1,000	11,000
6.6	Pedestals	No	11	6,000	66,000
6.7	Pedestrian lanterns including push buttons	No	8	2,000	16,000
6.8	Lanterns including boom arms	No	20	3,750	75,000
6.9	Miscellaneous cabling	Item	1	20,000	20,000

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 768.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
6	**Traffic Signalisation**				*(Continued)*
6.10	Detector loops	No	10	2,500	25,000
6.11	Distribution Cabinet	No	1	5,000	5,000
6.12	Controller	No	1	25,000	25,000
6.13	Connections to existing Jemmena power mains	Item	1	10,000	10,000
6.14	Allowance for miscellaneous signage	Item	1	15,000	15,000
6.15	Allowance for decommissioning of redundant services	Item	1	35,000	35,000
6.16	Allowance for traffic signalling programming and co-ordination	Item	1	50,000	50,000
					372,870
7	**Traffic Signalisation – Traffic Management**				
7.1	Allowance for traffic management during the works	Weeks	3	14,000.00	42,000
					42,000
8	**Power**				
	General				
8.1	Demolition of existing Infrastructure Services measured elsewhere	Note			
	Electricity				
8.2	Allowance for substations	Excl			
	Underground Power Distribution				
8.3	LV 1x63 conduit run including trenching and cable installation	m	30	200	6,008
8.4	Allowance for cable joints	Item	1	2,500	2,500
8.5	Pulling of cables undertaken by Authority	EXCL			
	Pits				
8.6	Allowance for precast pits between conduit runs	Item	1	10,000.00	10,000
	Misc				
8.7	Traffic Signal power connections measured under Traffic Signalisation	Note			
8.8	Allowance for asset recording and quality testing	Item	1	2,500.00	2,500

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 768.00

Date Printed: 17/06/2019

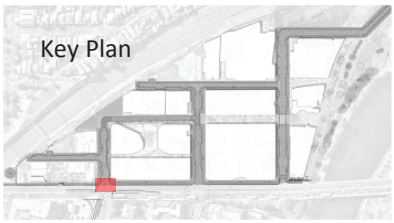
Item	Section	Unit	Qty	Rate	Cost $
8	**Power** *(Continued)*				
8.9	Allowance for taping into surrounding mains (Staged Works)	Item	1	5,000.00	5,000
8.10	Refer to LR Pardo & Associates geotechinal report for identification of rock.	Note			
8.11	We have allowed for rippable rock to 30% of trench excavation	Note			
8.12	Allowance for trenching in rock in assumed 600 wide	m3	5	120.00	648
					26,656
9	**Sewer**				
	Sewer				
9.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
10	**Water**				
	Water Supply				
10.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
11	**Gas**				
	Gas				
11.1	Costs of all service work (with the exception of street lighting and stormwater) to be borne by developers	Note			
12	**Communications**				
12.1	Allowance for Telstra upgrade works as per Maribyrnong Council advise received 20 February 2019	Item	1	1,000,000	1,000,000
					1,000,000

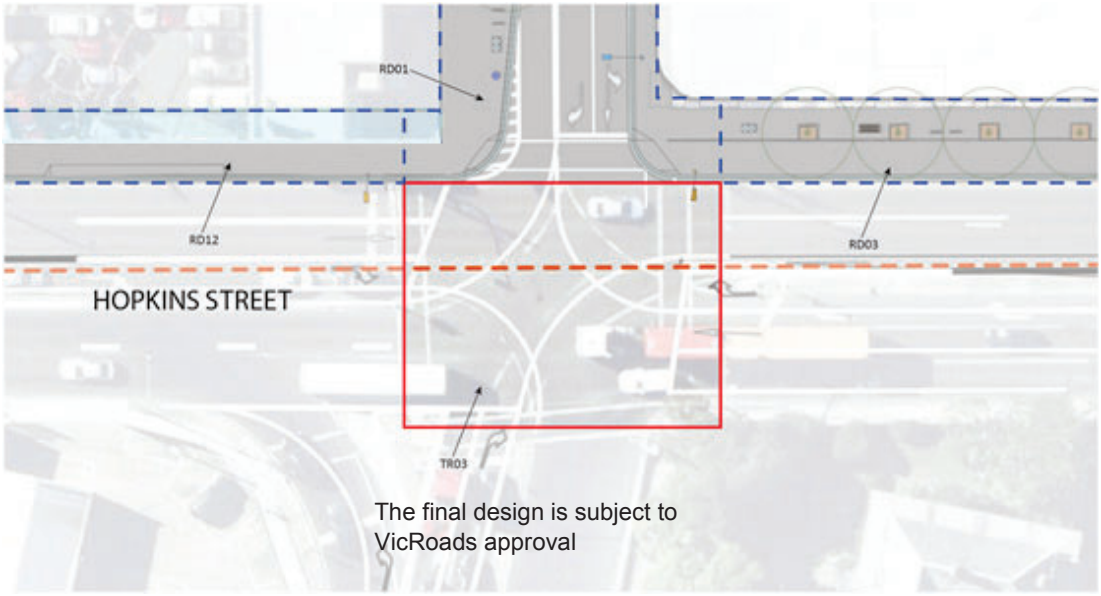
PROJECT AREA: TR03

Description: Whitehall St/Hopkins St signals upgrade

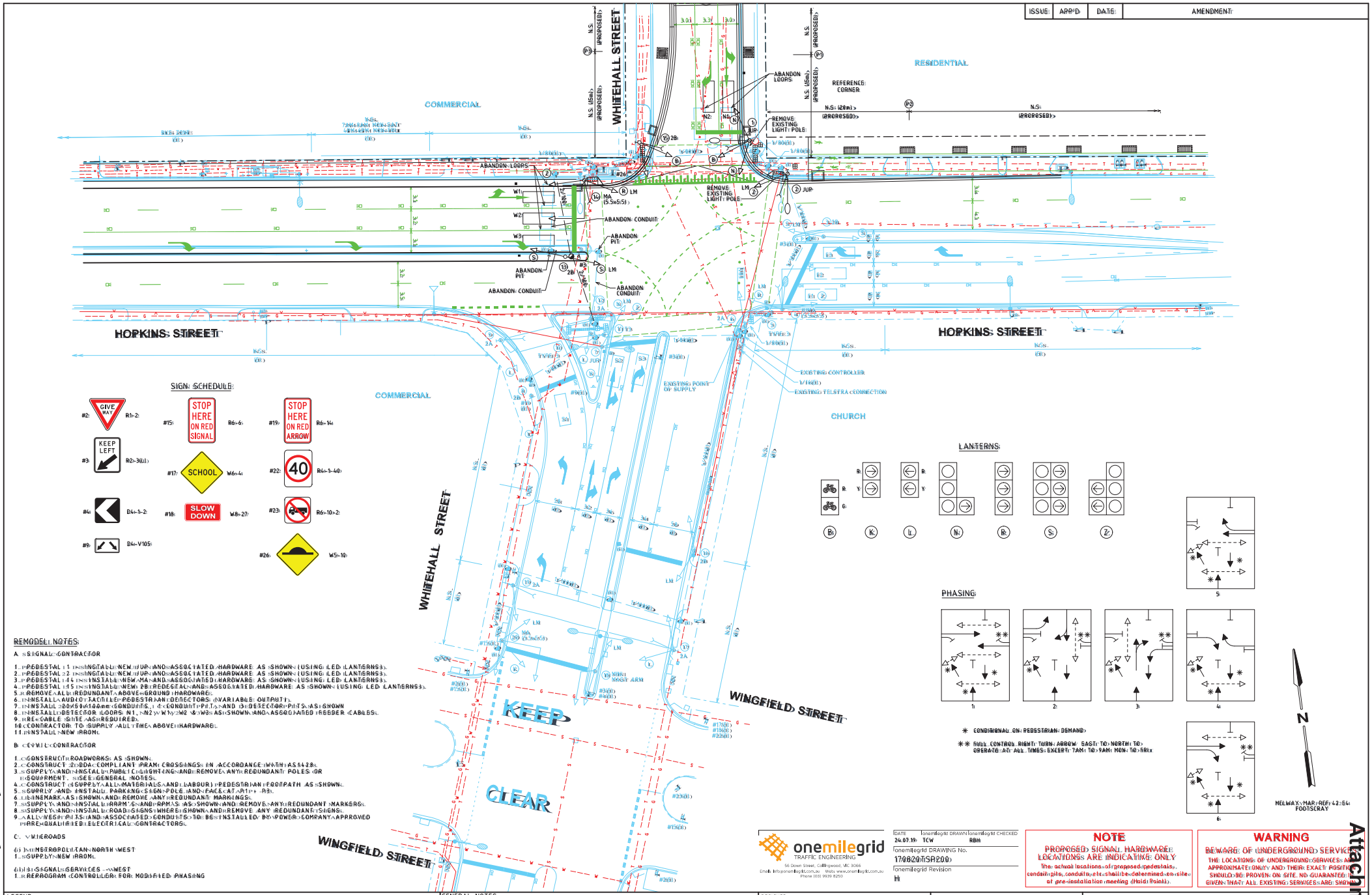
Drawing Ref: Hopkins Street / Whitehall Street Maribyrnong City Traffic Signal Plan (One Mile Grid) Drawing No. 170820TSP200, 24.07.19

Date: As above





For details please refer to the traffic signals plan (One Mile Grid)


ISSUE
APP'D
DATE
AMENDMENT
WHITEHALL STREET
HOPKINS STREET
WINGFIELD STREET
COMMERCIAL
RESIDENTIAL
CHURCH
ABANDON LOOPS
ABANDON CONDUIT
ABANDON PIT
REMOVE EXISTING LIGHT POLE
REFERENCE CORNER
EXISTING CONTROLLER
EXISTING POINT OF SUPPLY
EXISTING TELSTRA CONNECTION
SIGN SCHEDULE:
GIVE WAY
KEEP LEFT
STOP HERE ON RED SIGNAL
SCHOOL
SLOW DOWN
STOP HERE ON RED ARROW
40
LANTERNS:
PHASING:
KEEP
CLEAR
WINGFIELD STREET
MELWAY MAP REF 42 E4
FOOTSCRAY
N
REMODELLING NOTES:
GENERAL NOTES:
LEGEND:
onemilegrid
TRAFFIC ENGINEERING
NOTE
PROPOSED SIGNAL HARDWARE LOCATIONS ARE INDICATIVE ONLY
WARNING
BEWARE OF UNDERGROUND SERVICES
vicroads
HOPKINS STREET / WHITEHALL STREET
MARIBYRNONG CITY
TRAFFIC SIGNAL PLAN
Attachment 1
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ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 760.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Demolition	m2	760	133.68	101,600
2	Contamination	m3	380	313.00	118,940
3	Groundworks	m3	114	433.33	49,400
4	Roadworks	m2	760	207.12	157,410
5	Traffic Signalisation	Item	1	209,720.00	209,720
6	Traffic Signalisation - Traffic Management	Weeks	2	14,000.00	28,000
	SUB-TOTAL TRADE WORKS	**m2**	**760**	**875.09**	**665,070**
7	Design Development Contingency	%	10.0	665,069.60	66,507
8	Temporary works	%	2	731,576.56	14,632
9	Preliminaries and Supervision	%	8	746,208	59,697
10	Builder's Margin	%	5	805,905	40,295
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**m2**	**760**	**1,113.42**	**846,200**
11	Construction Contingency (As advised by Maribyrnong City Council)	%	15	846,200	126,930
12	Design and Consultant Fees	%	9	973,130	87,582
13	Project Management Fees	%	3	1,060,712	32,040
	SUB-TOTAL DESIGN & CONSTRUCT COST	**m2**	**760**	**1,437.83**	**1,092,752**
14	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	**m2**	**760**	**1,437.83**	**1,092,752**

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 760.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Demolition**				
1.1	Allowance for Demolition and Alteration works to roads and pavement to allow for traffic signalisation works including making good	m2	760	35.00	26,600
1.2	Allowance to de-commission and remove from site electrical infrastructure, comprising; under & overground cables, sub stations and redundant street lighting	Item	1	75,000.00	75,000
					101,600
2	**Contamination**				
2.1	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
2.2	WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
2.3	Assume 100% of TR03 area @ 0.50m deep is contaminated: 760m2 x 100% x 0.50m deep = 380m3 approx	Note			
2.4	Allow 5% at Cat A [$850/t]	m3	19	1,700	32,300
2.5	Allow Nil at Cat B	m3	Nil		
2.6	Allow 95% at Cat C [$140/t]	m3	361	240	86,640
					118,940
3	**Groundworks**				
3.1	The below allowances relate to to remediation of the isolated soft spots and contaminated soil including soil removal				
3.2	Assume 30% of public realm area affected @ 0.50m deep : 760m2 x 30% x 0.50m deep = 114m3 approx	m3	114	100.00	11,400
3.3	Allowance for engineered fill in lieu of contamination removal	m3	380	100.00	38,000
					49,400

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR03)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 760.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
4	**Roadworks**				
	Road				
4.1	180mm Asphalt road with 480mm crushed rock sub-base including associated excavation works	m2	760	180.00	136,800
4.2	Allowance for linemarking to the extent of the works	m2	760	10.00	7,600
4.3	Additional linemarking to roads leading into newly proposed intersection	Item	1	10,000.00	10,000
4.4	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
4.5	We have allowed for rippable rock to 10% of road excavation	Note			
4.6	Allowance for trenching in rock	m3	25	120.00	3,010
					157,410
5	**Traffic Signalisation**				
	Allowance for traffic signalisation to the Hopkins street / Hallenstein Street intersection including the following:				
5.1	Existing signal distribution board to be utilized	Note			
5.2	2 No. 100 dia signal/power conduits including trenching	m	23	140	3,220
5.3	Conduit Pits	No	1	1,000	1,000
5.4	Pedestals	No	5	6,000	30,000
5.5	Pedestrian lanterns including push buttons	No	4	2,000	8,000
5.6	Lanterns including boom arms	No	10	3,750	37,500
5.7	Miscellaneous cabling	Item	1	10,000	10,000
5.8	Detector loops	No	5	2,000	10,000
5.9	Connections to existing Jemmena power mains	Item	1	10,000	10,000
5.10	Allowance for miscellaneous signage	Item	1	15,000	15,000
5.11	Allowance for decommissioning of redundant services	Item	1	35,000	35,000
5.12	Allowance for traffic signalling programming and co-ordination	Item	1	50,000	50,000
					209,720

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (TR03)

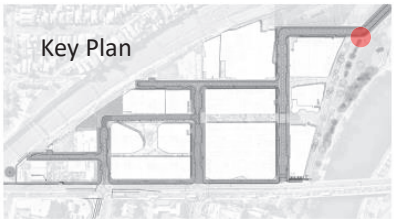
Job No: 16291
Cost Base Date: July 2017
GFA (m2): 760.00

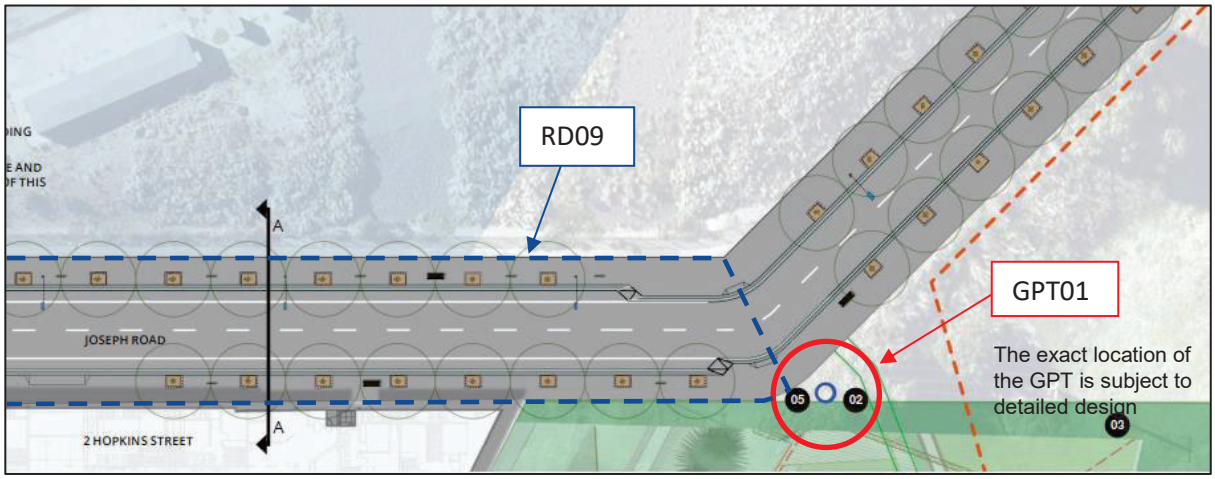
Date Printed: 17/06/2019

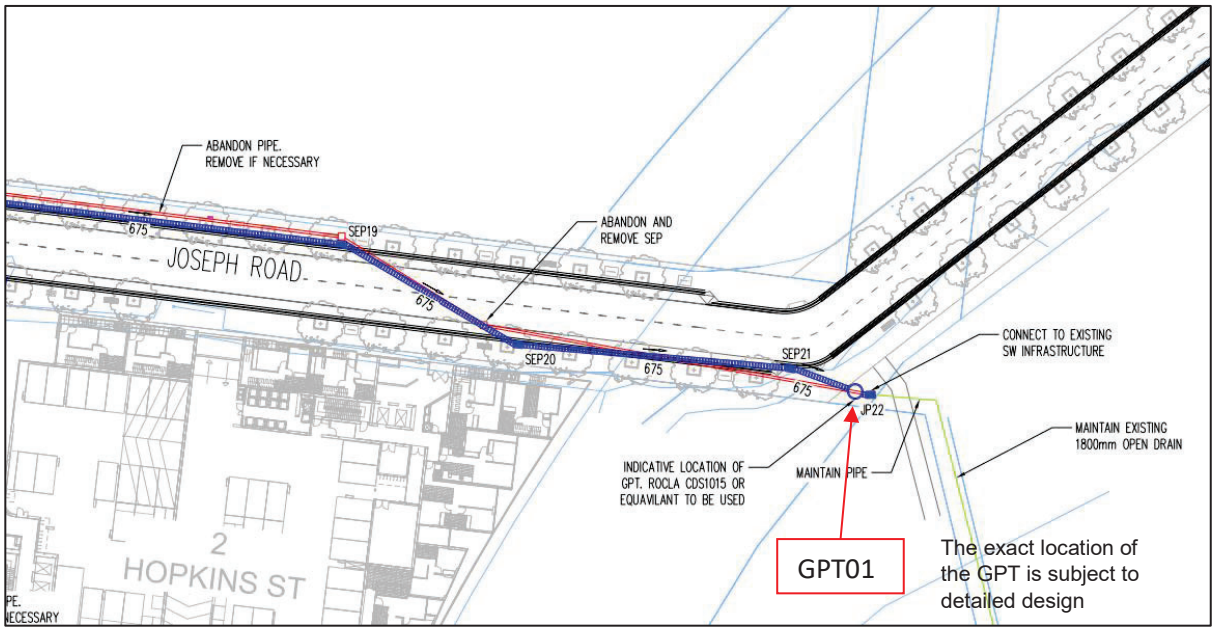
Item	Section	Unit	Qty	Rate	Cost $
6	**Traffic Signalisation – Traffic Management**				
6.1	Allowance for traffic management during the works	Weeks	2	14,000.00	28,000
					28,000

PROJECT AREA: GPT01

Description: Gross Pollutant Trap
Drawing Ref: Pages 23 & 53 of the Joseph Road Public Realm Plan (Aspect Studios), 7 July 2017; and
Rocla CDS Unit Brochure.
Date: As above







Excerpt from pages 23 & 53 of the Joseph Road Public Realm Plan

Rocla®

CDS® Unit
Gross Pollutant Traps

WATER QUALITY

GDS® TECHNOLOGIES

The leading stormwater pollutant trap

Characteristics of the CDS® Unit

- Non-blocking functionality
- 95% capture of gross pollutants >1mm
- 95% sediment capture >200µm
- Captures organics and oils
- Captures adsorbed toxics and nutrients
- Can treat any pipe or multiple pipes
- Various sump sizes available
- Customised bypass requirements
- Underground - small footprint
- Easy installation
- No moving parts
- Lowest life cycle costs
- More water treated than comparable treatment designs
- Pollutants stored in the sump, not the screens

Applications

- Subdivisions and roads
- Residential, commercial and industrial developments
- Carparks and shopping centres
- Pre-treatment for wetlands
- Pre-treatment for reuse applications
- Pipes, channels, culverts and creeks

Other CDS® models are available for non-stormwater applications involving high flow solids/liquids separation, such as industrial processes and sewer overflows.

High performance GPTs using patented CDS® indirect screening technology

Selecting a CDS® Unit

The size and type of CDS® GPT required depends on catchment area, flows, pollution loads, performance requirements, maintenance method, hydraulic limitations and site constraints. Visit the Rocla website (www.rocla.com.au) or email solutions@rocla.com.au for a sizing request. Details submitted with this form provide all the information needed to calculate the size of device most applicable for the site.

CDS® Unit Models

CDS Unit No	Construction Material	Catchment Area (ha)
CDS0506	in-line polymer	< 1 ha
CDS0708	in-line concrete	< 2 ha
CDS0708M	in-line concrete	< 4 ha
CDS1009	pre-cast concrete	2-8 ha
CDS1012	pre-cast concrete	4-12 ha
CDS1015	pre-cast concrete	6-15 ha
CDS1512	pre-cast concrete	8-20 ha
CDS2018	pre-cast concrete	15-45 ha
CDS2028	pre-cast concrete	30-75 ha
CDS3018	pre-cast concrete	40-100 ha
CDS3024	pre-cast concrete	60-150 ha
CDS3030	pre-cast concrete	80-200 ha

How Stormwater Pollutant Traps Rate

The CDS® GPT is rated the most effective stormwater pollution trap in every independent comparison.

On-Line Devices	**POOR**
Off-Line Devices	**GOOD**
Off-Line Non-Blocking Devices	**BETTER**
Off-Line Non-Blocking Devices with Double Off-Line Storage (CDS)	**BEST**

Independent studies show that no GPT rates higher than the CDS® GPT on performance and pollution retention.

Complete design service

Rocla offers a complete design service for CDS® products that takes into account the catchment's characteristics, pollution load, hydraulic site constraints and opportunities, system capacities, velocity, backwater, as well as the location of services and access for cleaning. Hydraulic reports are available on request and are automatically carried out for larger units.

Diversion chamber

Precast diversion chambers can be manufactured to suit most typical installations, or chambers can be tailored to meet the hydraulic limitations of the site.

The diversion chamber has the capacity to cater for the highest possible flow in the stormwater system. The chamber is configured on the assumption that the CDS® unit has not been maintained and there is no flow passing through the unit.

A weir is located within the diversion chamber to create a driving head and direct the majority of flows into the CDS® GPT.

Diversion chamber options

- Precast diversion chambers
- Semi-precast diversion chambers
- Customised designs for multiple pipes, drops and bends
- In-situ channel designs
- Fixed or collapsible weirs
- Any flow capacity
- No flooding

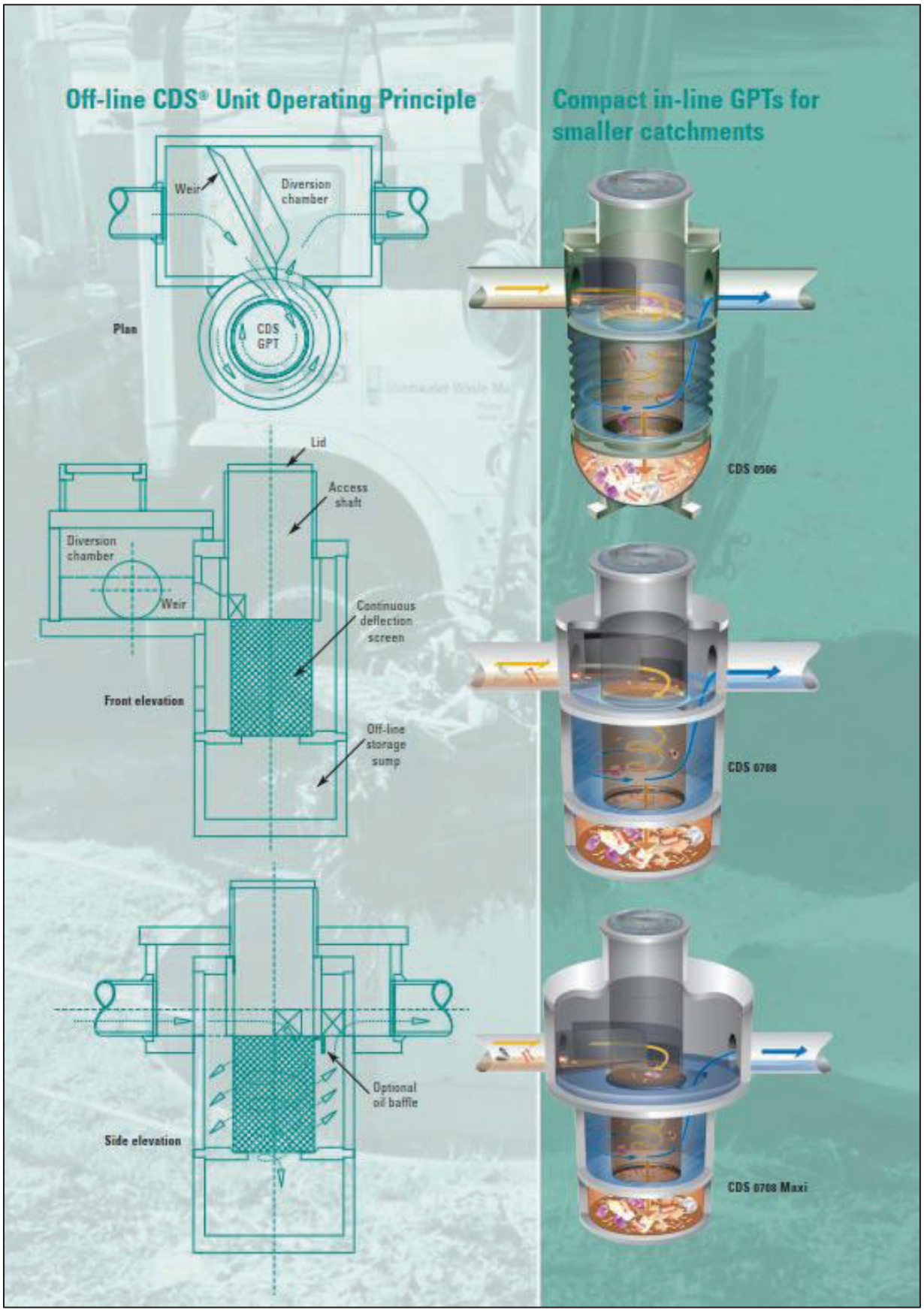
The CDS® GPT and diversion chamber design depends on the system capacity and site constraints. Rocla will design the most suitable CDS® GPT configuration to meet project requirements.

Maintaining CDS® GPTs

CDS® units have the lowest life-cycle costs due to their non-blocking functionality, large off-line storage and multiple cleaning options. There are 3 methods of emptying CDS® GPTs:

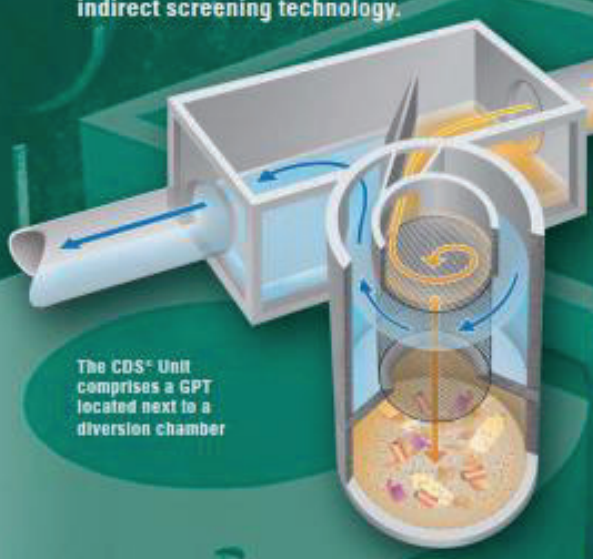
- Removable basket
- Material grab
- Suction method

With no requirement to unblock screens, confined space entry is minimised. Large off-line sump volumes (up to 10m^3 available) also minimise cleaning frequency, reducing maintenance costs and hence life-cycle costs over the next 50 years.


Off-line CDS® Unit Operating Principle
Weir
Diversion chamber
Plan
CDS GPT
Lid
Access shaft
Diversion chamber
Weir
Continuous deflection screen
Front elevation
Off-line storage sump
Optional oil baffle
Side elevation
Compact in-line GPTs for smaller catchments
CDS 0506
CDS 0708
CDS 0708 Maxi

Patented screening technology

CDS® gross pollutant traps (GPTs) are designed to capture and retain gross pollutants, litter, grit, sediments and associated oils, utilising patented CDS® indirect screening technology.



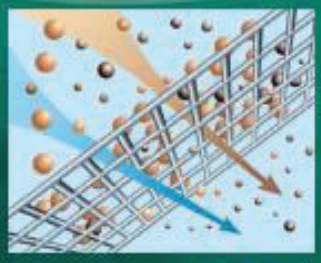
The CDS® Unit comprises a GPT located next to a diversion chamber

Continuous deflective separation (CDS)

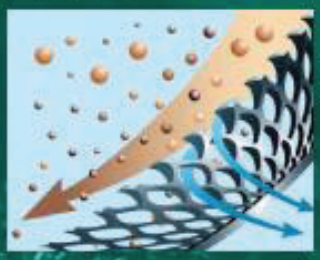
It has long been acknowledged that best management practice for stormwater pollutant traps involves locating the devices off-line.

- GPTs located on-line suffer badly from turbulence and eddies, often resulting in the re-suspension and loss of previously captured pollutants.
- GPTs which store pollution in the screening area suffer decreasing screen area and therefore decreasing flow rates, as they fill up.
- GPTs which function by direct filtration have a treatable flow rate decay that is proportional to the percentage of screen blockage.
- GPTs that utilise a vortex only, without a screen, cannot guarantee neutrally buoyant pollution removal.

Only CDS® units combine the advantages of being off-line, having non-blocking functionality, vortex forces and storing pollution outside the screening area. For these reasons, no other device is "equivalent" to a CDS® Unit.

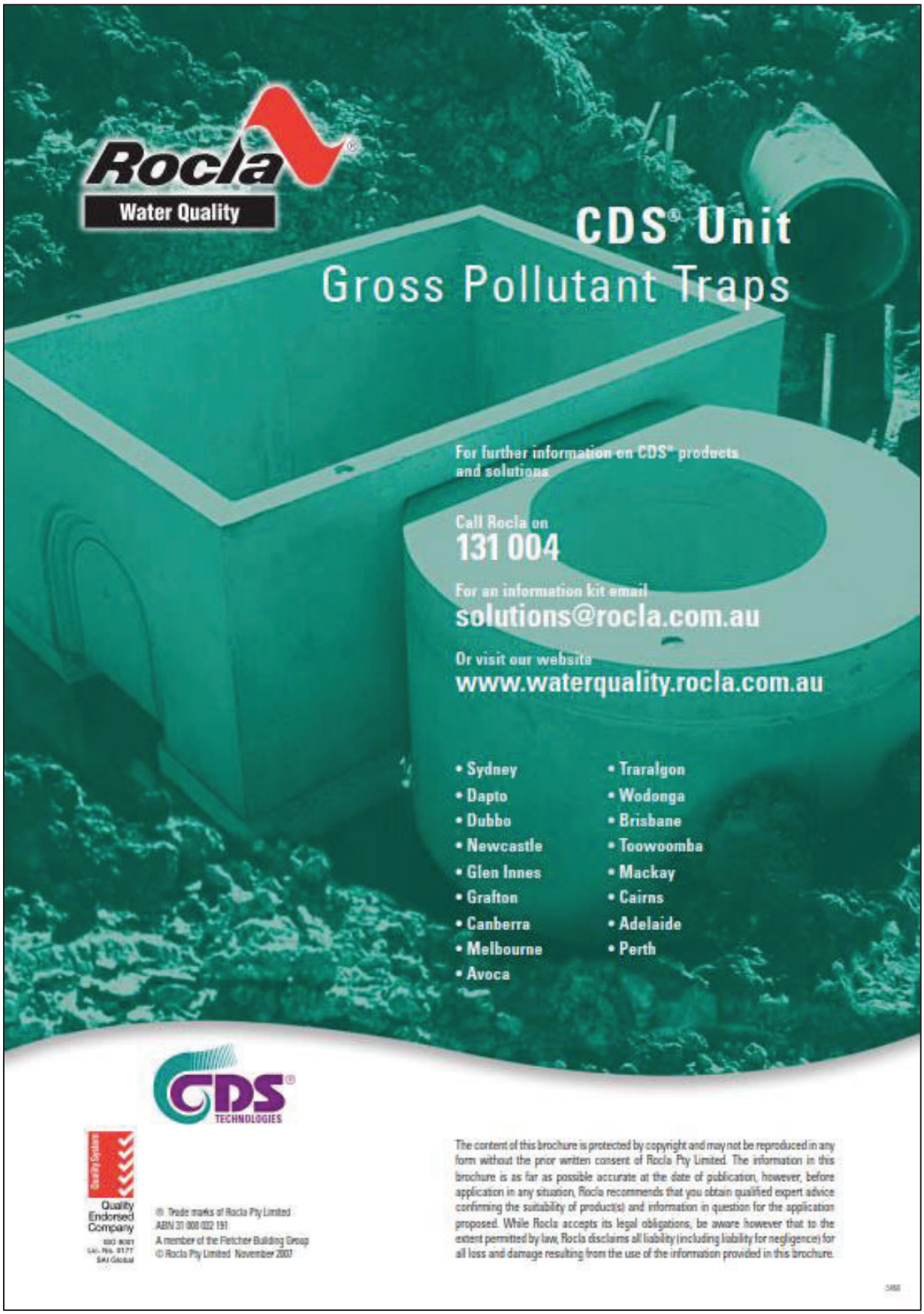


Direct screening



Indirect screening (CDS)

The only off-line GPT with non-blocking screens and storage outside the screening area


Rocla
Water Quality
CDS® Unit
Gross Pollutant Traps
For further information on CDS® products and solutions
Call Rocla on
131 004
For an information kit email
solutions@rocla.com.au
Or visit our website
www.waterquality.rocla.com.au
• Sydney
• Dapto
• Dubbo
• Newcastle
• Glen Innes
• Grafton
• Canberra
• Melbourne
• Avoca
• Traralgon
• Wodonga
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• Mackay
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• Perth
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ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (GPT01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Gross Pollutant Trap	Item	1	228,344	228,344
	SUB-TOTAL TRADE WORKS	**Item**	**1**	**228,344**	**228,344**
2	Design Development Contingency	%	10.0	228,344	22,834
3	Temporary works	%	2	251,178	5,024
4	Preliminaries and Supervision	%	8	256,202	20,496
5	Builder's Margin	%	5	276,698	13,835
6	Cost Escalation (FEB - JUL)	%	1	290,533	2,905
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**Item**	**1**	**293,438**	**293,438**
7	Construction Contingency	%	20	293,438	58,688
8	Design and Consultant Fees	%	9	352,126	31,691
9	Project Management Fees	%	3	383,817	12,394
	SUB-TOTAL DESIGN & CONSTRUCT COST	**Item**	**1**	**396,211**	**396,211**
10	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	**Item**	**1**	**396,211**	**396,211**

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (GPT01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Gross Pollutant Trap**				
1.1	Gross pollutant Trap inclusive of stormwater connections, excavation and associated backfilling works - ROCLA CDS1015	Item	1	50,000.00	50,000
	Stepped Excavation				
1.2	10 x 10 x 2.5	m3	250	50.00	12,500
1.3	5 x 5 x 2.5	m3	63	50.00	3,125
1.4	300mm Crushed Rock Base	m2	25	30.00	750
1.5	Stormwater connections	No	2	2,000.00	4,000
1.6	Refer to LR Pardo & Associates technical report for identification of rock.	Note			
1.7	We have allowed for rippable rock removal during GPT excavation works	Note			
1.8	Allowance for trenching in rock	m3	500	120.00	60,000
1.9	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
1.10	WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within LR Pardo & Associates Technical Report No. 171011 Joseph Rd/1 dated 16/06/2017	Note			
1.11	Assume 100% of GPT excavation is contaminated: 313m3 x 100% = 313m3 approx	Note			
1.12	Allow 5% at Cat A [$850/t]	m3	16	1,700	26,605
1.13	Allow Nil at Cat B	m3	Nil		
1.14	Allow 95% at Cat C [$140/t]	m3	297	240	71,364
					228,344

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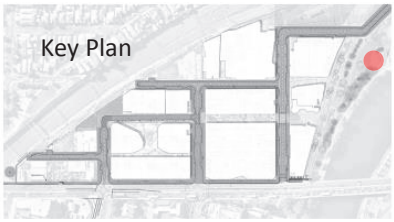
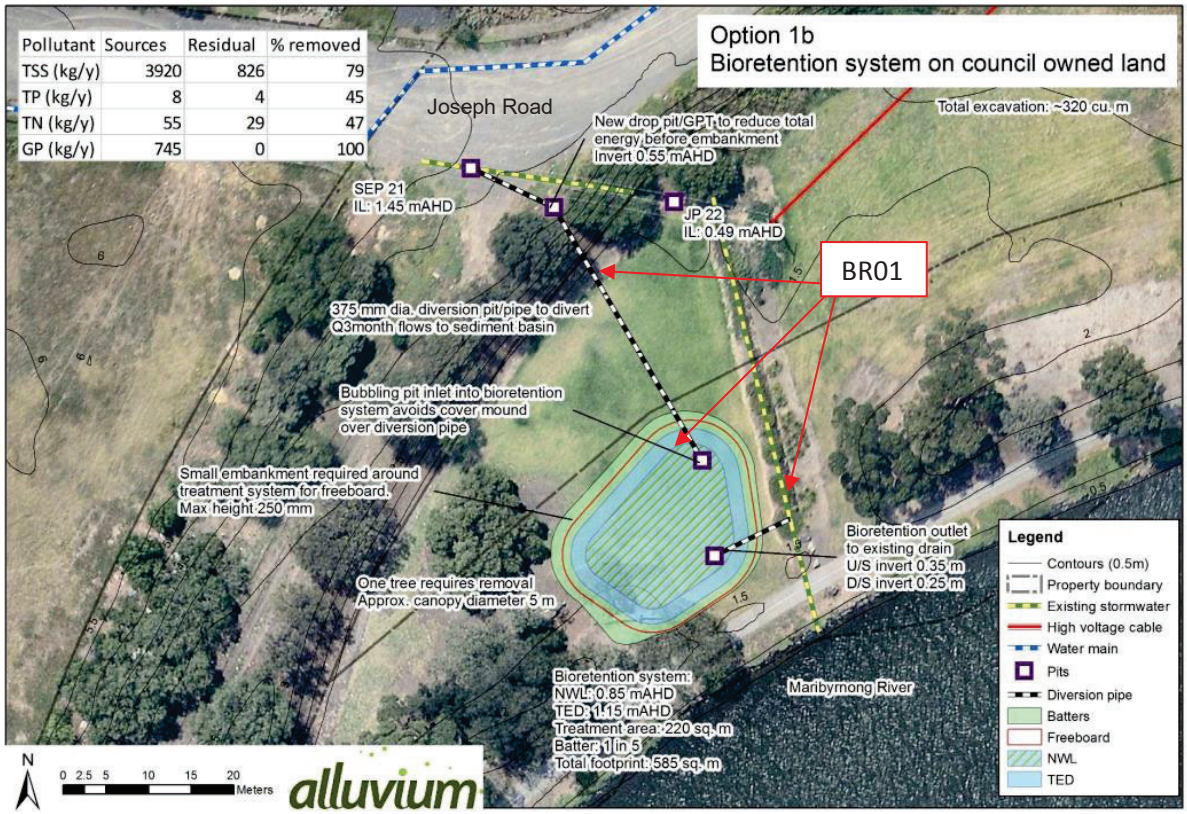
PROJECT AREA: BR01

Description: Bio-Retention System
Drawing Ref: Joseph Road Precinct Preferred WSUD Concepts (Alluvium Consulting)
Date: 12 May 2017
Revision: 1





ESTIMATE SUMMARY

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (BR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

	Section	Unit	Quantity	Rate	Cost ($)
1	Bio-Retention Basin (BR01)	Item	1	236,082	236,082
	SUB-TOTAL TRADE WORKS	**Item**	**1**	**236,082**	**236,082**
2	Design Development Contingency	%	10.0	236,082	23,608
3	Temporary works	%	2	259,690	5,194
4	Preliminaries and Supervision	%	8	264,884	21,191
5	Builder's Margin	%	5	286,075	14,304
6	Cost Escalation	Excl			
	TOTAL CONSTRUCTION COST AS AT JUL 2017	**Item**	**1**	**300,379**	**300,379**
7	Archaeological Contingency	Excl			
8	Construction Contingency	%	20	300,379	60,076
9	Design and Consultant Fees	%	9	360,454	32,441
10	Project Management Fees	%	3	392,895	11,787
	SUB-TOTAL DESIGN & CONSTRUCT COST	**Item**	**1**	**404,682**	**404,682**
11	Authority and Head works Charges	Excl			
	TOTAL DESIGN & CONSTRUCTION COST AS AT JUL 2017	**Item**	**1**	**404,682**	**404,682**

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (BR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Bio-Retention Basin (BR01)**				
1.1	Scope have been allowed for as per Alluvium Consulting WSUD Concept Report (Appendix A)	Note			
	Excavation				
1.2	Strip topsoil (100mm to site area)	m2	586	10	5,860
1.3	Allowance for bulk excavation including formation of retention basin batters (assumed 450mm deep)	m3	264	45	11,867
	Contamination				
1.4	The below allowances relate to to remediation of the precinct outside of the development allotments and includes disposing of contaminated soil off-site	Note			
1.5	WTP have not measured detailed quantities of contamination. We would expect that the environmental consultant will provide detailed quantities at a later date. As a result, we have updated our previous methodology based on the information provided within Ground Science Geotechnical Investigation G3622.1 dated 21 March 2018	Note			
1.6	Unclassified contamination present within 1000mm depth of Bio Retention Basin footprint.	Note			
1.7	Allow 5% at Cat A [$850/t]	m3	13	1,700	22,415
1.8	Allow Nil at Cat B	m3	NIL		
1.9	Allow 95% at Cat C [$140/t]	m3	251	240	60,124
	Landscaping				
1.10	Allowance for liner to basin footprint	m2	586	30	17,580
1.11	Allowance for subsoil drainage to basin footprint	m2	586	25	14,650
1.12	Filtration media layer to bio-retention basin treatment area (assumed 500mm thick)	m3	133	65	8,613
1.13	Crushed rock backfill to bio-retention basin (assumed 50mm thick)	m2	265	75	19,875
1.14	Bark mulch back fill to batters (assumed 50mm thick)	m2	321	40	12,840
1.15	Allowance to spread previously stripped topsoil to batters/surrounding areas (assumed 200mm thick)	m3	321	40	12,840

ESTIMATE DETAIL

16291 - Joseph Road Precinct

Joseph Road Precinct - 17 June 2019 (BR01)

Job No: 16291
Cost Base Date: July 2017
GFA (m2): 19,787.00

Date Printed: 17/06/2019

Item	Section	Unit	Qty	Rate	Cost $
1	**Bio-Retention Basin (BR01)**				*(Continued)*
1.16	Allowance for planting to Bio-retention basin footprint (4 - 6 plants per m2)	m2	586	35	20,510
	Stormwater				
1.17	375 dia RCP diversion pipe including trenching	m	66	135.00	8,910
1.18	Allowance for new pits	No	5	4,000	20,000
					236,082

Joseph Road Precinct - Cost Reconciliation

WT PARTNERSHIP

Trades	Estimate - 1 March 2019		Estimate - 17 June 2019	Difference	Comments
Demolition	$ 1,472,825		$ 1,446,192	($26,633)	Changes due to reduction of RD09 work area
Contamination	$ 4,267,864		$ 4,059,464	($208,400)	""
Groundworks	$ 1,372,915		$ 1,286,350	($86,565)	""
Roadworks	$ 3,368,965		$ 3,182,877	($186,088)	""
Pavements	$ 1,509,405		$ 1,471,705	($37,700)	""
Street Furniture	$ 387,650		$ 384,100	($3,550)	""
Street lighting	$ 200,000		$ 185,000	($15,000)	""
Traffic Signalisation	$ 582,590		$ 582,590	$0	
Traffic Signalistation - Traffic Management	$ 70,000		$ 70,000	$0	
Landscaping	$ 218,660		$ 215,780	($2,880)	""
Power	$ 1,352,060		$ 1,282,085	($69,975)	""
Stormwater	$ 957,188		$ 957,188	$0	
Sewer	$ -		$ -	$0	
Water	$ -		$ -	$0	
Gas	$ -		$ -	$0	
Communications	$ 1,000,000		$ 1,000,000	$0	
CCTV	$ -		$ -	$0	
SUB-TOTAL TRADE WORKS (EXCL GST)	**$ 16,760,122**		**$ 16,123,331**	**($636,791)**	""
	$ -		$ -		
Design Development Contingency	$ 1,676,012		$ 1,612,333	($63,679)	Generic increase due to an overall reduction in trade cost in the above trades
Temporary works	$ 368,723		$ 354,714	($14,009)	""
Preliminaries and Supervision	$ 1,504,388		$ 1,447,230	($57,158)	""
Builder's Margin	$ 1,015,462		$ 976,880	($38,582)	""
Cost Escalation (FEB - JULY)	$ 201,782		$ 193,680	($8,102)	
TOTAL CONSTRUCTION COST (EXCL GST)	**$ 21,526,489**		**$ 20,708,168**	**($818,321)**	
	$ -		$ -		
Construction Contingency	$ 3,258,664		$ 3,135,916	($122,748)	Generic increase due to an overall reduction in trade cost in the above trades
Design and Consultant fees	$ 2,230,663		$ 2,145,967	($84,696)	""
Project Management fees	$ 814,189		$ 789,956	($24,233)	""
SUB-TOTAL DESIGN & CONSTRUCTION COST (EXCL GST)	**$ 27,830,005**		**$ 26,780,007**	**($1,049,998)**	
	$ -		$ -		
Authority and Head works Charges	$ -		$ -	$0	
Decimal Rounding	-$ 5		-$ 7	($2)	Minor rounding
TOTAL DESIGN & CONSTRUCTION COST (EXCL GST)	**$27,830,000**		**$26,780,000**	**($1,050,000)**	

Attachment 2 to the
Joseph Road Precinct
Development Contributions Plan

Joseph Road Precinct
Public Realm Plan

7 July 2017

Maribyrnong
CITY COUNCIL

Concept Design Report

ASPECT Studios™

Taylor Thomson Whitting

Contents

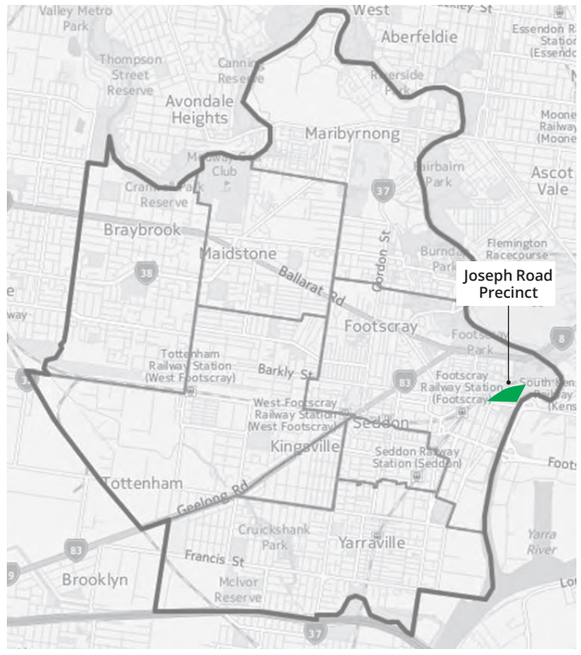
1. Public Realm Plan

1.1. Introduction

The Joseph Road Precinct is approximately 15 hectares, located 5km from the Melbourne CBD. It is bounded by Hopkins Street to the south, the Maribyrnong River to the east and the Werribee/ Sunbury railway line to the north-west.

The public realm is made up of road reserves and public streets including all assets and services within the Joseph Road Precinct that are vested in Council or VicRoads.

Melbourne map indicating City of Maribyrnong locality



City of Maribyrnong boundary map

Design objectives

The public realm design objectives for the Joseph Road Precinct are to

- Provide connections through the precinct and to surrounding areas,
- Provide a seamless transition in activity levels and function between Footscray central and Melbourne CBD,
- Have regard to the built form outcomes of the Precinct,
- Create a public realm that complements active ground floor uses, provides for safe and pleasant pedestrian circulation, and encourages wider public access and usage,
- Prioritise pedestrians, cyclists and encourage active transport modes,
- Provide an accessible and equitable public realm,
- Provide services and infrastructure required for the level of development in ways that do not limit opportunities for quality green infrastructure in the streetscape; and,
- Consider and manage grading of the site and stormwater drainage in a positive way to contribute towards a resilient city.

Diagram of design objectives

Existing site photos

Wightman Street

Warde Street

Whitehall Street

Hallenstein Street

Neilson Place

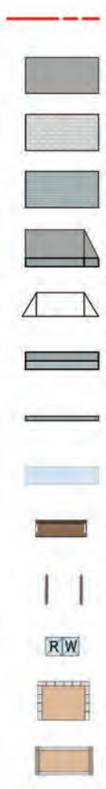
South Joseph Road

North Joseph Road

1.2. Public Realm Legend

Materials and surfaces for the Joseph Road precinct will be consistent with the Maribyrnong City Design Manual for Footscray area. This legend applies to the the functional layout plan as shown in pg.08

Refer to Chapter 4 of this report for further information on the materials palette.



EXTENT OF WORKS

PAVEMENT - ASPHALT
Asphalt footpath (type N) as per SF 010

PAVEMENT - BLUESTONE

PAVEMENT - STONE COBBLE
Sawn bluestone pitcher

VEHICLE CROSSING WITH BLUESTONE KERB

CROSSING
Pram crossing asphalt transition, bluestone transition flush kerb as per SF 003

KERB
Sawn bluestone and concrete channel. As per SF 008

STONE FLUSH EDGE
Sawn bluestone kerb extension. 300 x 150 x 40mm sawn bluestone units as per SF 012

SPOON DRAIN
600mm width concrete spoon drain

SEAT
'Promenade' with back rest as per SF 201

BYCYCLE RACK
Standard hoop polished stainless steel as per SF 401

WASTE AND RECYCLING UNITS
As per general SF 301 and recycling SF 301

TREE SURROUND IN FOOTPATH
Bluestone surround with granitic gravel, as per SF602

TREE SURROUND IN ROAD RESERVE
Concrete edging with granitic gravel as per SF605

WAYFINDING AND SIGNAGE
as per SF701

PROPOSED GROSS POLLUTANT TRAP

PROPOSED ADVANCED TREE

PROPOSED GARDEN BED

PROPOSED LIGHTING
Street Light - Footscray

EXISTING LIGHTING

BOLLARD
Bollard - stainless steel as per S501

EXISTING CONCRETE EDGE TO BRIDGE

EDGE OF EXISTING CONCRETE
BRIDGE TO BE REMOVED

TITLE AND PROPERTY BOUNDARY

EASEMENTS

JOSEPH ROAD PRECINCT BOUNDARY

1.3. Public Realm Plan

The public realm plan for the Joseph Road precinct includes proposed street concepts for the following

- Wightman Street
- Whitehall Street
- Warde Street
- Hallenstein Street
- Neilson Place
- South Joseph Road
- Hopkins Street
- North Joseph Road

It also includes the connection and relationship to the Maribyrnong River and public open space in the precinct.

The plan makes reference to the current designs of the private open space networks.

Please refer to the site analysis report for further information on the proposed surrounding developments.

1.4. Public Realm Plan - Without Trees

2. Street Concepts

2.1. Wightman Street

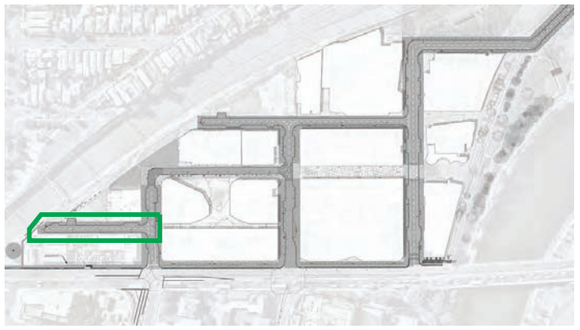
Wightman Street provides access to a number of existing light industrial properties. The design accommodates the existing built form and vehicle cross over proposed locations. There are no current development plans with frontages facing the street. The western end of the street terminates with the Williamstown Rail line.

The proposed design includes re-instated kerbs and pavements consistent with the Maribyrnong Design Manual. Streetscape trees and planters have been provided where possible.

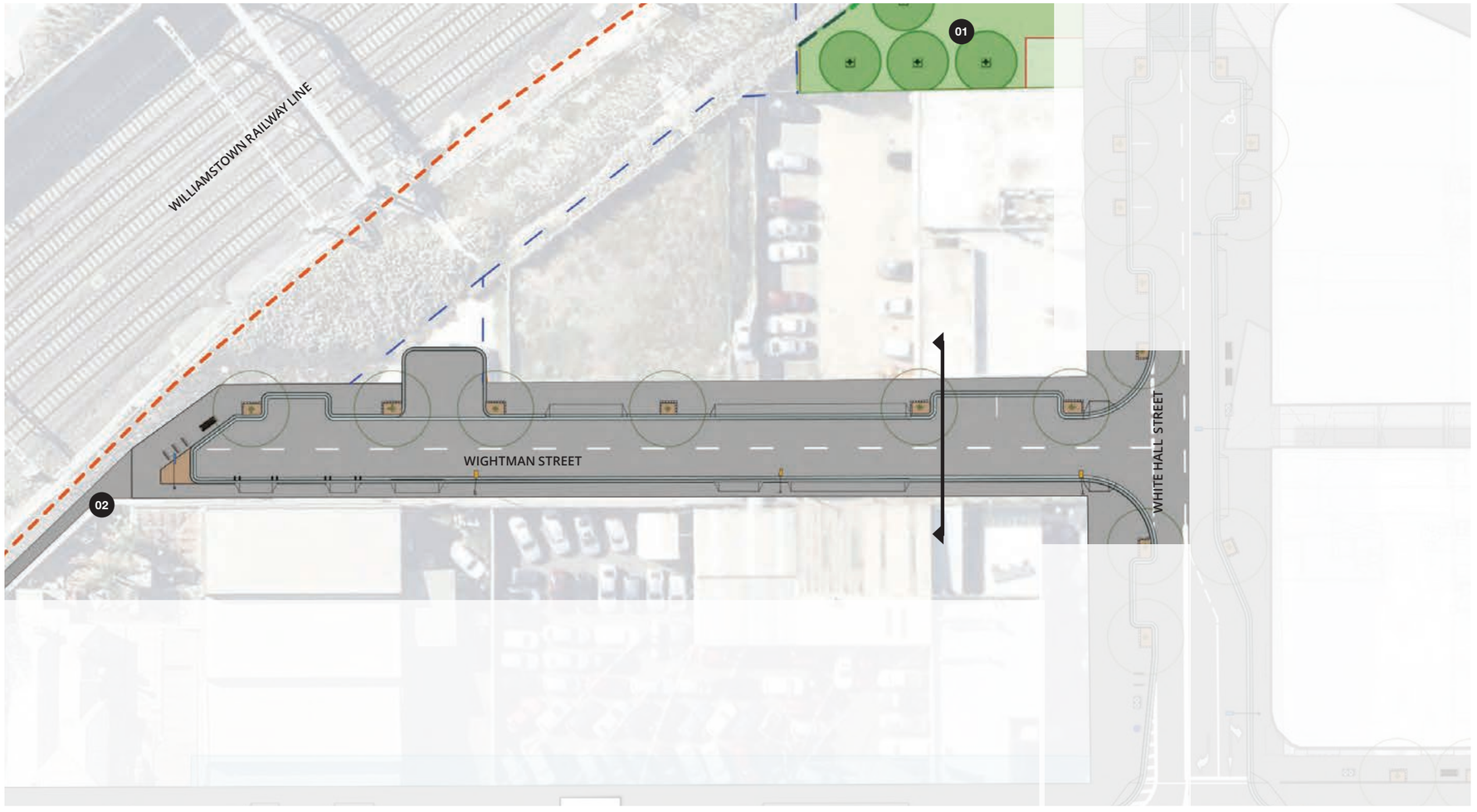
Proposed Street Details

Carriageway width	3.3m
Parallel parking bays	3
Vehicle cross overs	7
Trees in footpath (Council details SF-602)	6
Trees in road reserve (Council details SF-605)	0
Benches	1
Bins (Waste & recycle unit)	0
Bike hoops	3
Wayfinding and signage	0

The location of street furniture is indicative and final locations are to be approved by Council.



Key Plan



Plan 1:500 @ A3

0 10 20 30 m

N

SCALE 1:500 @ A3

LEGEND

- 01 Public open space
- 02 Public pedestrian/cycle connection
- Joseph Road precinct boundary
- Railway title/property boundary

2.1.1 Wightman Street Section

Section 1:75 @ A3

2.2. Whitehall Street

Whitehall Street provides north-south connection from Hopkins Street to Warde Street. Developments are currently under construction on the east side of the street (18-24 Hopkins Street). This development will provide active frontages-yet to be confirmed facing onto Whitehall Street. On the southern corner of Hopkins Street the development will provide active frontages (showrooms).

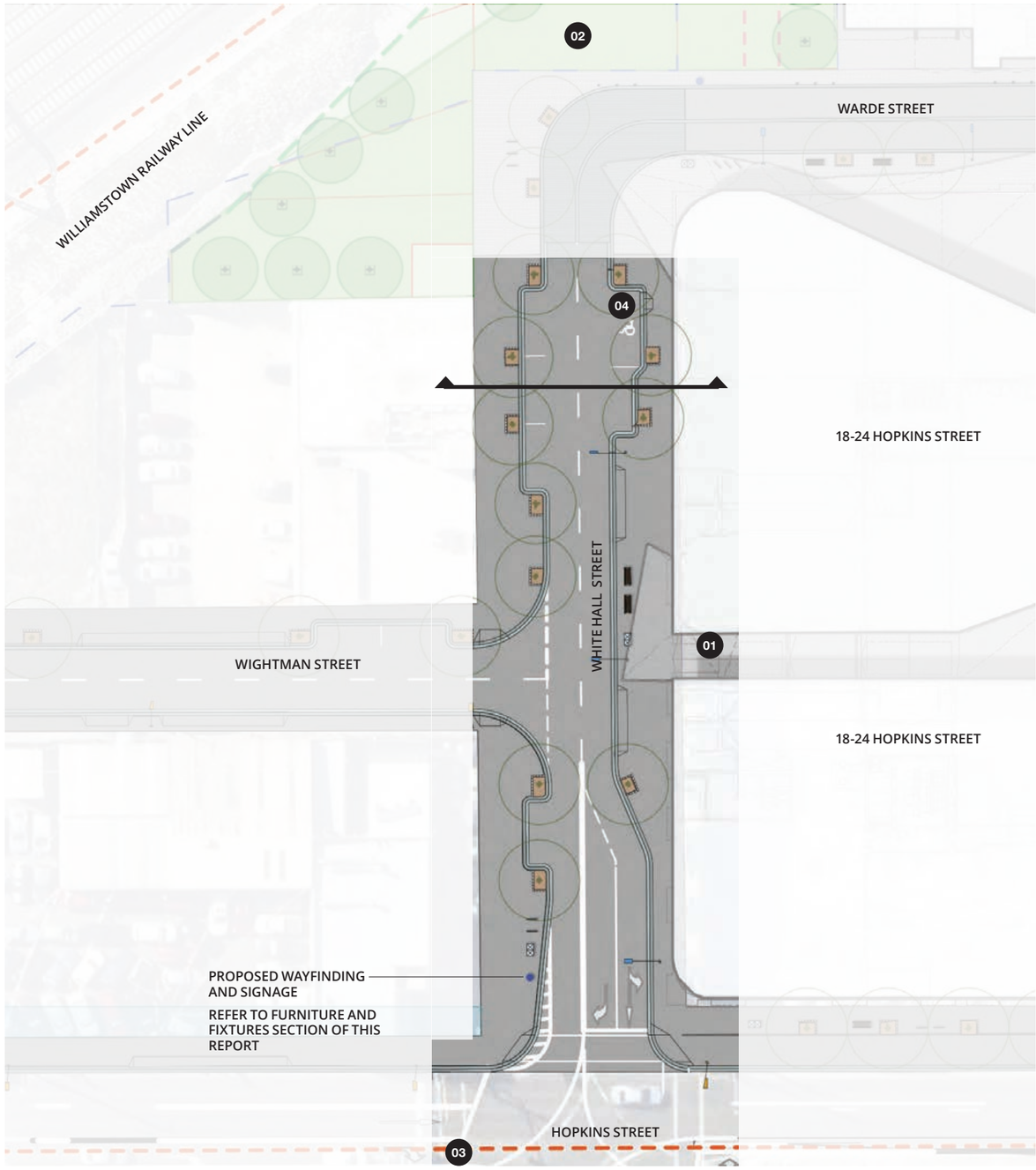
The design proposal aims to nurture an active street by providing widened public realm and a consistent avenue of street scape trees.

The northern end of Whitehall Street meets with a proposed public open space.

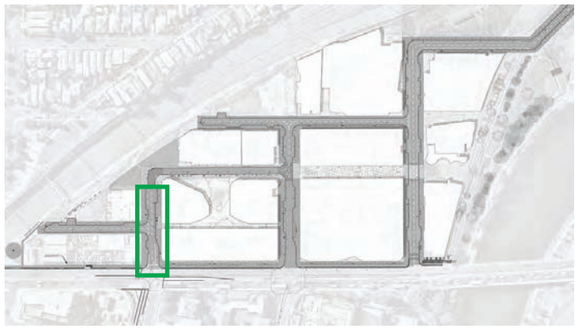
Proposed Street Details

Carriageway width	3.3m
Parallel parking bays	6
Vehicle cross overs	2
Trees in footpath (Council details SF-602)	11
Trees in road reserve (Council details SF-605)	0
Benches	2
Bins (Waste & recycle unit)	2
Bike hoops	2
Wayfinding and signage	1

The location of street furniture is indicative and final locations are to be approved by Council.



Plan 1:500 @ A3



Key Plan

0 10 20 30 m

N

SCALE 1:500 @ A3

LEGEND

- 01 Publicly accessible private open space
- 02 Public open space
- 03 Whitehall St. and Hopkins St. intersection
- 04 DDA accesible parking
- Joseph Road precinct boundary

2.2.1 Whitehall Street Section

Section 1:75 @ A3

2.3. Warde Street

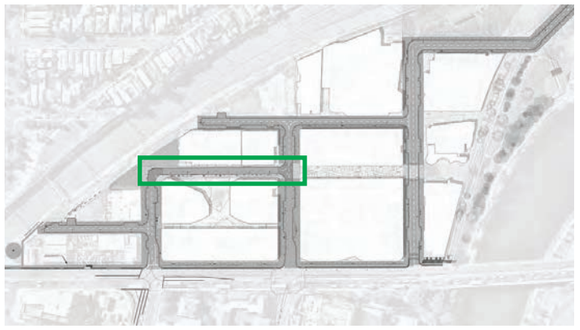
Warde Street is proposed to become a shared vehicle and pedestrian zone. This will provide pedestrian priority link East-West through the development making a key connection to the Maribyrnong River and the river side.

A flush transition, without barrier kerbs, between the pedestrian only footpath and the shared zone will assist to establish the street as a pedestrian priority zone. Vehicles movements will be reduced to a maximum speed limit to accommodate pedestrians. Street furniture will define the edge of the pedestrian only zone and compliment the active edges provide by the development.

A speed limit of 10Km/h will be applied. To be approved by VicRoads.

Sawn bluestone pitcher at raised transition thresholds

Row of bluestone setts at edge of shared zone



Key Plan

Proposed Street Details

Carriageway width	3.1m
Parallel parking bays	0
Vehicle cross overs	1
Trees in footpath (Council details SF-602)	10
Trees in road reserve (Council details SF-605)	0
Benches	7
Bins (Waste & recycle unit)	2
Bike hoops	9
Wayfinding and signage	1

The location of street furniture is indicative and final locations are to be approved by Council.

LEGEND

01 Publicly accessible private open space

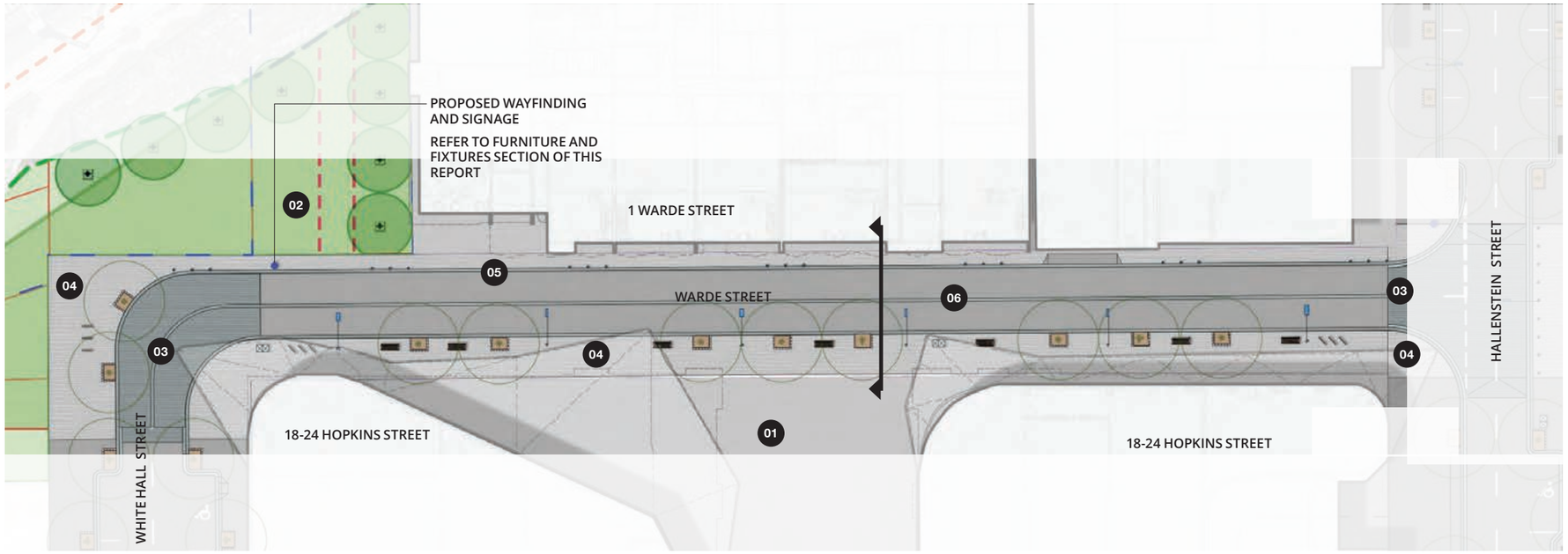
02 Public open space

03 Raised transition threshold into shared zone -Sawn bluestone pitchers

04 Pavement -bluestone

05 Flush transition between pedestrian only footpath and shared zone - Row of bluestone setts

06 Shared zone - asphalt surfacing to carriageway



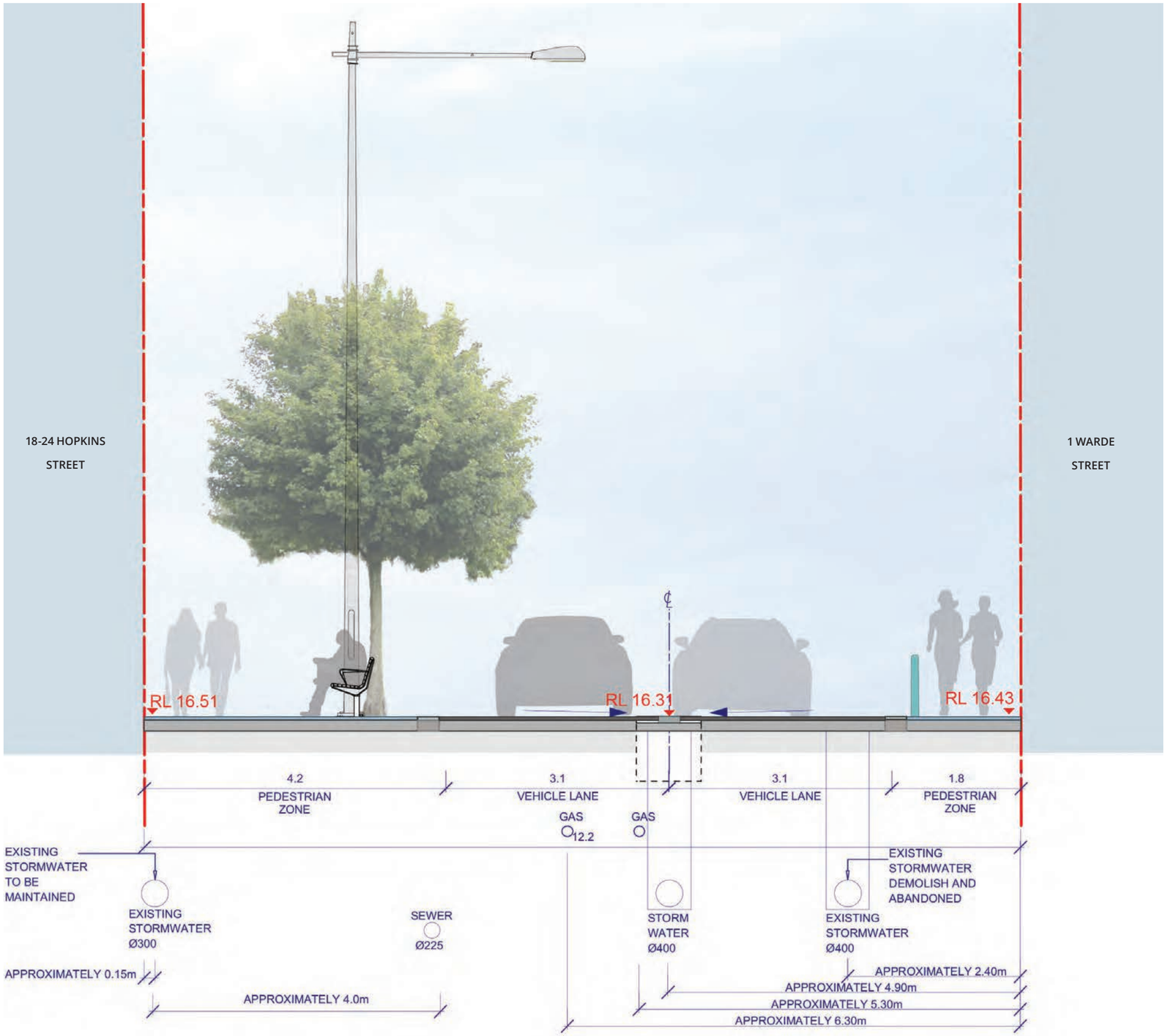
Plan 1:500 @ A3

0 10 20 30 m

N

SCALE 1:500 @ A3

2.3.1 Warde Street Section



Section 1:75 @ A3

2.4. Hallenstein Street

Hallenstein Street will create a pedestrian friendly zone through to Neilson Place in the north. A widened footpath will provide clear pedestrian movement zones as well as room for streetscape furniture and street trees.

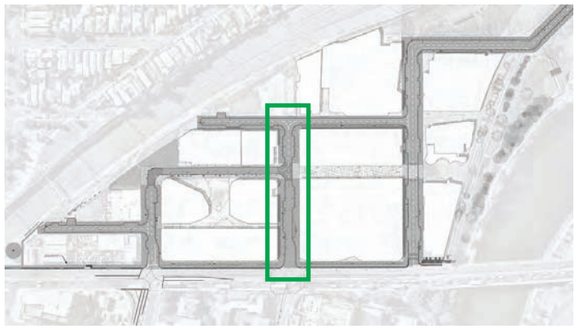
Street trees are arranged in two rows, one in verge and the other within the pedestrian zone. This approach provides Hallenstein Street with a consistent green canopy as well as on street car parking.

Proposed Street Details

Carriageway width	3.3m
Parallel parking bays	15
Vehicle cross overs	3
Trees in footpath (Council details SF-602)	20
Trees in road reserve (Council details SF-605)	1
Benches	5
Bins (Waste & recycle unit)	4
Bike hoops	5
Wafinding and signage	2

The location of street furniture is indicative and final locations are to be approved by Council.

Hallenstein Street Visualisation



Key Plan

LEGEND

01 Publicly accessible private open space - Connection to Maribyrnong River

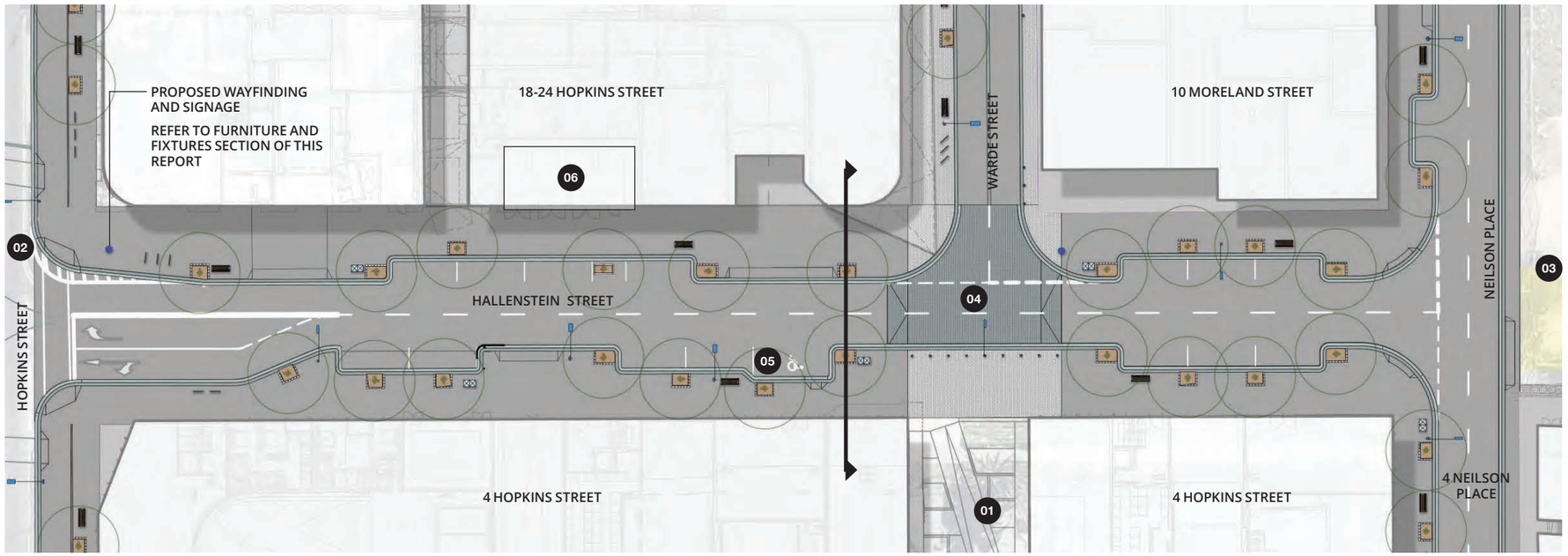
02 Hallenstein St. and Hopkins St. intersection

03 Easement

04 Sawn Bluestone pitcher to ramp and raised transition threshold at intersection with Warde Street

05 DDA accesible car park

06 Substation



Plan 1:500 @ A3

0 10 20 30 m N

SCALE 1:500 @ A3

2.4.1 Hallenstein Street Section

Section 1:50 @ A3

2.5. Neilson Place

Neilson Place has a reduced width however is required to provide for both east and west bound vehicle movements. To provide a consistent green canopy along the length of the street, it is proposed to shift the carriageway north and provide trees along the south side with the most solar access.

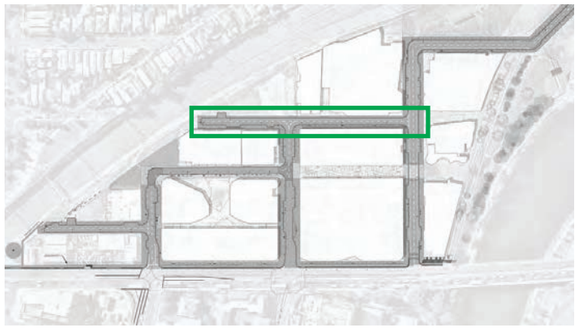
Between Hallenstein Street and Joseph Road there will be no on street car parking, however, some will be provided west of Hallenstein Street. Cross over access into the proposed developments will be provided.

No. 2 Neilson Place will provide active frontages with retail opportunities provided in the east.

The location of street furniture is indicative and final locations are to be approved by Council.

Proposed Street Details

Carriageway width	3.3m
Parallel parking bays	3
Vehicle cross overs	7
Trees in footpath	
(Council details SF-602)	14
Benches	4
Bins (Waste & recycle unit)	1
Bike hoops	6
Wayfinding and signage	0



Key Plan

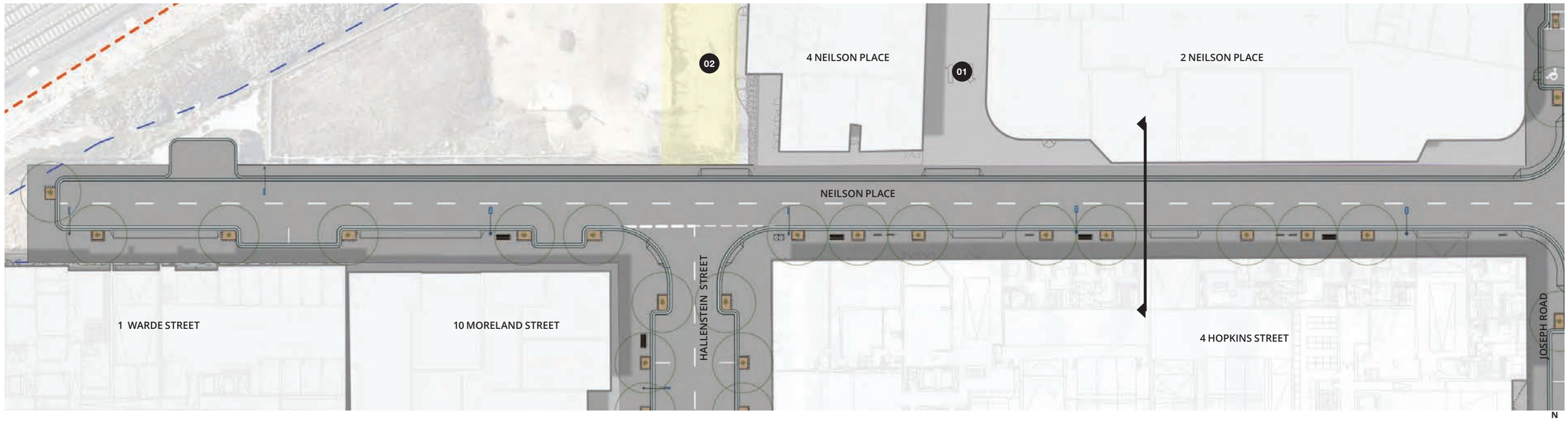
LEGEND

01 Access to private car park

02 Easement

Joseph Road precinct boundary

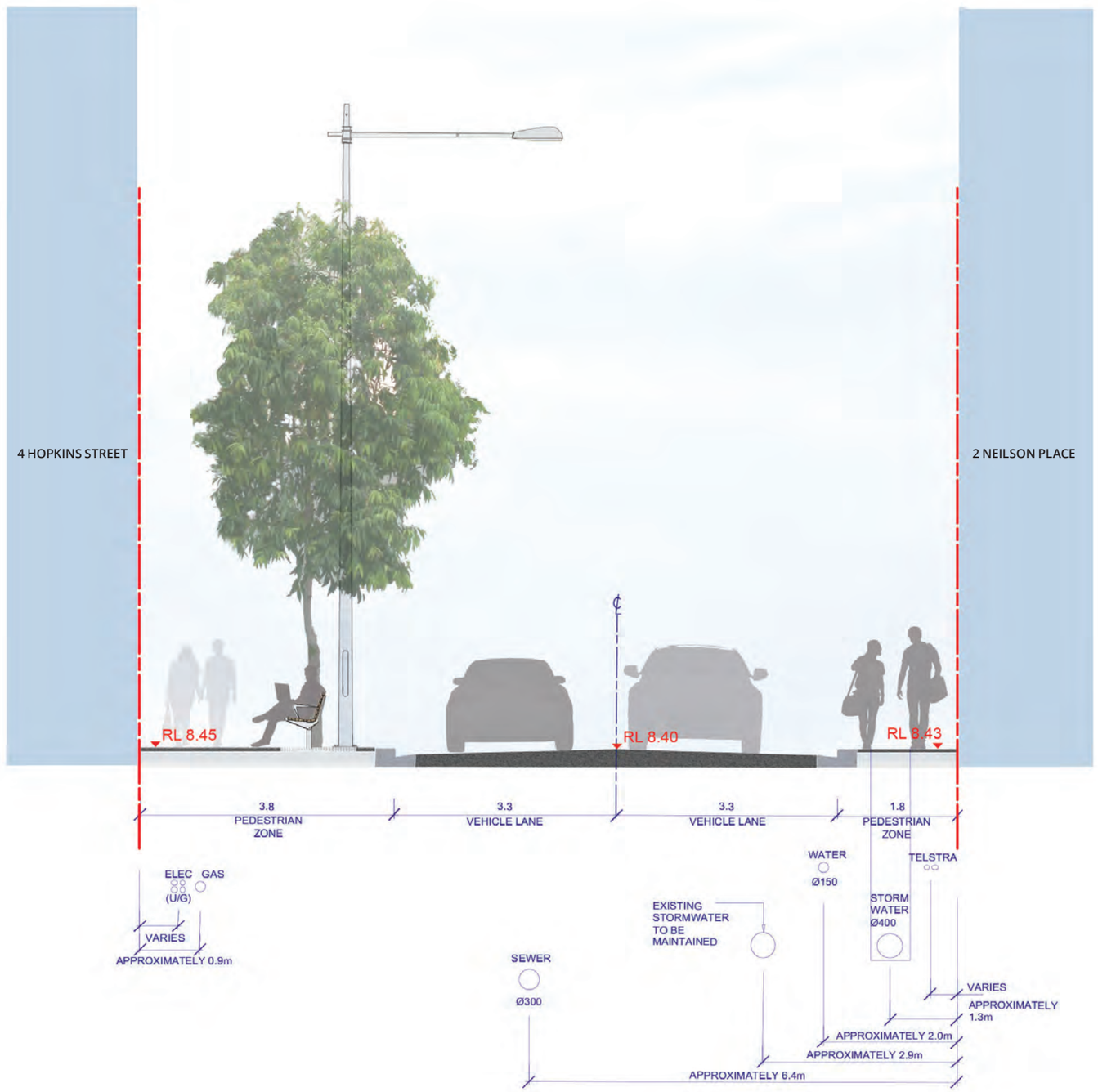
Railway title/property boundary



Plan 1:500 @ A3

SCALE 1:500 @ A3

2.5.1 Neilson Place Section



Section 1:50 @ A3

2.6. South Joseph Road

South Joseph Road will be a new main street for the Joseph Road precinct. The design for the street will provide on street parking to encourage visitors and residents to park and walk to key destinations. A consistent avenue of trees will provide a lush green canopy, the arrangement similar to Hallenstein Street will contribute to creating a unique identity for Joseph Road precinct.

A raised pedestrian crossing will prioritise pedestrian movements and create a direct link from the Maribyrnong River to the pedestrian mall at 4 Hopkins Street, Warde Street shared zone and to Footscray Metropolitan Activity Centre.

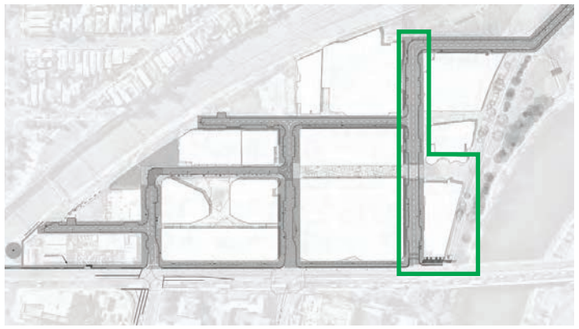
Separated cycle lanes will provide cyclist priority along Joseph Road to Maribyrnong River.

The location of street furniture is indicative and final locations are to be approved by Council.

Proposed Street Details

Carriageway width	3.3m
Parallel parking bays	20
Vehicle cross overs	3
Trees in footpath (Council details SF-602)	19
Trees in road reserve (Council details SF-605)	4
Benches	7
Bins (Waste & recycle unit)	5
Bike hoops	7
Wayfinding and signage	2

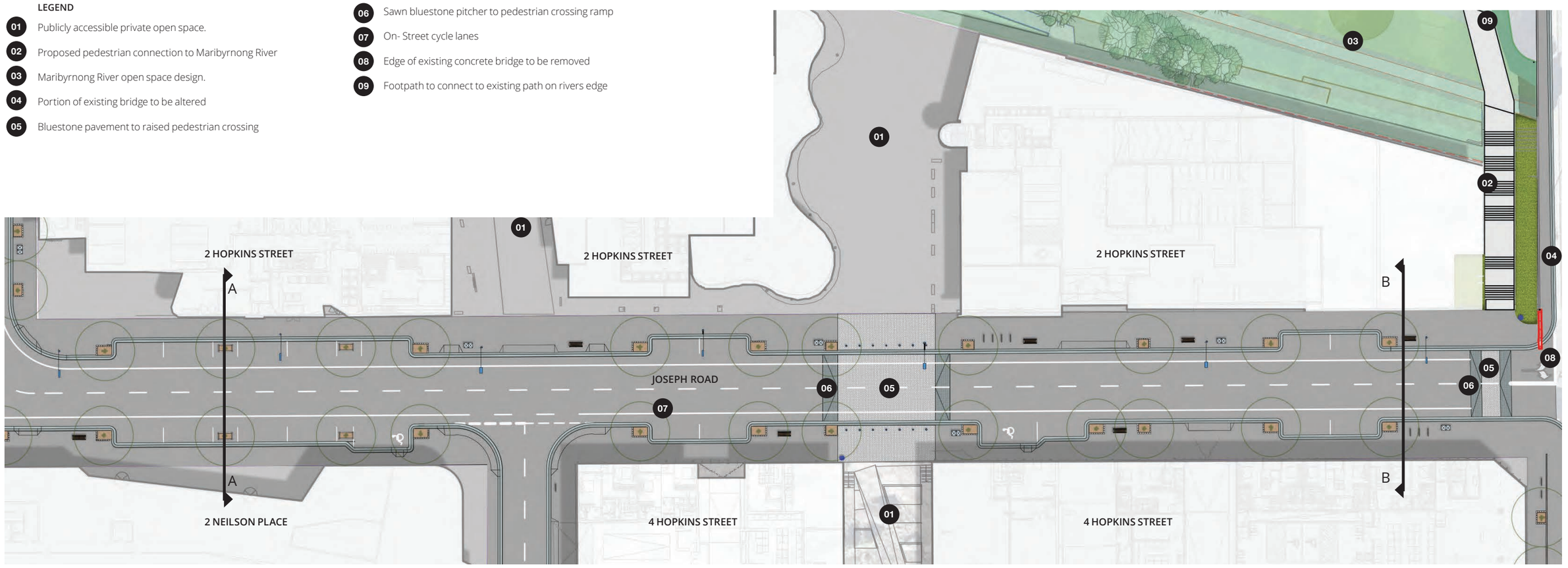
Visualisation of proposed design for South Joseph Road



Key Plan

LEGEND

01 Publicly accessible private open space.
02 Proposed pedestrian connection to Maribyrnong River
03 Maribyrnong River open space design.
04 Portion of existing bridge to be altered
05 Bluestone pavement to raised pedestrian crossing
06 Sawn bluestone pitcher to pedestrian crossing ramp
07 On- Street cycle lanes
08 Edge of existing concrete bridge to be removed
09 Footpath to connect to existing path on rivers edge



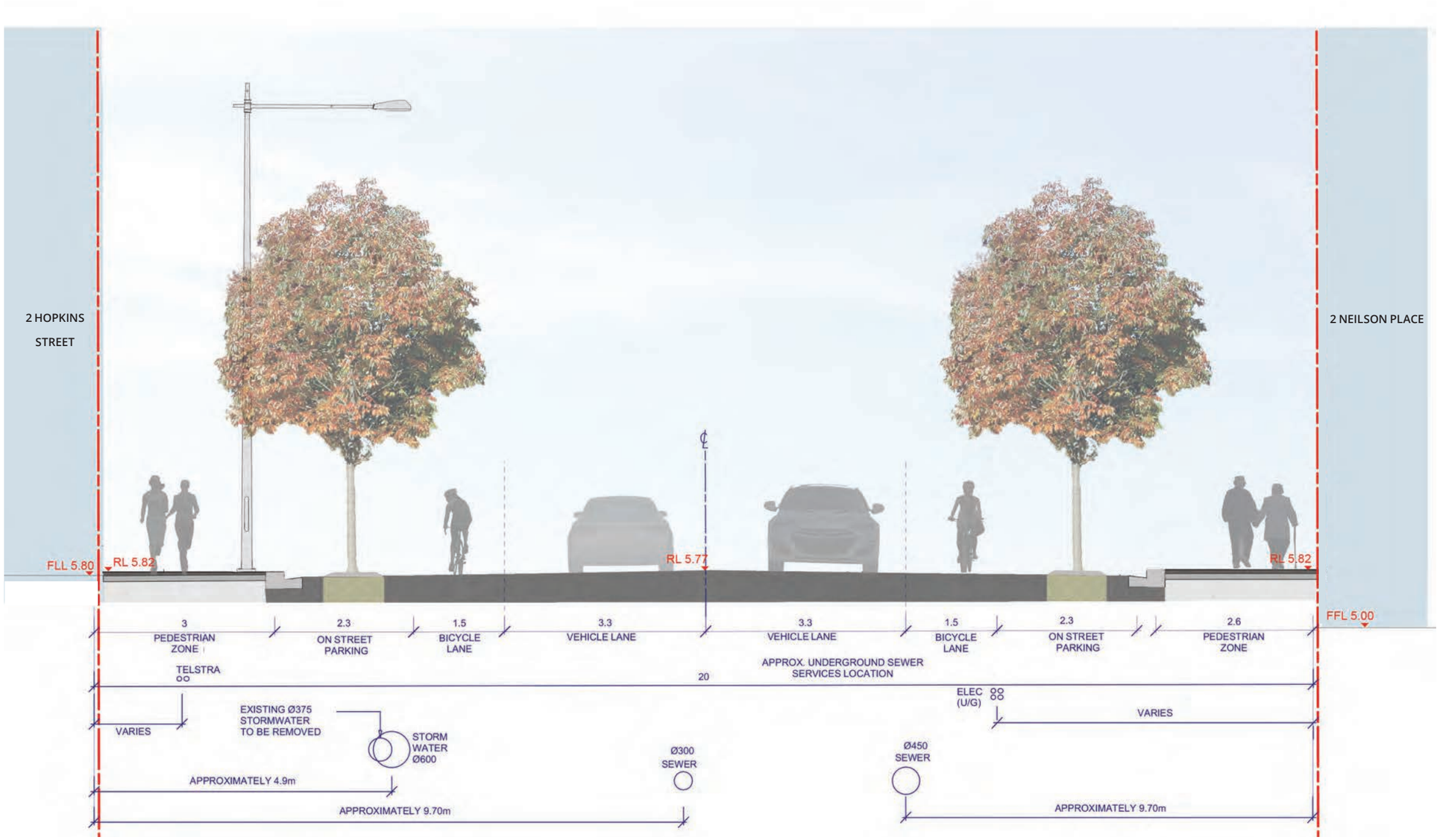
Plan 1:500 @ A3

0 10 20 30 m

N

SCALE 1:500 @ A3

2.6.1 South Joseph Road Section A-A



Section A-A 1:50 @ A3

2.6.2 South Joseph Road Section B-B

Section B-B 1:50 @ A3

2.7. North Joseph Road

North Joseph Road will provide a green connection to Maribyrnong River. On road bicycle lanes will travel east and west until the turn toward the river.

Proposed street details

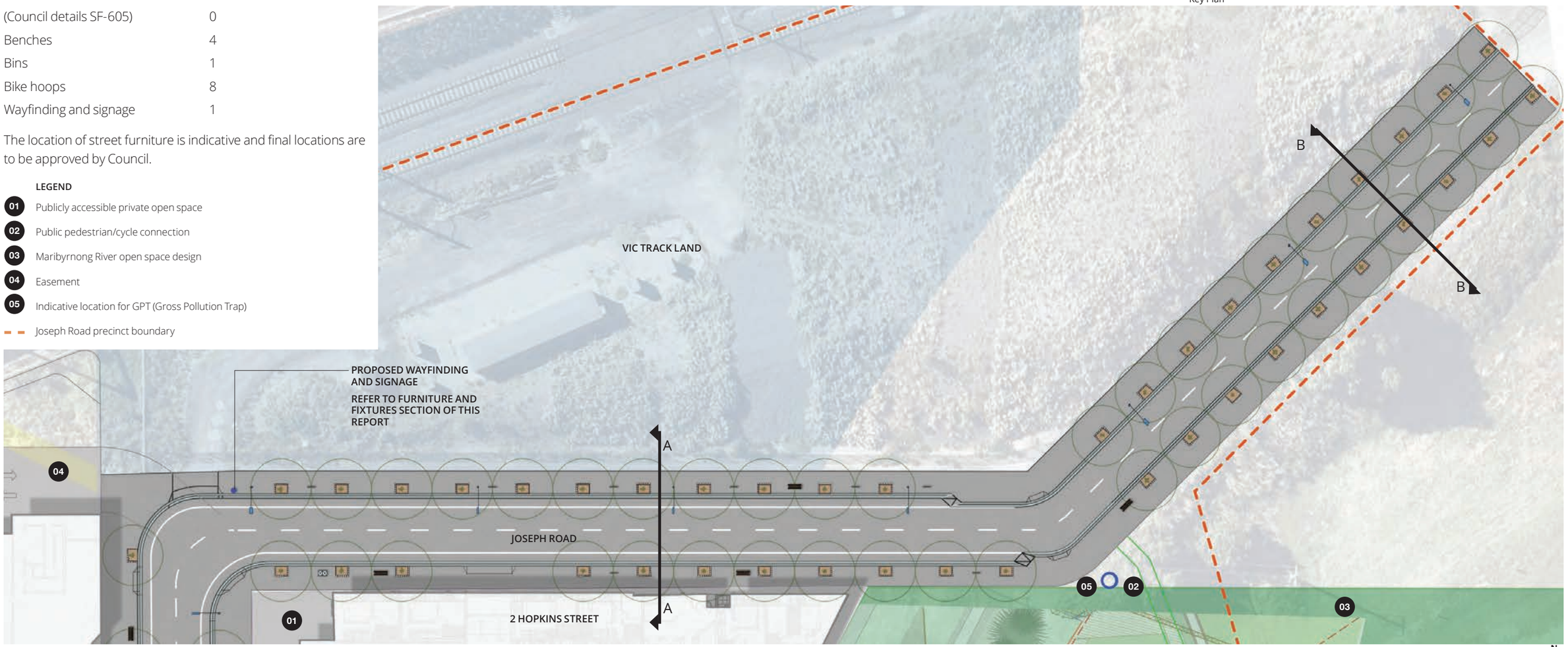
Carriageway width	3m
Parallel parking bays	0
Vehicle cross overs	2
Trees in Footpath (Council details SF-602)	43
Trees in road reserve (Council details SF-605)	0
Benches	4
Bins	1
Bike hoops	8
Wayfinding and signage	1

The location of street furniture is indicative and final locations are to be approved by Council.

LEGEND

- 01 Publicly accessible private open space
- 02 Public pedestrian/cycle connection
- 03 Maribyrnong River open space design
- 04 Easement
- 05 Indicative location for GPT (Gross Pollution Trap)
- Joseph Road precinct boundary

Key Plan



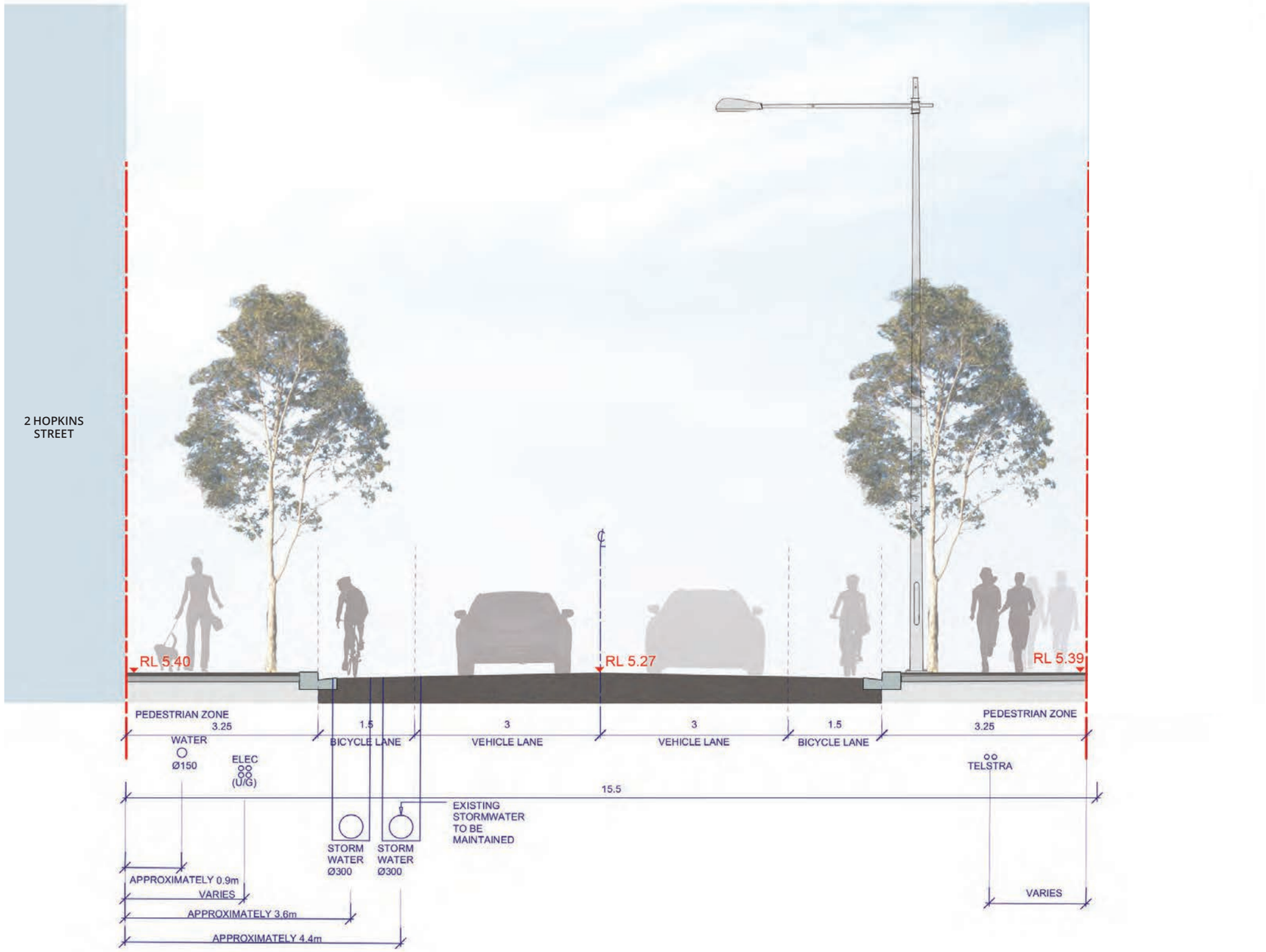
Plan 1:500 @ A3

0 10 20 30 m

N

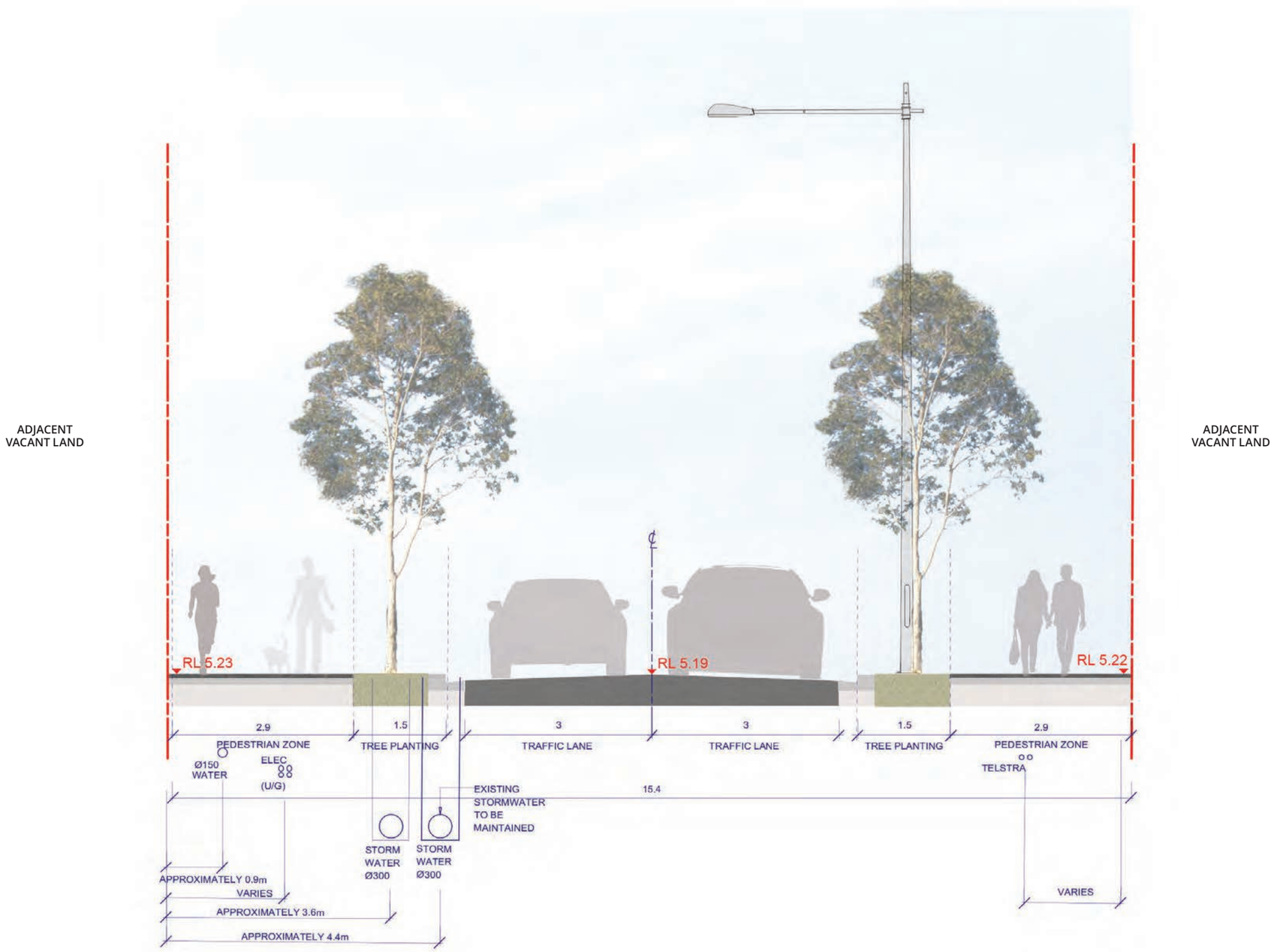
SCALE 1:500 @ A3

2.7.1 North Joseph Road Section A-A



Section A-A 1:50 @ A3

2.7.2 North Joseph Road Section B-B



Section B-B 1:50 @ A3

2.8. Hopkins Street

Hopkins Street is a large multi-lane road providing arterial access into the city from Footscray Metropolitan Activity Centre. The design for Hopkins Street is to provide a designated shared bicycle pathway. The location of existing underground services has meant the location of trees is located in the north, providing a consistent green avenue to frame Hopkins Street. West of Whitehall Street, where the 3m setback is not confirmed, trees have not been provided. However, the current design would allow for the planting of trees in the future.

Developments fronting Hopkins street will have active frontages from showrooms/offices.

The intersection with Hallenstein Street is proposed to have a signalised junction (by Aurecon) providing for improved pedestrian circulation.

Future pedestrian crossing amenity will be provided at Cowper Street.

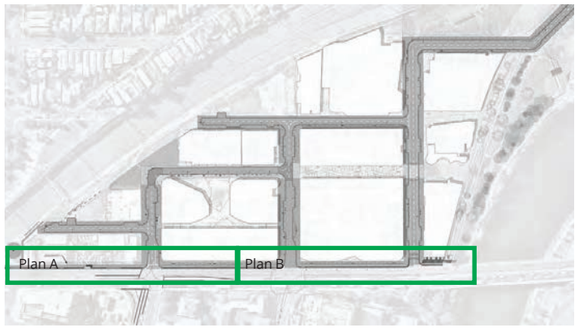
Proposed Road Details

Carriageway width	3.3m
Parallel parking bays	0
Vehicle cross overs	3
Trees in footpath (Council detail SF-602)	22
Trees in road reserve (Council detail SF-605)	0
Benches	4
Bins (waste and recycle units	4
Bike hoops	14
Wayfinding and signage	0

The location of street furniture is indicative and final locations are to be approved by Council.

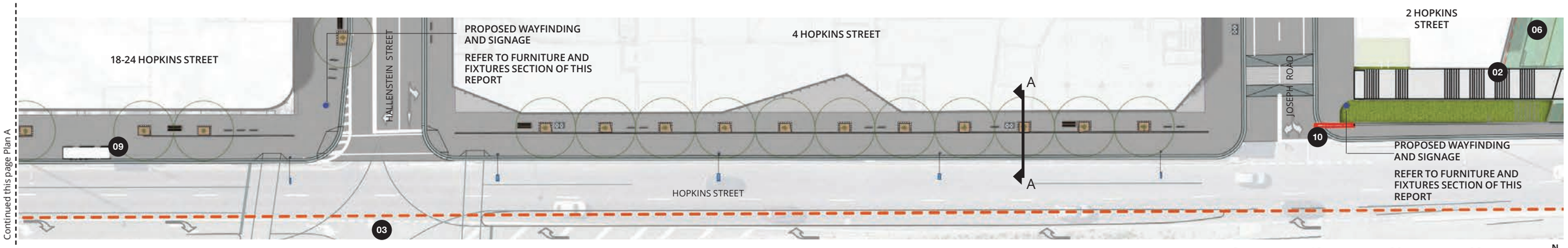
LEGEND

01 Public pedestrian/cycle connection
02 Pedestrian connection to Maribyrnong River
03 New Hallenstein St. and Hopkins St. intersection
04 Existing Whitehall St. and Hopkins St. intersection
05 Potential future signalised pedestrian crossing
06 Maribyrnong River open space design
07 Existing bus stop to be retained
08 Potential future bicycle path widening and tree planting
09 Existing bus stop to be consolidated with bus stop noted as 07. Final approval from all relevant authorities including VicRoads is required
10 Edge of existing concrete bridge to be removed
Joseph Road precinct boundary



Key Plan

Plan A 1:500



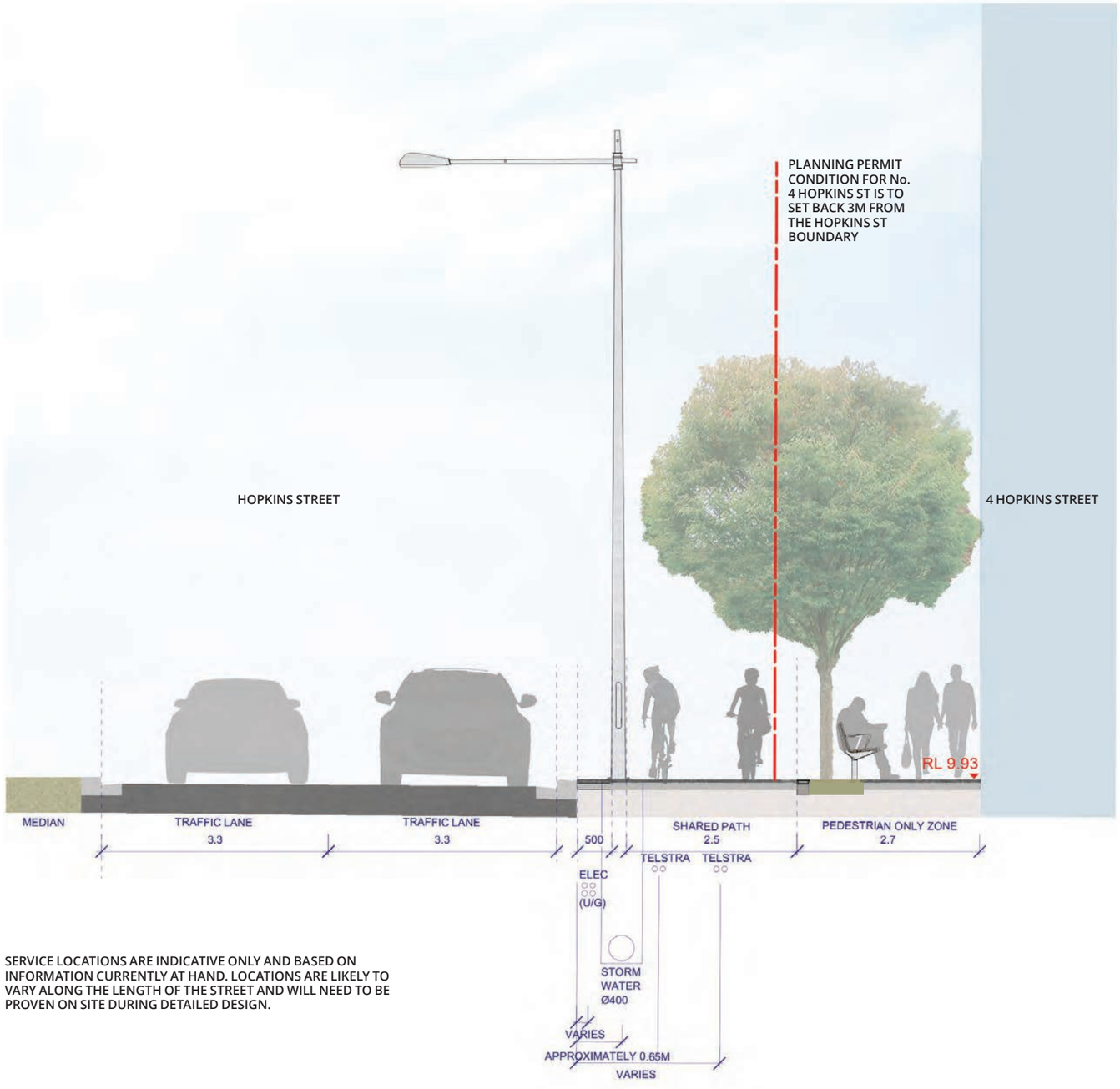
Plan B 1:500 @ A3

0 10 20 30 m

N

SCALE 1:500 @ A3

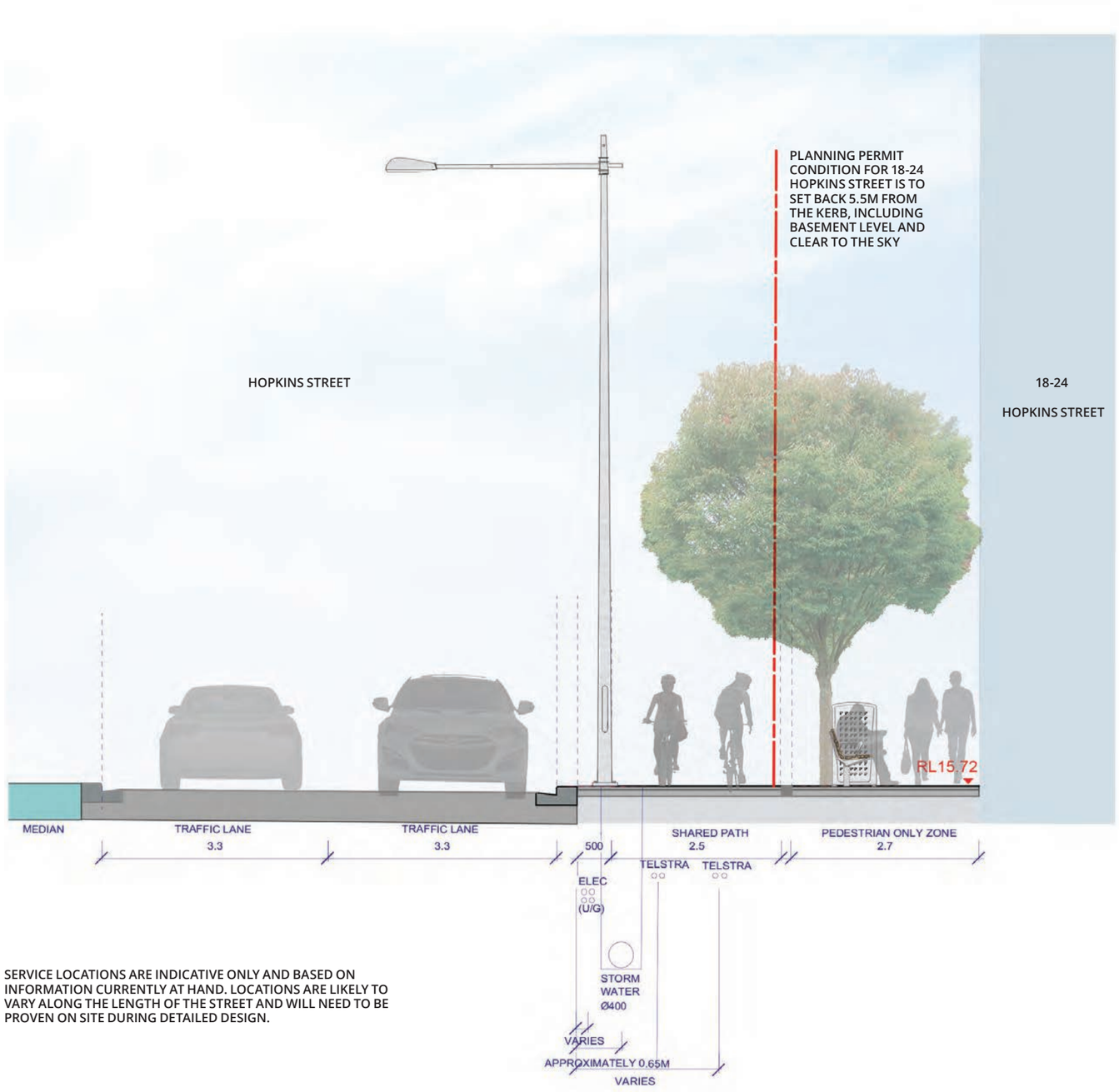
2.8.1 Hopkins Street Section A-A



SERVICE LOCATIONS ARE INDICATIVE ONLY AND BASED ON INFORMATION CURRENTLY AT HAND. LOCATIONS ARE LIKELY TO VARY ALONG THE LENGTH OF THE STREET AND WILL NEED TO BE PROVEN ON SITE DURING DETAILED DESIGN.

Section 1:75 @ A3

2.8.2 Hopkins Street Section B-B



SERVICE LOCATIONS ARE INDICATIVE ONLY AND BASED ON INFORMATION CURRENTLY AT HAND. LOCATIONS ARE LIKELY TO VARY ALONG THE LENGTH OF THE STREET AND WILL NEED TO BE PROVEN ON SITE DURING DETAILED DESIGN.

Section 1:75 @ A3

3. Planting Palette

3.1. Proposed Street Tree Species

The street tree selection for Joseph Road is based upon the nominated species as per the City of Maribyrnong Street Planting Strategy Adopted August 27, 2013.

The design objectives of the proposed tree planting schedule are as follows:

- A consistent boulevard of trees from South Joseph Road and continued along North Joseph Road,
- Consistency of tree canopy east-west (Neilson Street and Wightman Street) and north-south, Hallenstein Street and Whitehall Street)l; and,
- South Joseph Road, Hallenstein Street and Whitehall Street have the opportunity to include two types of streetscape trees.

City of Maribyrnong Street Planting Strategy, 2013 Cover Page

Tree Planting Schedule

Botanical Name	Common Name	Pot Size (mm)	"Native/ Exotic"	Spacing (mm)
Hopkins Street				
Zelkova serrata 'Green Vase'	Green Vase Zelkova	200L	E	_
Whitehall Street				
Fraxinus pennsylvanica 'Urbanite'	Urbanite Ash	200L	N	_
South Joseph Road				
Fraxinus pennsylvanica 'Urbanite'	Urbanite Ash	200L	N	_
Hallenstein Street				
Acer freemanii 'Jeffersred' Autumn Blaze	'Jeffersred' Autumn Blaze Maple	200L	E	_
North Joseph Road				
Corymbia citriodora	Lemon-scented Gum	200L	N	_
Warde Street				
Acer campastre	Field Maple	200L	N	_
Neilson Place				
Waterhousea floribunda 'Green Avenue'	Green Avenue Lilypily	200L	N	_
Wightman Street				

Waterhousea floribunda 'Green Avenue' Green Avenue Lilypily

Zelkova serrata 'Green Vase' Green Vase Zelkova

Acer campestre Field Maple

Acer freemannii 'Jeffers Red'

Corymbia citriodora Lemon Scented Gum

Fraxinus pennsylvanica 'Urbanite' Urbanite Ash

3.2. Ground Covers and Grasses Species Master List

The species for ground covers and grasses have been selected from a masterlist of recommended species for Maribyrnong.

The majority of these plants are native or indigenous plants. These plants are more suited to the environment, establish and maintain urban habitat for birds and insects and sustain biodiversity within the urban landscape.

Botanic Name	Common Name
Grasses and Ground Covers	
Anigozanthos flavidus	Kangaroo Paw
Austrostipa elegantissima	Feather Spear Grass
Austrostipa scabra ssp falcata	Slender Spear Grass
Dianella longifolia	Pale Flax Lily
Dianella brevicaulis	Spreading Flax Lily
Dichanthium sericeum	Silky Blue Grass
Lomandra longifolia	Spiny-headed Mat-rush
Poa morrisii	Silky Tussock Grass
Poa sieberiana	Grey Tussock Grass
Themeda triandra	Kangaroo Grass
Small Plants	
Brachyscome multifida	Cut Leaf Daisy
Bracteantha viscosa	Sticky Everlasting
Calocephalus citreus	Lemon Beauty Heads
Calotis scapigera	Tufted Burr Daisy
Chrysocephalum apiculatum	Common Everlasting
Chrysocephalum semipapposum	Clustered Everlasting
Craspedia variabilis	Common Billy Buttons
Doodia media ssp. Australis	Common Rasp Fern
Einadia nutans	Climbing Saltbush
Enychylaena tomentosa	Ruby Saltbush
Leucophyta brownii	Cushion Bush
Linum marginale	Native Flax
Pelargonium australe	Austral Storks Bill
Pycnosorus chrysnathes	Golden Billy Buttons
Pycnosorus globosus	Drumsticks Vittadinia cuneata
Drumsticks Vittadinia cuneata	Woolly New Holland Daisy
Wahlenbergia communis	Tufted Bluebell

Poa sieberiana Silky Tussock Grass

Dianella brevicaulis Spreading Flax Lily

Austrostipa elegantissima Feather Spear Grass

Pycnosorus globosus Vittadinia cuneata

Lomandra longifolia Spiny-headed Mat-rush

Pycnosorus chrysanthus Golden Billy Buttons

Brachyscome multifida Cut Leaf Daisy

Leucophyta brownii Cushion Bush

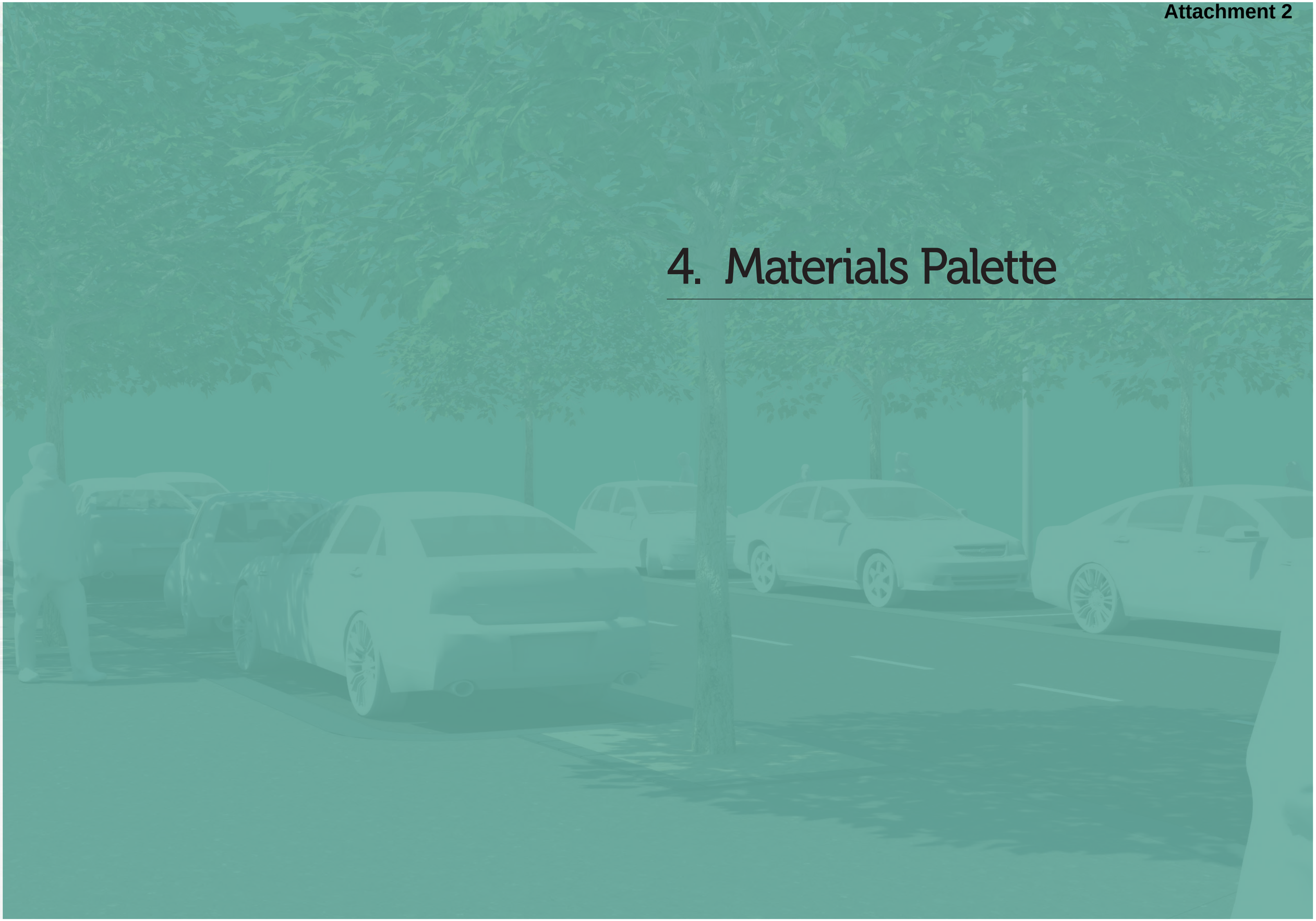
Austrostipa scabra ssp falcata Slender Spear Grass

Chysocephalum apiculatim Common Everlasting

Anigozanthus falvidus Kangaroo Paw

N

4. Materials Palette



4.1. Materials, Surfaces and Edges

Materials and surfaces for the Joseph Road development will be consistent with the Maribyrnong City Design Manual. Joseph Road Development sits within the Footscray Central Activities Area and the typical details for this area apply.

This will assist in integrating the new development into its surrounding context.

Pedestrian Pavements

Standard Detail No.: SF-010

Materials: Asphalt type N

Kerb

Standard Detail No.: SF-008

Materials: Bluestone - Sawn finish

Tree Surround in Footpath

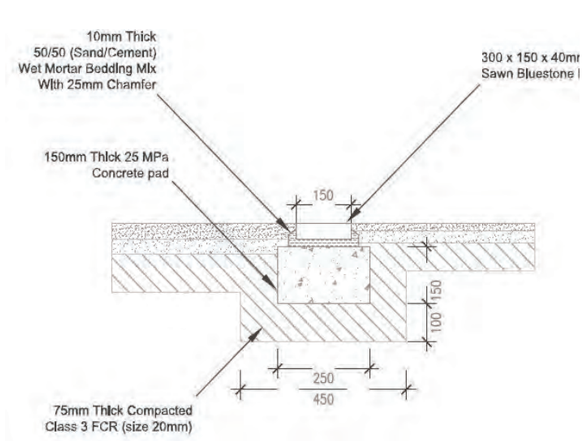
Standard Detail No.: SF-602

Materials: Bluestone - Sawn finish, granitic gravel

Vehicle Cross Overs

Standard Detail No.: SF-002 (402.01)

Materials: Sawn bluestone



Bluestone Kerb Extension

Standard Detail No.: SF-012

Materials: Bluestone

Tree Surround in Road Reserve

Standard Detail No.: SF-605

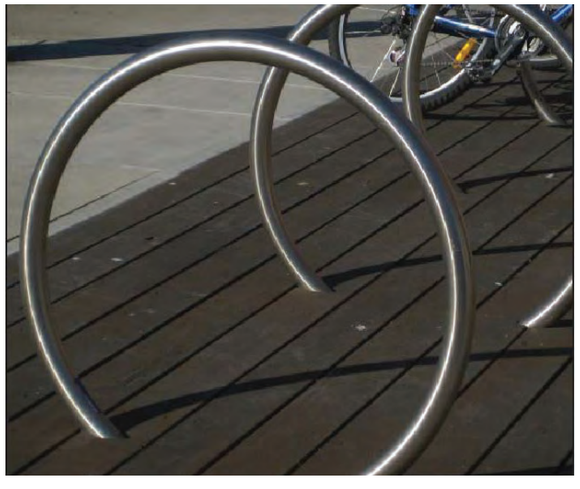
Materials: Concrete wheel stop and edge strip, granitic gravel

N

4.2. Furniture and Fixtures

Furniture and fixtures for the Joseph Road development will be consistent with the Maribyrnong City Design Manual. Joseph Road Development sits within the Footscray Central Activities Area and the typical details for this area apply.

This will assist in integrating the new development into its surrounding context.



Bicycle Rail - Footscray Hoop

Standard Detail No.: SF-401

Materials: Grade 304 stainless steel tube 50.8mm OD x 2.0mm wall 44.5mm OD x 2.77mm wall welded steel tube. Stiffener fitted to inside of stainless steel tube.

Bollard

Standard Detail No.: SF-501

Materials: Stainless steel posts with stainless steel fittings, flat bollard cap and base 3mm 316 grade stainless steel

Wayfinding and Signage

Standard Detail No.: SF-701

Materials: Stainless steel tubing, Marine grade 316, SDES 150mm Signage and 1.99mm aluminium map panel

Waste Unit and Butt Out Bin

Standard Detail No.: SF-302

Materials: Cast Aluminium Frame with punch perforated 304 Grade stainless steel sheet panels

Standard Seat - Promenade with Back Rest

Standard Detail No.: SF-201

Materials: Polished cast Aluminium frame with hardwood timber slats

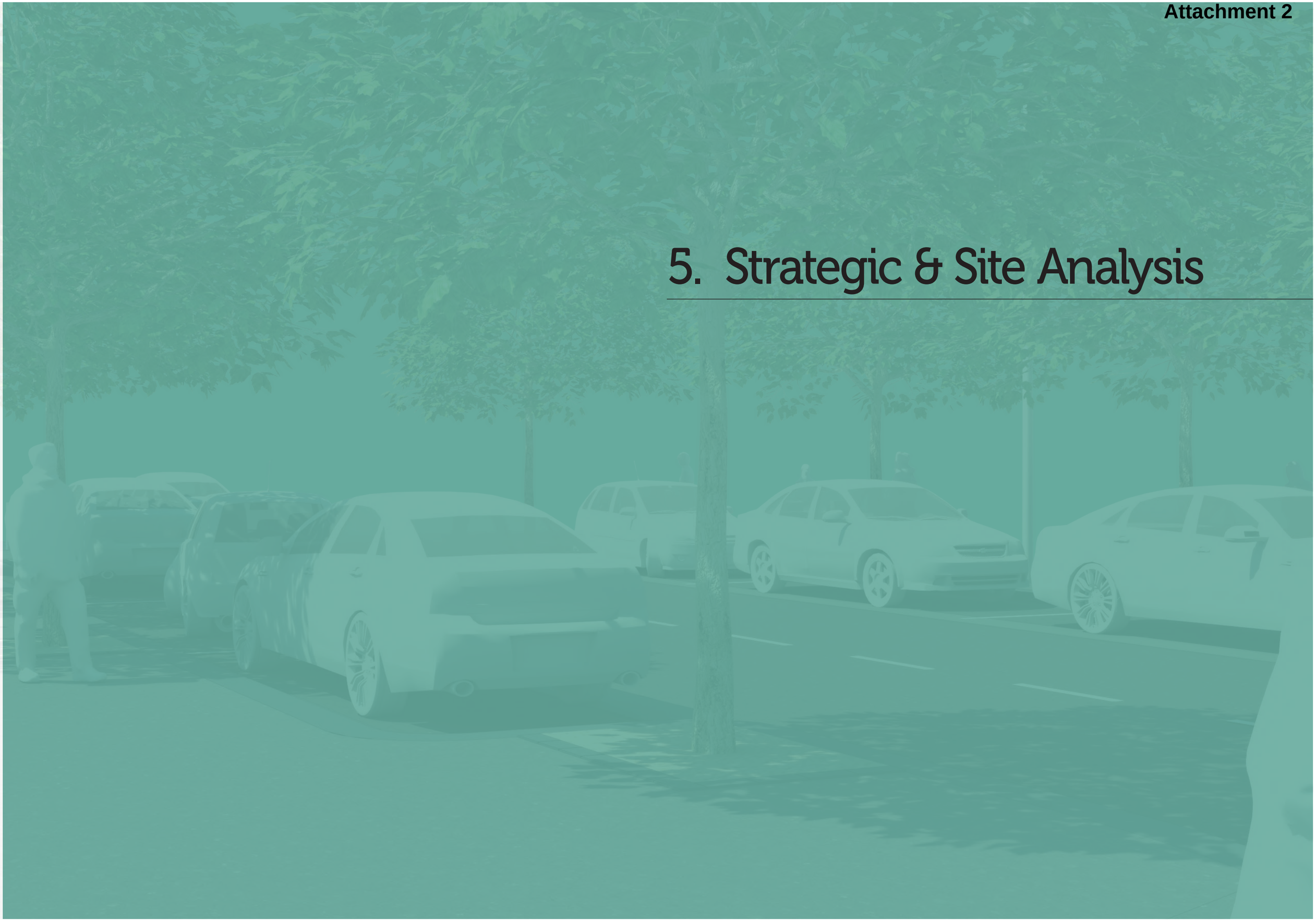
Light Pole

Standard Detail No.: SF-901

Materials: Cast Aluminium Light Pole

N

5. Strategic & Site Analysis



5.1. Background Documents

5.1.1 Relevant background documents

2016

City Design Manual, March

2015

Footscray Access and Mobility Strategy

2014

Open Space Strategy, October 2014

Footscray River Edges Masterplan, 2014

Footscray Structure Plan, March

2013

Street Planting Strategy, Maribyrnong City Council. Adopted 27 August 2013

2013

VicRoads Network and Operating Plan

Footscray Central Activity Area

2012

Maribyrnong Integrated Transport Strategy, for Maribyrnong City Council

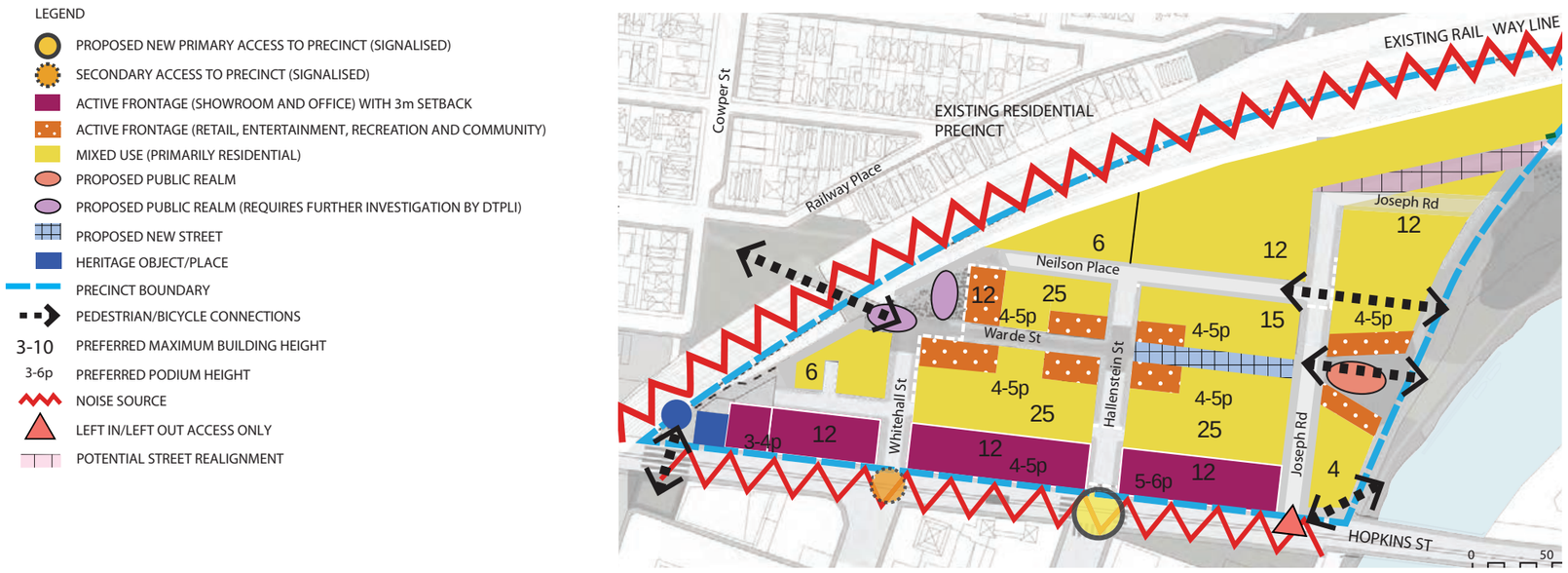
2011

Housing Strategy, December 2011. *To ensure the housing needs of the City's residents are met in terms of location, diversity, affordability and design*

2008

Highpoint Activity Structure Plan, Maribyrnong City Council

5.1.2 Footscray CAA Structure Plan 2013



5.2. Development Applications

01

1 Warde Street

Architect: Elenburg Fraser

Status: Permit Issued

02

2 Hopkins Street

Architect: Plus Architecture

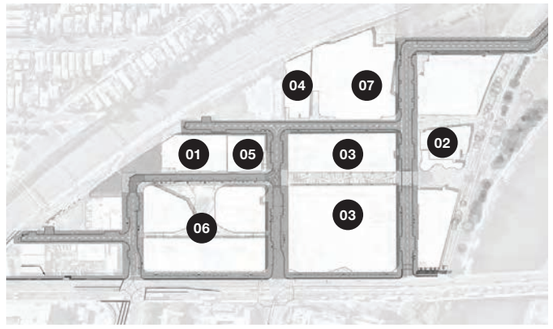
Status: Plans Endorsed, Permit Issued

03

4 Hopkins Street

Architect: Kavellaris Urban Design

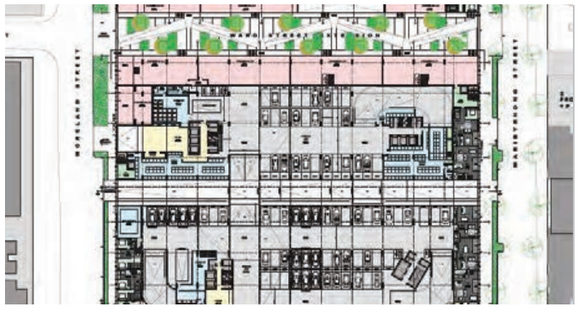
Status: Permit Issued



Key Plan

Development Application Render

Development Application Render



Development Application Ground Floor Plan

04

4 Nielson Place

Architect: Peddle Thorp

Status: Permit Issued

05

10 Moreland Street

Architect: Architecton

Status: Plans Endorsed, Permit Issued

06

18-24 Hopkins Street

Architect: Peddle Thorp

Status: Under Construction

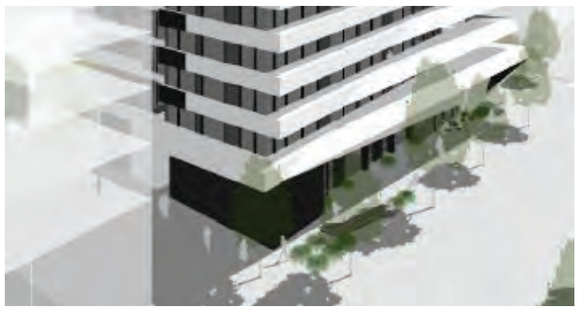
07

2 Neilson Place

Architect: Architecton

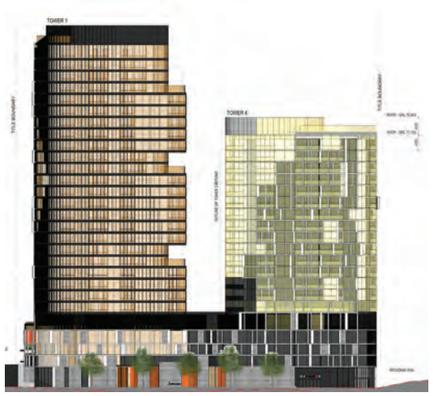
Status: Plans Endorsed, Permit Issued

Development Application Render



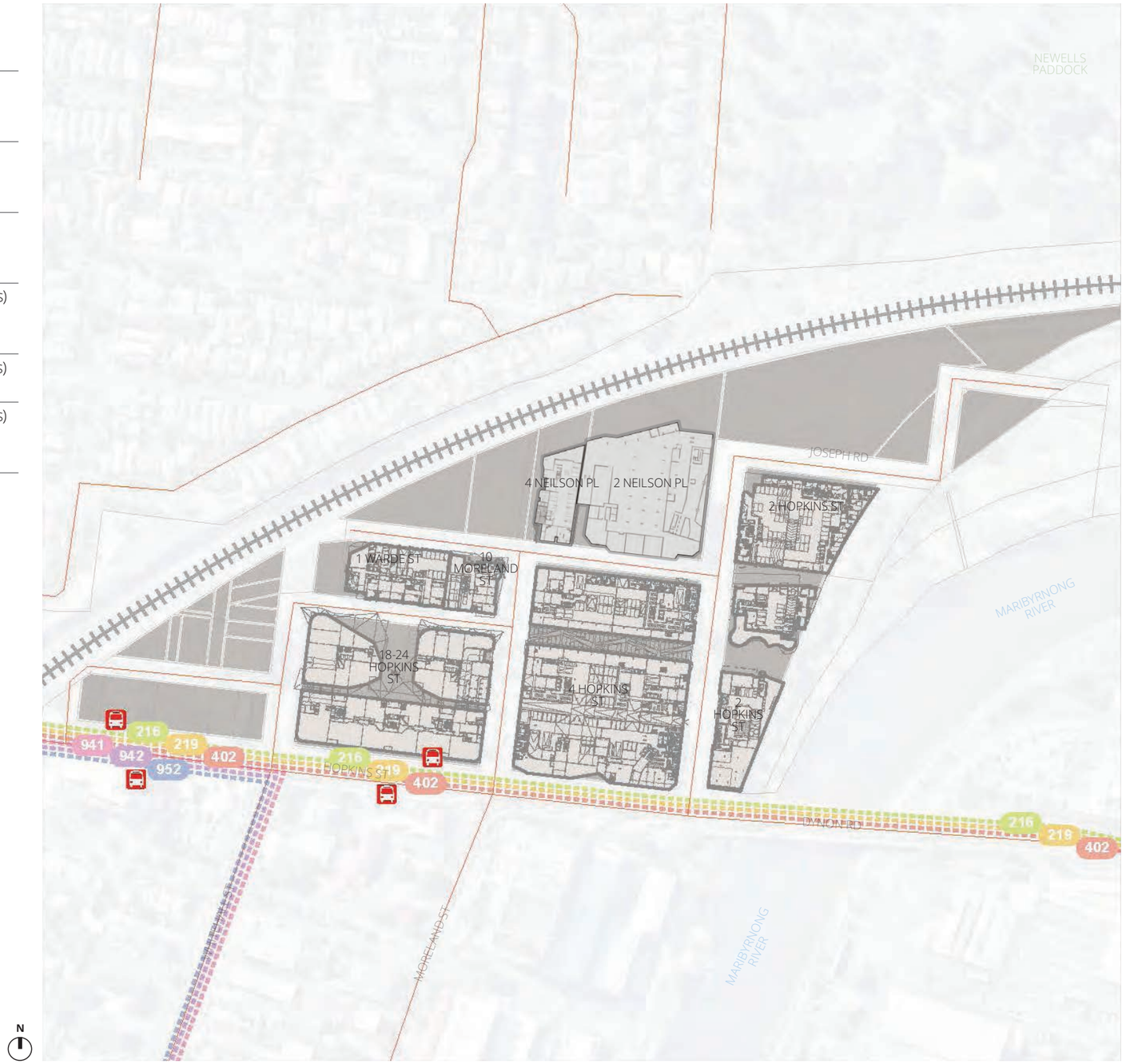
Development Application Render

Development Application Render



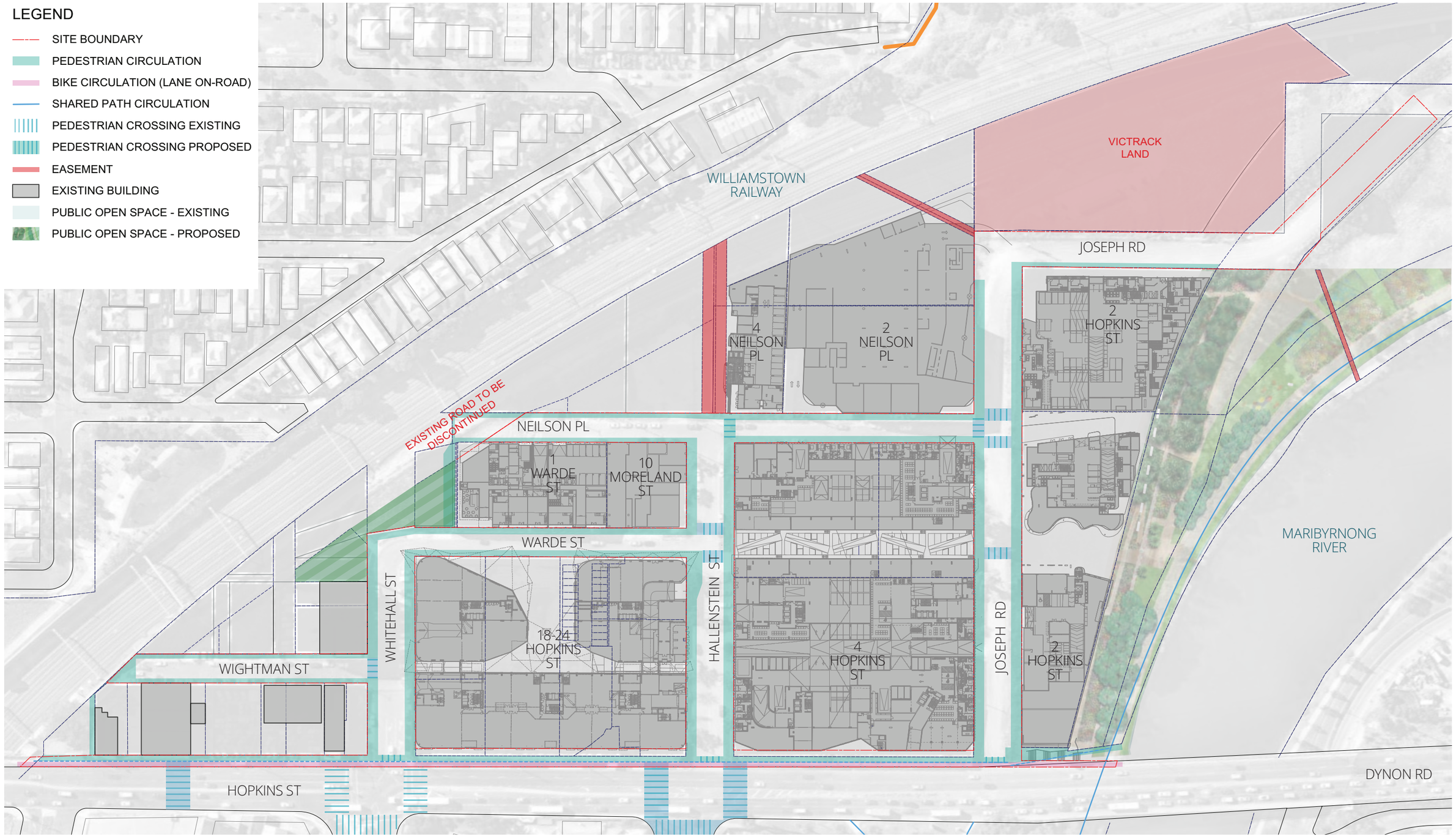
5.3. Existing Bus Routes

Route No.	Route Description	Locations of Stops within Study Area	Frequency (Mins)
216	Caroline Springs - Brighton Beach	Dynon Rd (Sims St), Hopkins St (Hallenstein St), Hopkins St (Whitehall St)	10 (peak) 40 (off peak)
219	Sunshine South - Gardenvale	Dynon Rd (Sims St), Hopkins St (Hallenstein St), Hopkins St (Whitehall St)	20 (peak) 40 (off peak)
402	Footscray - East Melbourne via North Melbourne	Dynon Rd (Sims St), Hopkins St (Hallenstein St), Hopkins St (Whitehall St)	10 (peak) 20 (off peak)
941	Night Bus - City - Footscray - Sunshine North - Taylors Lakes - Watergardens	Hopkins St (Whitehall St)	60 (2 services)
942	Night Bus - City - Footscray - Sunshine - Deer Park - St Albans	Hopkins St (Whitehall St)	60 (6 services)
952	Night Bus - City - Footscray - Maribyrnong - Airport West - Gladstone Park - Broadmeadows	Hopkins St (Whitehall St)	60 (9 services)

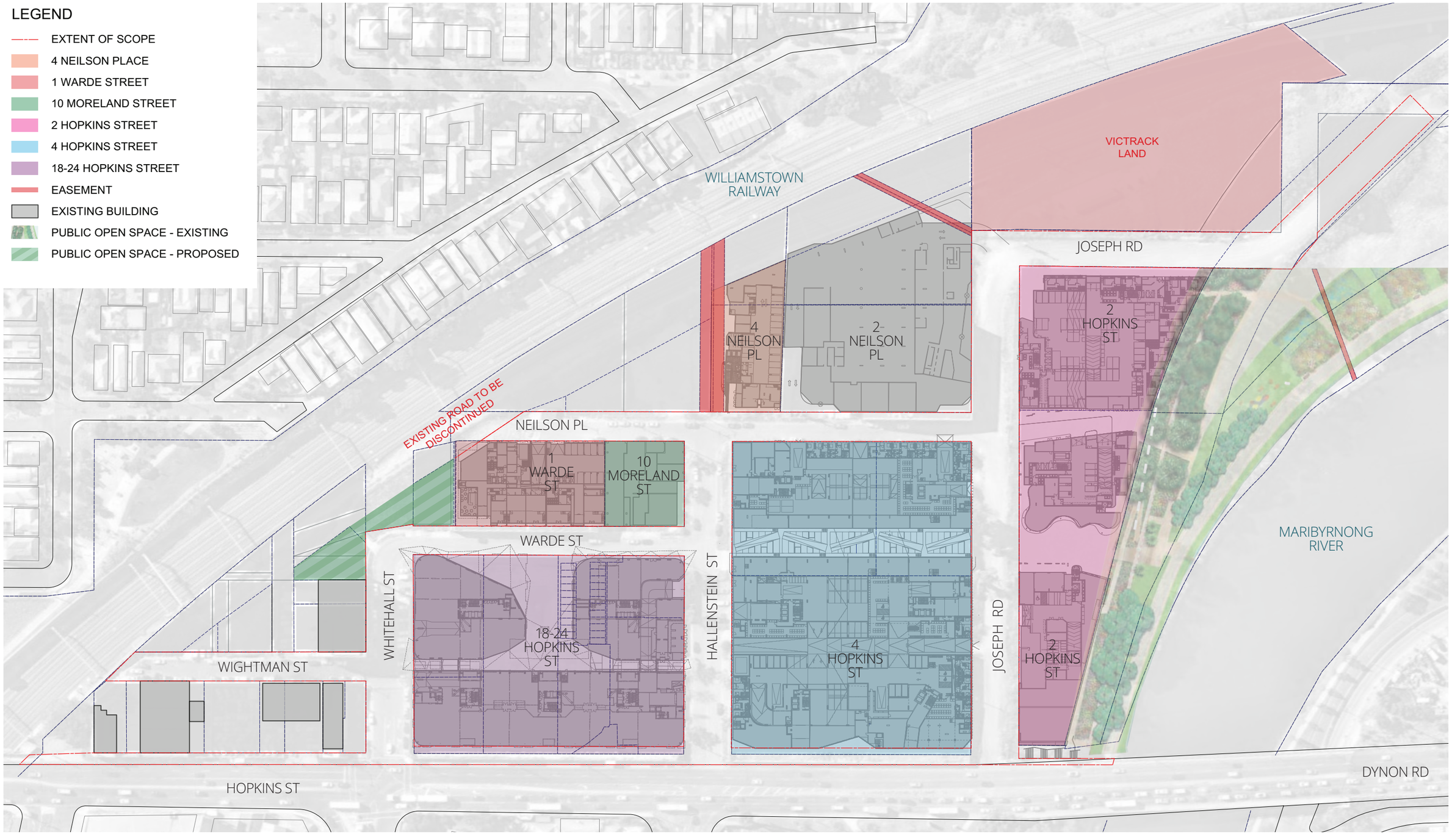


Local Bus Networks - Joseph Road Precinct

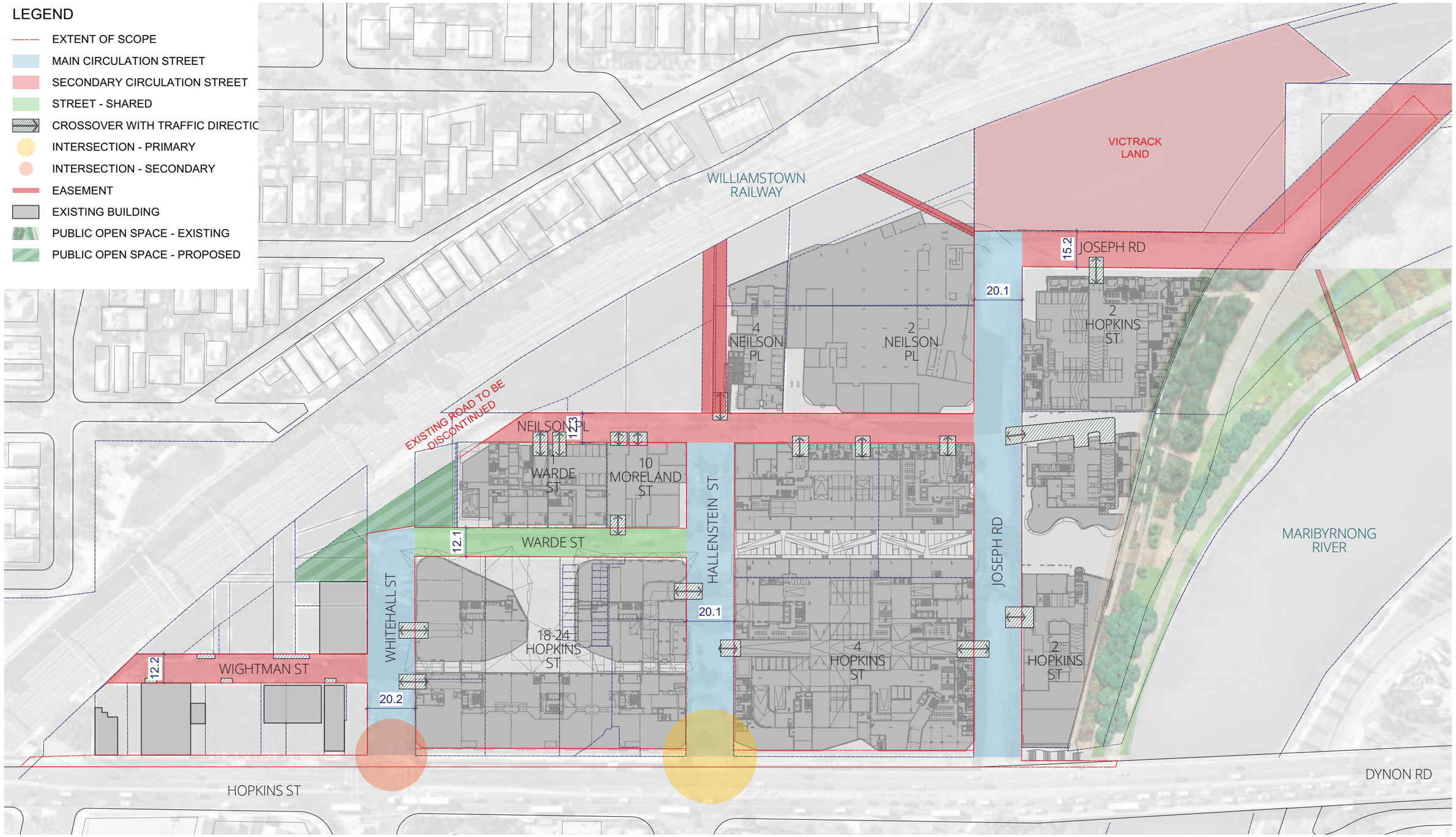
5.4. Existing and Proposed Site Circulation



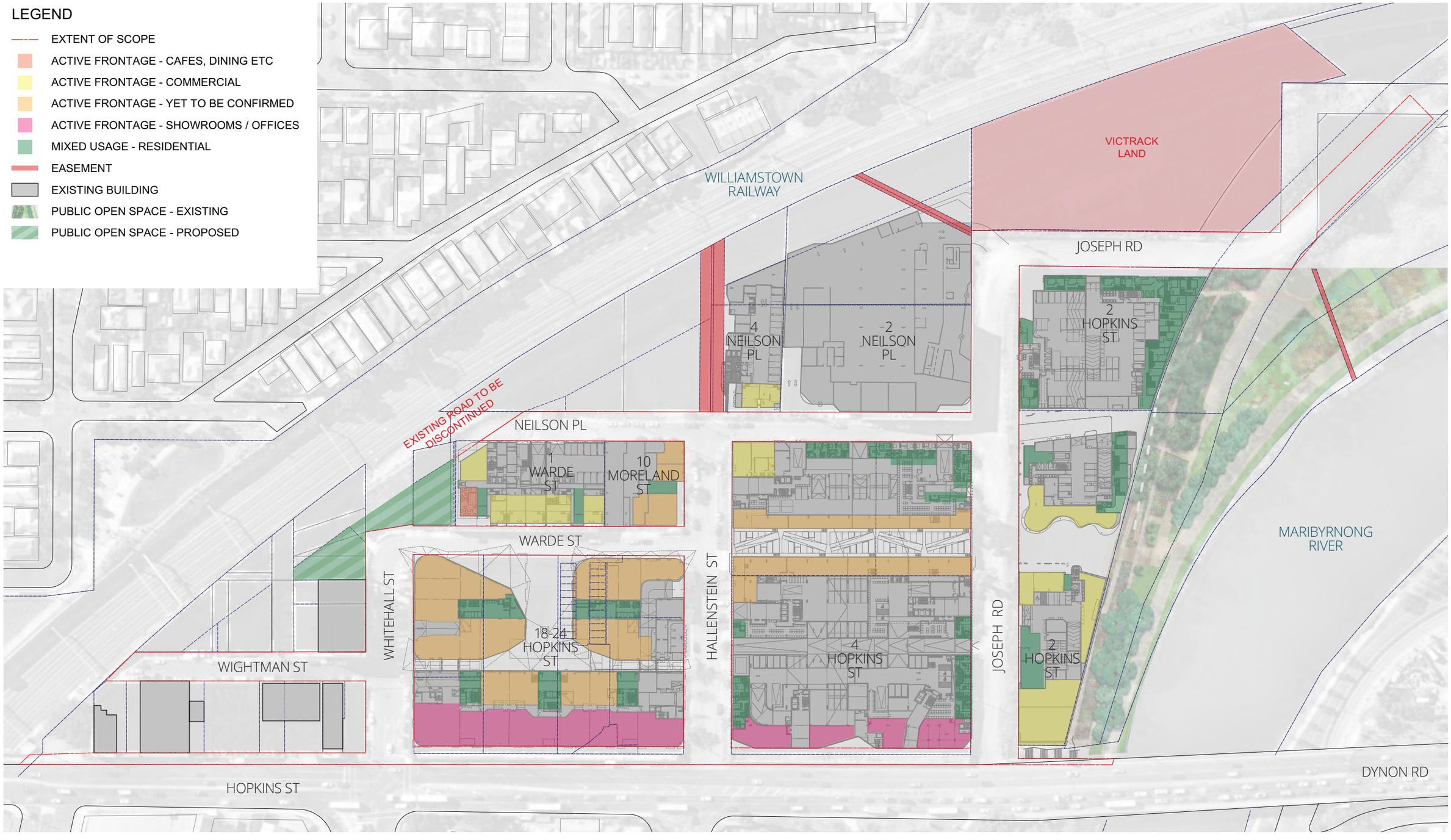
5.5. Overall Ground Floor Plan



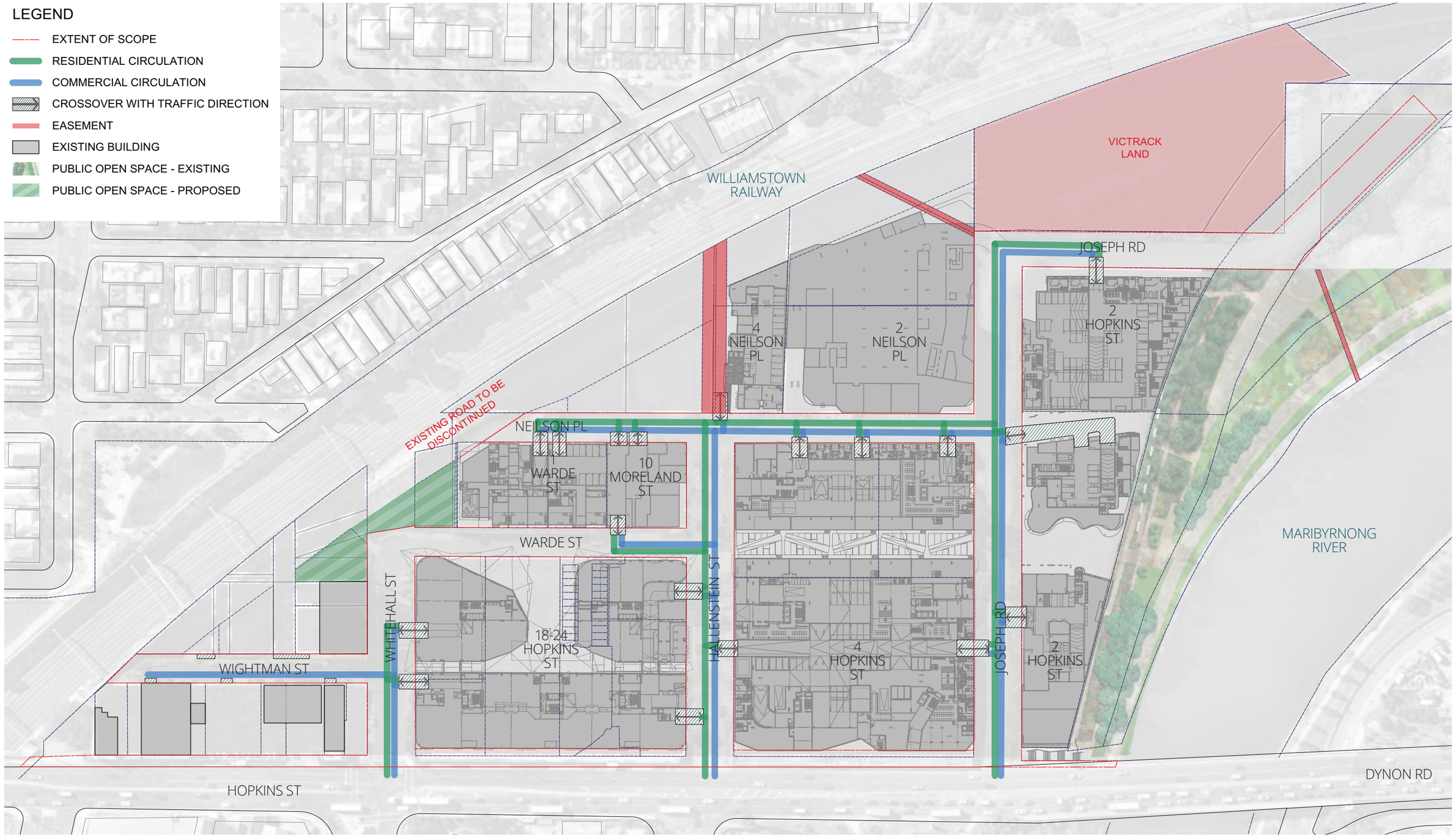
5.6. Proposed Street Typology



5.7. Proposed Street Frontage Typology



5.8. Proposed Vehicle Movements



6. Schedules

6.2. Remaining Design Work

This schedule covers the anticipated remaining design work to acheive the Proposed Public Realm Plan. This design work is including but not limited to the following.

6.2.1 Landscape Architectural Scope

Concept design

- Undertake concept design of the Whitehall street open space
- Undertake Concept design of proposed pedestrian/cycle link and any other footpath connections along railway boundary
- VicRoads approval of proposed shared zone
- VicRoads approval of signalised pedestrian crossing at Hopkins Street
- Further develop design at Hopkins Maribyrnong River Bridge and seek relevant approvals for changes to existing structure

Detailed design

- Preparation of all typical detail and junction details
- Coordination with development architects to resolve any issues with the FFL and the RL of the proposed public realm
- Preparation of detailed cross sections of streets
- Preparation of detailed levels and grading plans
- Preparation of documentation package for construction and tender purposes
- Landscape specifications, bill of quantitates and cost estimates
- Final confirmation of tree species selections
- Confirmation of all building overhangs and any potential clashes with public realm functions including vehicle movements

6.2.2 Civil Scope

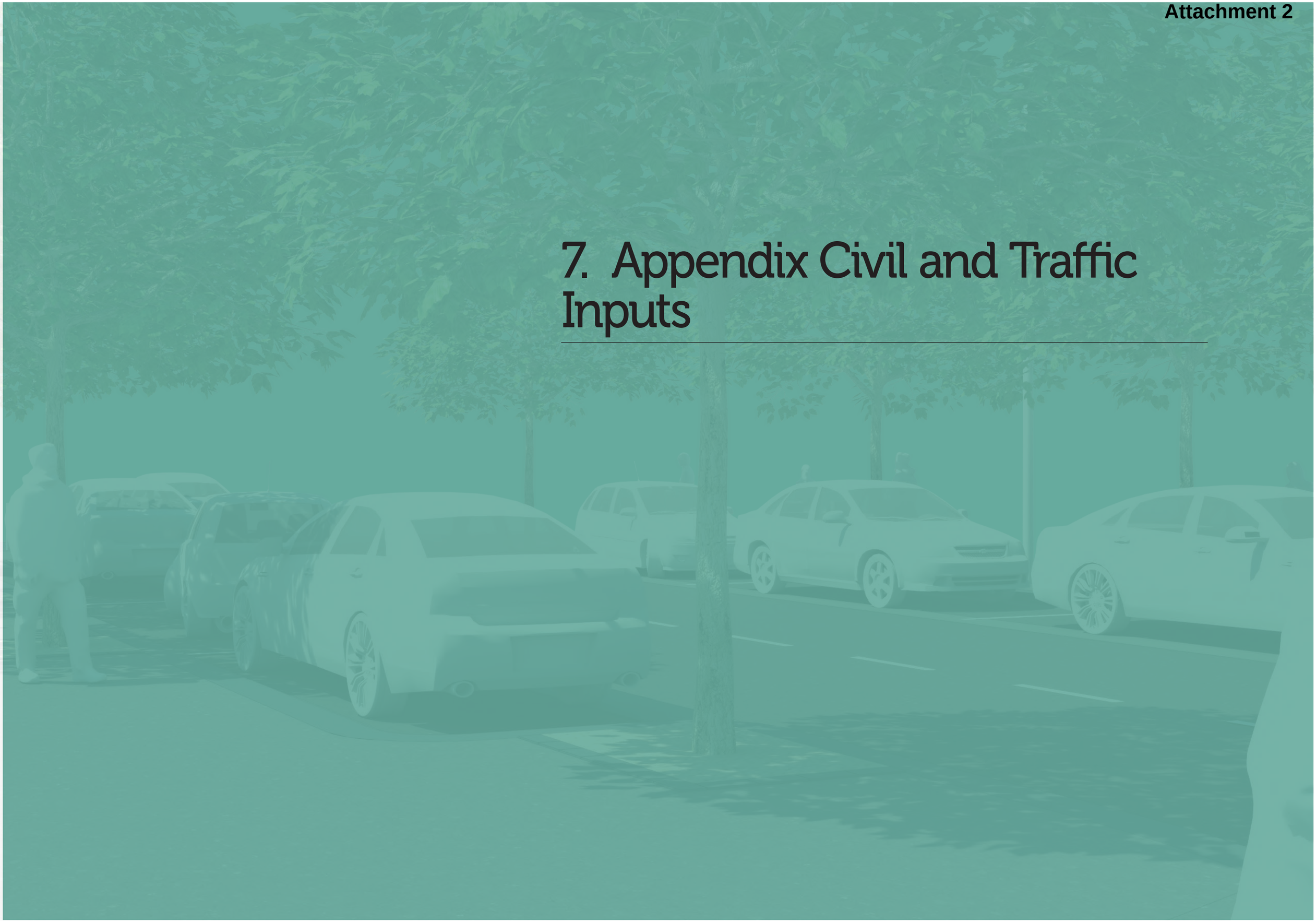
Functional layout, road safety audit, service proving and geotechnical

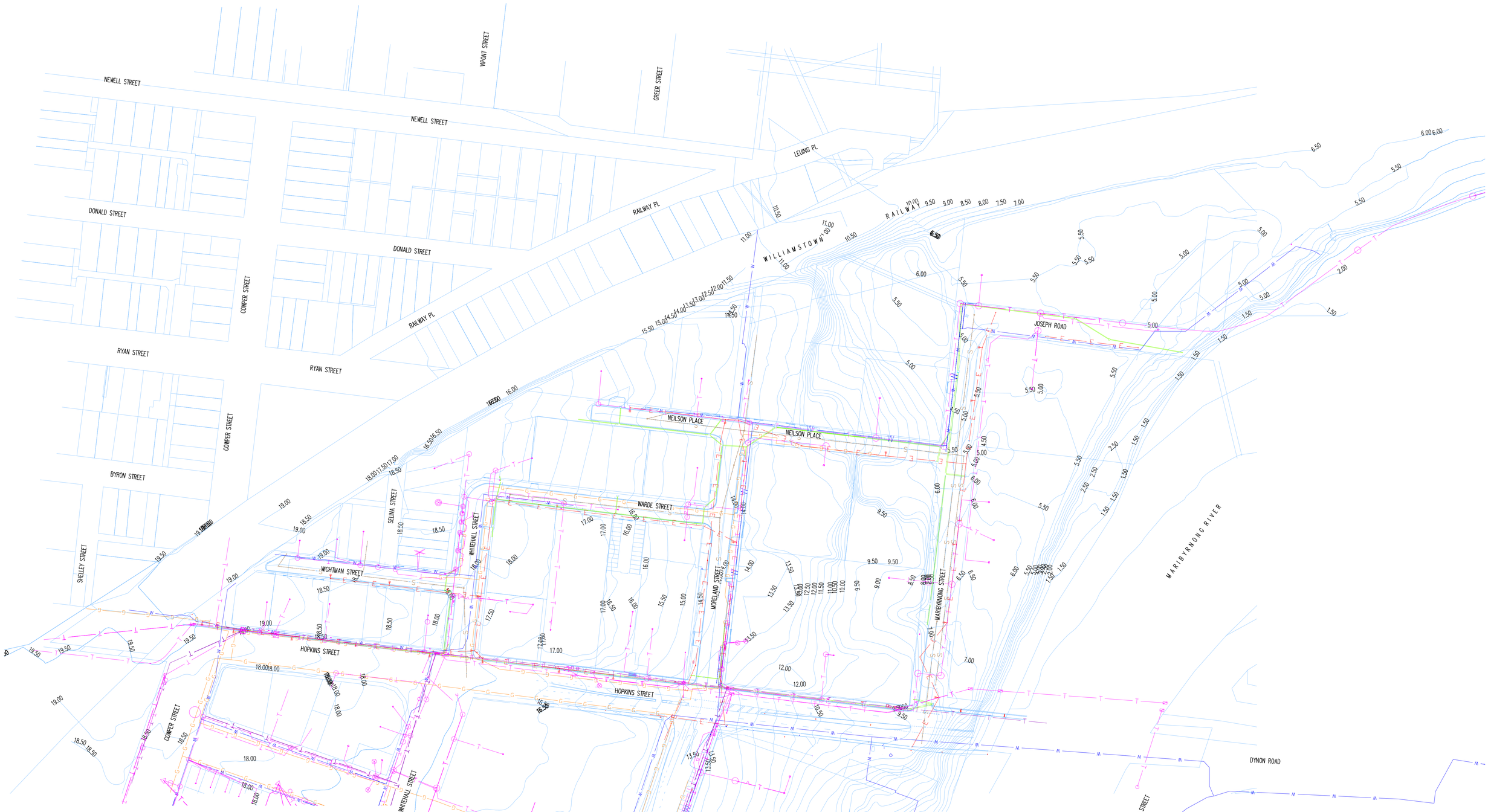
- Progress the public realm plan to a functional layout plan
- Undertake utility services capacity investigation to determine supply and loads of new development, and impact on existing infrastructure
- Ongoing liaison with drainage and roads authorities as required to achieve the proposed functional layout
- Commission geotechnical consultant to undertake geotechnical investigation and provide recommendations on pavement design and subgrade preparation
- Horizontal geometrical design for roads, kerbing, vehicle crossovers, drainage and services
- Electrical Undergrounding concept design
- Public lighting preliminary design
- Preliminary Signage and Linemarking design
- Undertake Road Safety Audit
- Commission service locator and non-destructive digging contractor to identify critical services and areas where potential clashes are likely following approval by Council

Civil detailed design

- Incorporate agreed Road Safety Audit recommendations in design
- Progress design to Detailed Design Submission
- Vertical geometrical grading of roads, kerbs, paths and drainage
- Vertical grading of proven services to identify clashes
- Pavement Design
- Bulk Earthworks Design
- Setout Design
- Signage and Linemarking
- Coordinate design of Hopkins Street intersections upgrade works with VicRoads and Council
- Prepare Specifications, Bill of Quantities and Cost Estimates
- Submission of public lighting plan to Jemena Electricity Networks for approval
- Electrical and Services design approvals sought and reviewed

7. Appendix Civil and Traffic Inputs





FOR CONTINUATION REFER DRAWING NO. C002

EXISTING SERVICES LEGEND LEGEND:

- Existing Drainage
- Existing Electricity — E
- Existing Telecommunication — T
- Existing NBN — T
- Existing Water — W
- Existing Gas — G
- Existing Sewer — S
- Existing Contours

SCALE 1:1000 0 10 20 30 40 50 m
AT ORIGINAL SIZE

Note:
Moreland Street was renamed to Hallenstein Street and Maribyrnong Street was renamed to Joseph Road in May 2017

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61 Napier Street, Footscray, VIC 3011

Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

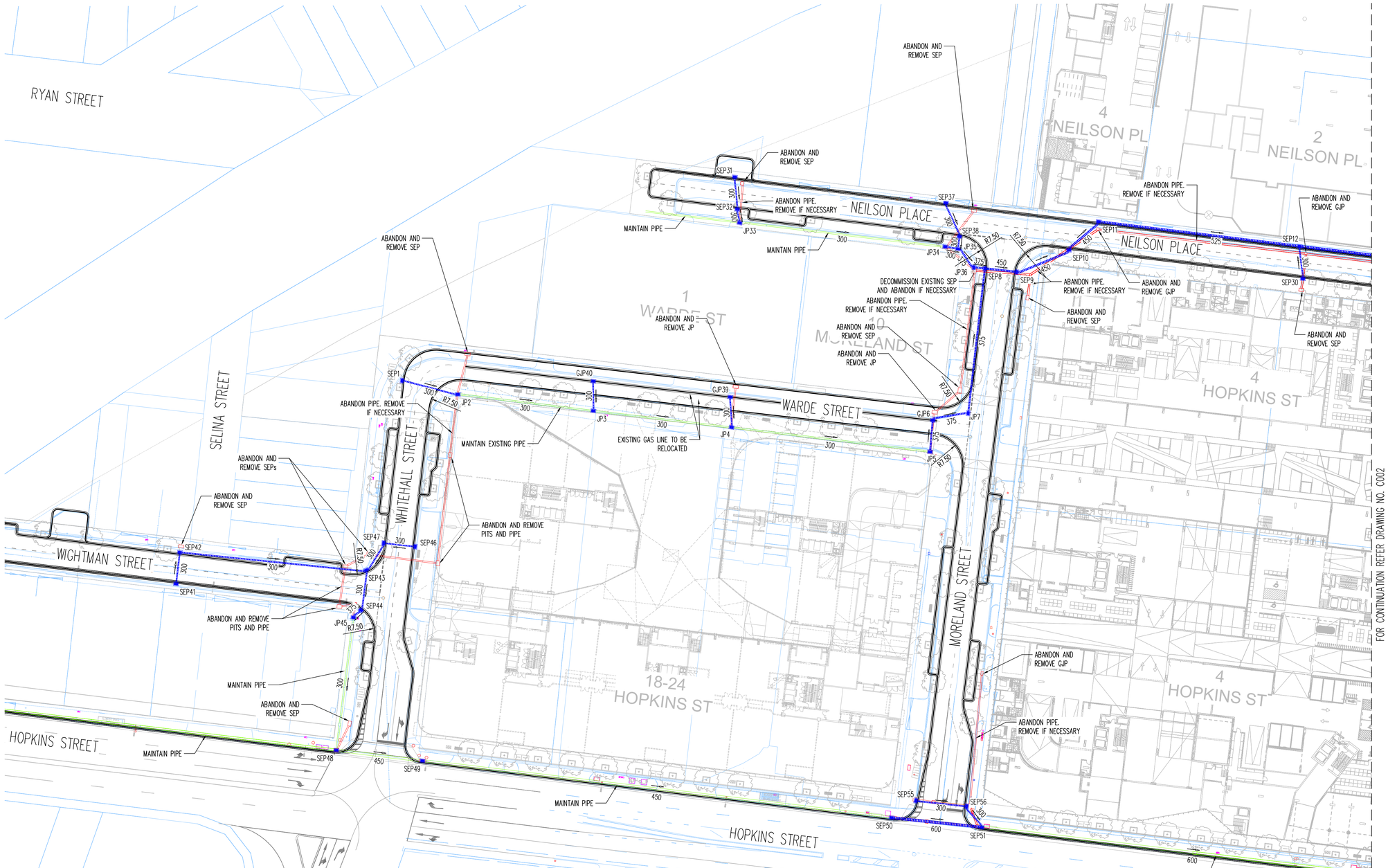
Project: JOSEPH ROAD PRECINCT

Sheet Subject: EXISTING SERVICES PLAN

Scale : A1 Drawn: SK

Job No 164020 | Drawing No C000 | Revision C

Plot File Created: Jan 11, 2017 - 9:43am



FOR CONTINUATION REFER DRAWING NO. C002

PROPOSED WORKS LEGEND:

- PROPOSED KERB
- EXISTING DRAINAGE TO BE MAINTAINED
- EXISTING DRAINAGE TO BE ABANDONED AND/OR REMOVED
- PROPOSED DRAINAGE PIT, PIPE, SIZE AND FLOW DIRECTION (SEP48 — 600)
- PROPOSED SIDE ENTRY PIT — SEPxx
- PROPOSED GRATED JUNCTION PIT — GJPxx
- PROPOSED JUNCTION PIT — JPxx

SCALE 1:500 AT ORIGINAL SIZE — 0 5 10 15 20 25 m

NOTES:

1. REFER TYPICAL STREET SECTIONS FOR SERVICE ALIGNMENTS BENEATH PROPOSED STREETSCAPE
2. REFER STORMWATER LONGITUDINAL SECTIONS FOR DETAILED DRAINAGE INFORMATION
3. ALL OVERHEAD POWER WITHIN PRECINCT EXTENT IS TO BE RELOCATED UNDERGROUND
4. ALL PROPOSED STORMWATER PITS TO BE IN ACCORDANCE WITH RELEVANT MARIBYRNONG CITY COUNCIL STANDARD DRAWINGS

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61 Napier Street, Footscray, VIC 3011

Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

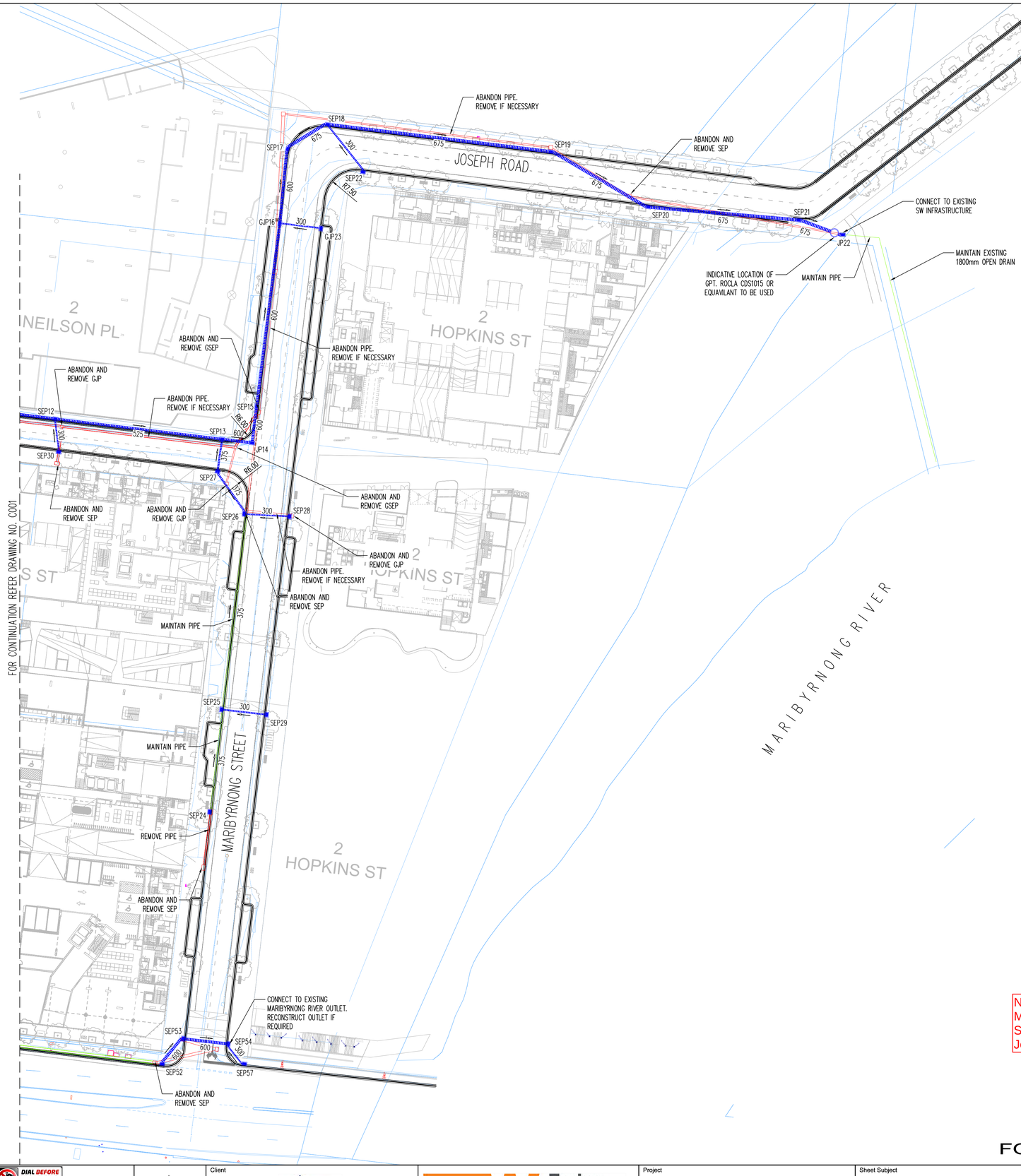
Project: JOSEPH ROAD PRECINCT

Sheet Subject: MINOR STORMWATER (5 YEAR ARI) DRAINAGE CONCEPT PLAN SHEET 1

Scale : A1 Drawn: SK

Job No	Drawing No	Revision
164020	C001	C

Plot File Created: Jan 11, 2017 - 9:43am



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- EXISTING DRAINAGE TO BE MAINTAINED
- EXISTING DRAINAGE TO BE ABANDONED AND/OR REMOVED
- PROPOSED DRAINAGE PIT, PIPE, SIZE AND FLOW DIRECTION — SEP48 — 600
- PROPOSED SIDE ENTRY PIT — SEPxx
- PROPOSED GRATED JUNCTION PIT — GJPxx
- PROPOSED JUNCTION PIT — JPxx

SCALE 1:500 AT ORIGINAL SIZE — 0 5 10 15 20 25 m

NOTES:

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Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

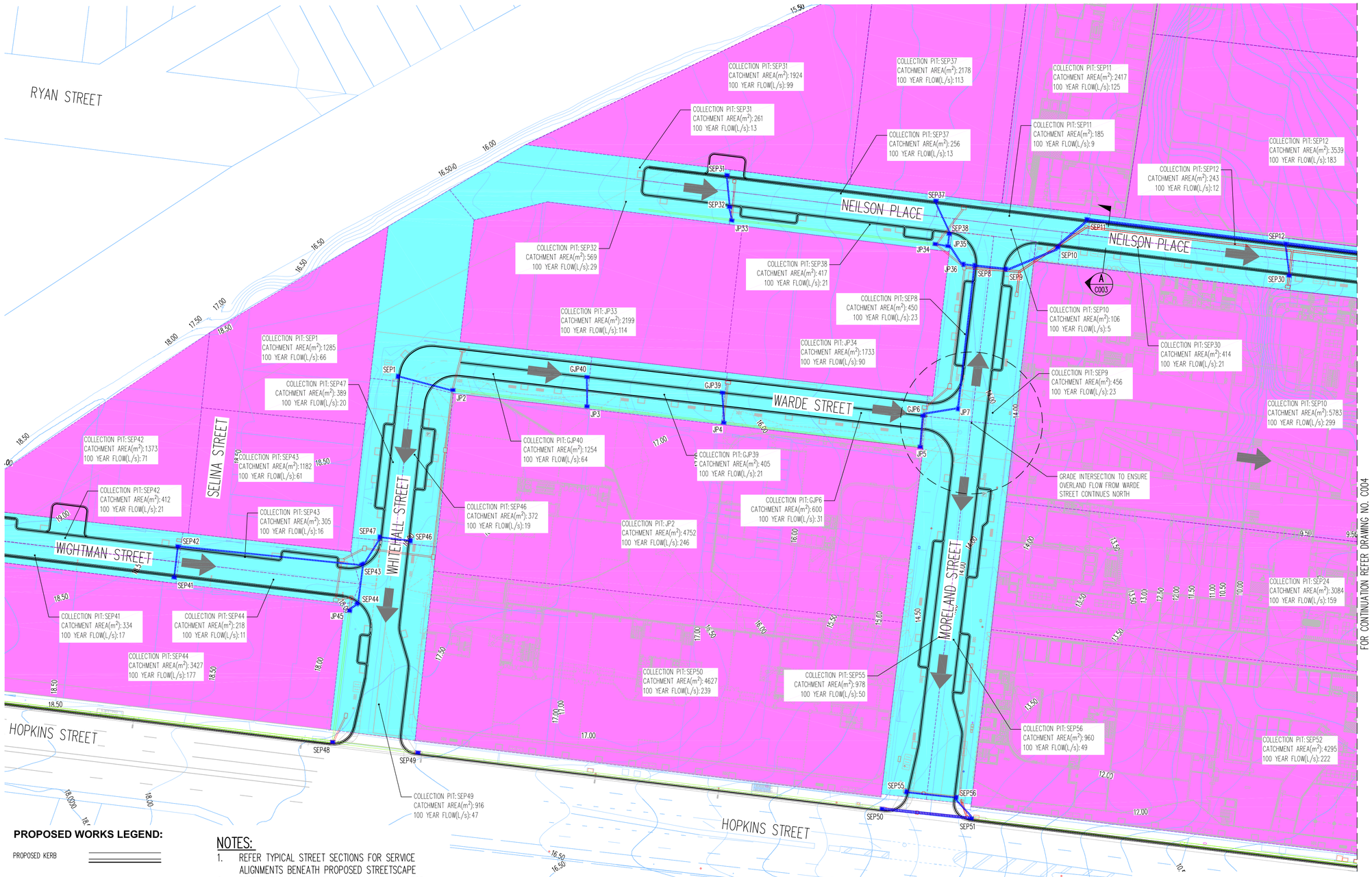
Project: JOSEPH ROAD PRECINCT

Sheet Subject: MINOR STORMWATER (5 YEAR ARI) DRAINAGE CONCEPT PLAN SHEET 2

Scale : A1 Drawn: SK

Job No 164020 | Drawing No C002 | Revision D

Plot File Created: Jan 31, 2017 - 2:37pm



PROPOSED WORKS LEGEND:

- PROPOSED KERB
- EXISTING DRAINAGE TO BE MAINTAINED
- EXISTING DRAINAGE TO BE ABANDONED AND/OR REMOVED
- PROPOSED DRAINAGE PIT — SEP48
- PROPOSED SIDE ENTRY PIT — SEPxx
- PROPOSED GRATED JUNCTION PIT — GJPxx
- PROPOSED JUNCTION PIT — JPxx
- OVERLAND FLOW PATH
- LOT CATCHMENT
- ROAD RESERVE CATCHMENT

NOTES:

1. REFER TYPICAL STREET SECTIONS FOR SERVICE ALIGNMENTS BENEATH PROPOSED STREETSCAPE
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3. ALL OVERHEAD POWER WITHIN PRECINCT EXTENT IS TO BE RELOCATED UNDERGROUND
4. ALL PROPOSED STORMWATER PITS TO BE IN ACCORDANCE WITH RELEVANT MARIBYRNONG CITY COUNCIL STANDARD DRAWINGS
5. FUTURE DETAILED DESIGN TO ENSURE OVERLAND FLOW IS MAINTAINED WITH ROAD RESERVES.

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SCALE 1:500 AT ORIGINAL SIZE — 0 5 10 15 20 25 m

Note:
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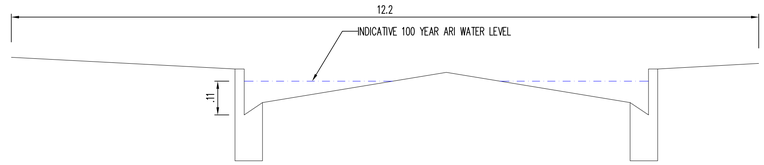

NEILSON PLACE INDICATIVE 100 YEAR ARI WATER LEVEL (A C003)
SCALE: NTS

NOTES:
- ASSUMED ROAD CROSSFALL: 3%
- ASSUMED PEDESTRIAN ZONE CROSSFALL: 1%
- ASSUMED ROAD LONGITUDINAL FALL: 7.7%

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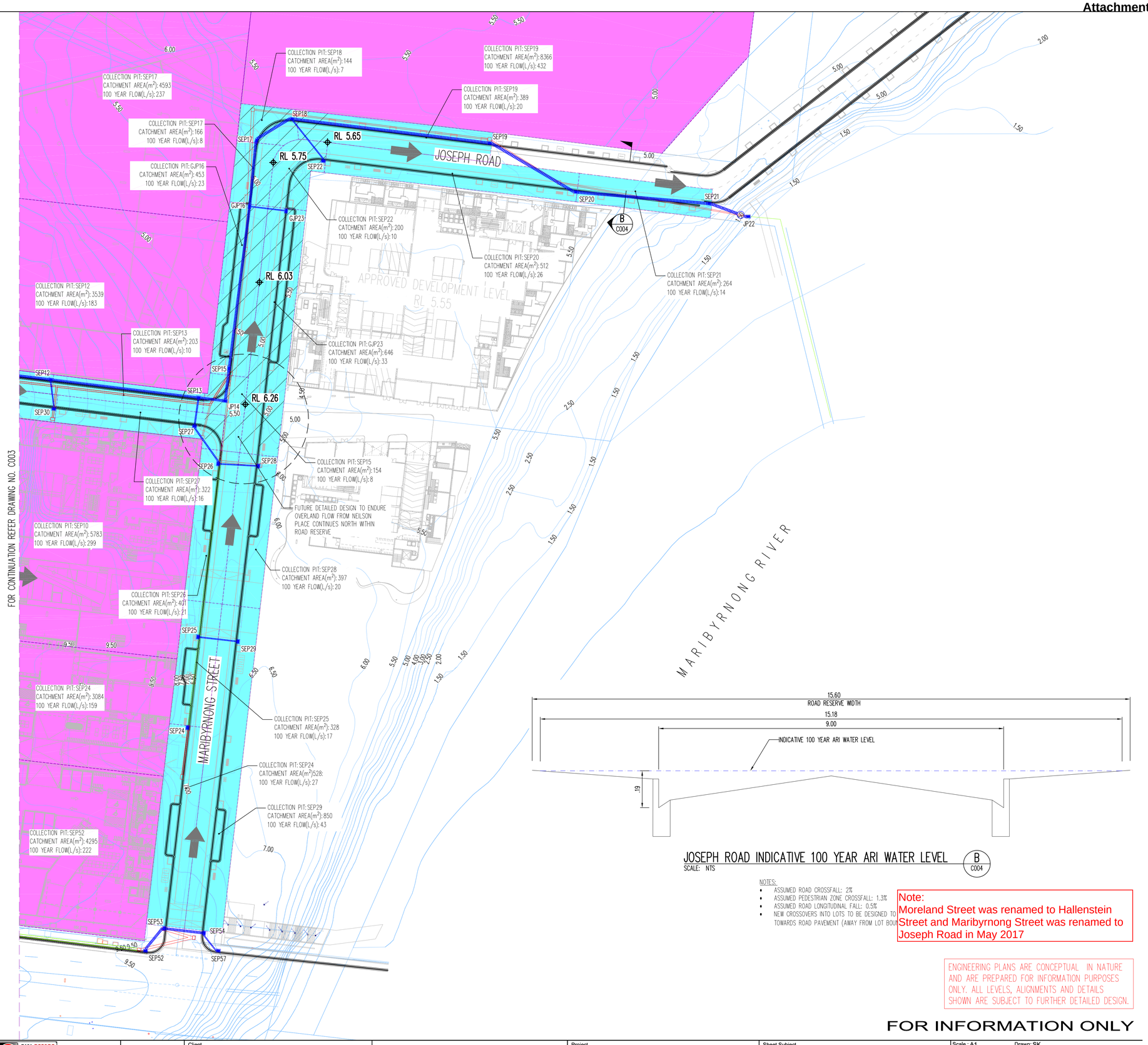
61 Napier Street, Footscray, VIC 3011

Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: OVERLAND FLOW AND STORMWATER CATCHMENT CONCEPT PLAN SHEET 1

Scale: A1 Drawn: SK
Job No: 164020 Drawing No: C003 Revision: C
Plot File Created: Jan 11, 2017 - 9:43am



JOSEPH ROAD INDICATIVE 100 YEAR ARI WATER LEVEL — B C004

SCALE: NTS

NOTES:
- ASSUMED ROAD CROSSFALL: 2%
- ASSUMED PEDESTRIAN ZONE CROSSFALL: 1.3%
- ASSUMED ROAD LONGITUDINAL FALL: 0.5%
- NEW CROSSOVERS INTO LOTS TO BE DESIGNED TO TOWARDS ROAD PAVEMENT (AWAY FROM LOT BOUN

Note:
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- EXISTING DRAINAGE TO BE ABANDONED AND/OR REMOVED
- PROPOSED DRAINAGE PIT — SEP48
- PROPOSED SIDE ENTRY PIT — SEPxx
- PROPOSED GRATED JUNCTION PIT — GJPxx
- PROPOSED JUNCTION PIT — JPxx
- PROPOSED INDICATIVE ROAD CENTRELINE LEVEL — RL 6.03
- OVERLAND FLOW PATH
- LOT CATCHMENT
- ROAD RESERVE CATCHMENT
- EXTENT OF REGRADED FILL ZONE IN ROAD RESERVE

SCALE 1:500 AT ORIGINAL SIZE 0 5 10 15 20 25 m

NOTES:

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5. FUTURE DETAILED DESIGN TO ENSURE OVERLAND FLOW IS MAINTAINED WITHIN ROAD RESERVES

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B	ISSUED FOR INFORMATION ONLY	SK	RB	05.12.16
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61 Napier Street, Footscray, VIC 3011

Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: OVERLAND FLOW AND STORMWATER CATCHMENT CONCEPT PLAN SHEET 2

Scale : A1 | Drawn: SK

Job No	Drawing No	Revision
164020	C004	D

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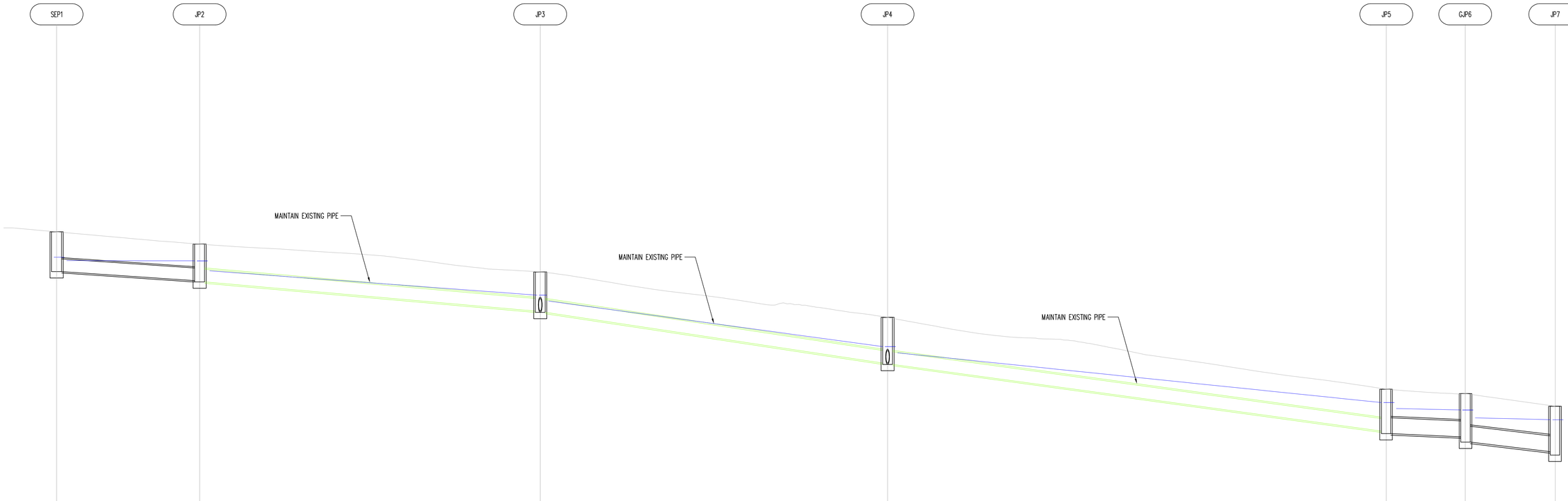

PIPE FLOW (cu.m/s)	0.028	0.131	0.155	0.162		0.159	0.171
PIPE CAPACITY (cu.m/s)	0.158	0.184	0.240	0.230		0.228	0.371
PIPE GRADE (%)	1.6%	2.1%	3.7%	3.3%		1.0%	2.7%
PIPE SLOPE (1 IN X)	63.2	46.7	27.4	29.9		100.0	37.7
PIPE SIZE (mm)	300	300	300	300		375	375
PIPE CLASS	RCP	RCP	RCP	RCP		RCP	RCP
DATUM R.L.	6.00						
HYDRAULIC GRADE LINE	17.804 17.724	17.719 17.492	16.907 16.784	15.690 15.556	14.367 14.229	14.193 14.009	13.962
INVERT LEVEL	17.464	17.250 17.220	16.530 16.500	15.300 15.270	13.691 13.632	13.558 13.431	13.205
DEPTH TO INVERT FROM DESIGN SURFACE	0.942	0.865 0.895	0.926 0.956	1.082 1.112	0.992 1.051	1.021 1.147	1.075
EXISTING SURFACE LEVEL	18.406	18.115	17.456	16.382	14.683	14.578	14.281
CHAINAGE	0.00	13.52	45.72	78.55	125.70	133.15	141.67

LINE 1 LONGITUDINAL SECTION

VERTICAL 1:50
AT ORIGINAL SIZE
0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200
AT ORIGINAL SIZE
0 2 4 6 8 10 m

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61 Napier Street, Footscray, VIC 3011

Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 1 OF 10

Scale : A1 Drawn: SK

Job No 164020 | Drawing No C005 | Revision C

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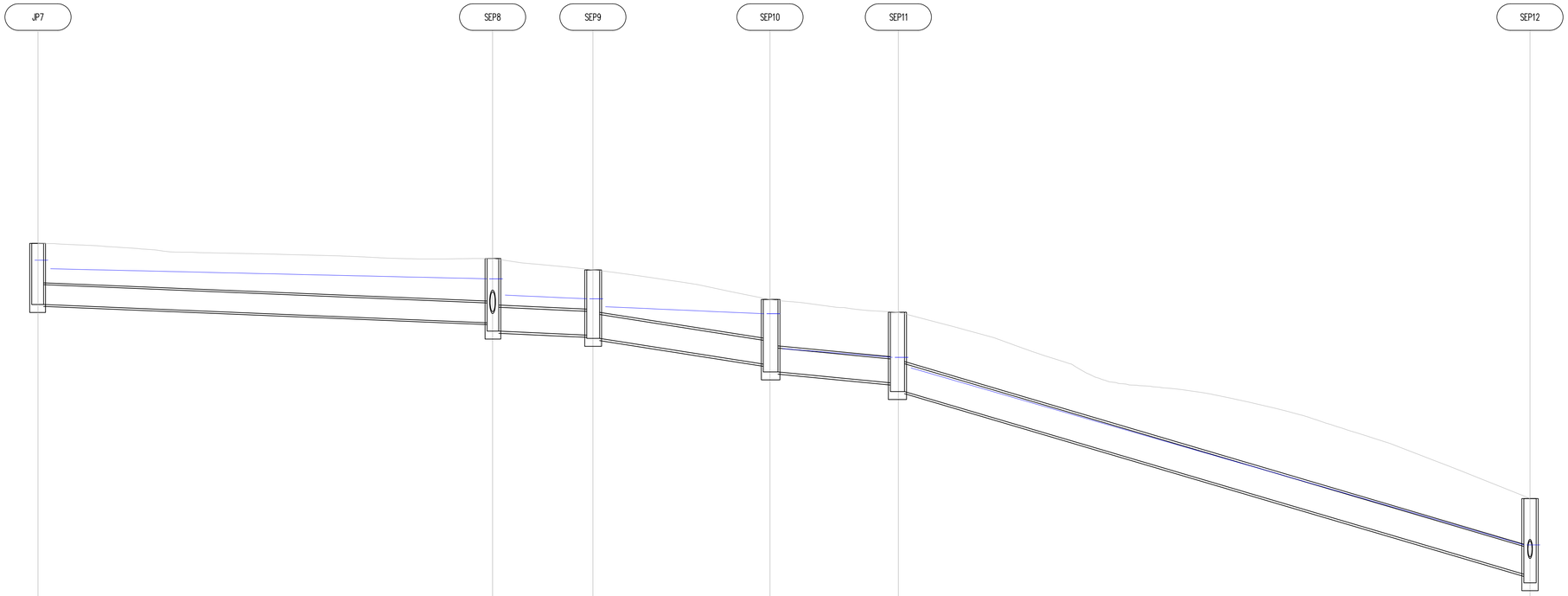

PIPE FLOW (cu.m/s)		0.170	0.369	0.377	0.497	0.550
PIPE CAPACITY (cu.m/s)		0.228	0.371	0.706	0.538	1.503
PIPE GRADE (%)		1.0%	1.0%	3.6%	2.1%	7.2%
PIPE SLOPE (1 IN X)		100.0	100.0	27.6	47.6	13.8
PIPE SIZE (mm)		375	450	450	450	525
PIPE CLASS		RCP	RCP	RCP	RCP	RCP
DATUM R.L.	1.00					
HYDRAULIC GRADE LINE	13.962	13.804	13.612	13.309	13.234	13.091	12.952	12.304	12.130	11.966	8.591
INVERT LEVEL	13.205	13.126	12.782	12.624	12.548	12.487	12.002	11.853	11.650	11.485	8.038
DEPTH TO INVERT FROM DESIGN SURFACE	1.075	1.155	1.213	1.371	1.231	1.292	1.220	1.369	1.332	1.497	1.427
EXISTING SURFACE LEVEL	14.281		13.995		13.779		13.222		12.981		9.465
CHAINAGE	141.67		176.01		183.58		196.96		206.65		254.37

LINE 1 LONGITUDINAL SECTION

VERTICAL 1:50
AT ORIGINAL SIZE
0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200
AT ORIGINAL SIZE
0 2 4 6 8 10 m

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Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 2 OF 10

Scale : A1 | Drawn: SK
Job No: 164020 | Drawing No: C006 | Revision: C
Plot File Created: Jan 11, 2017 - 9:43am

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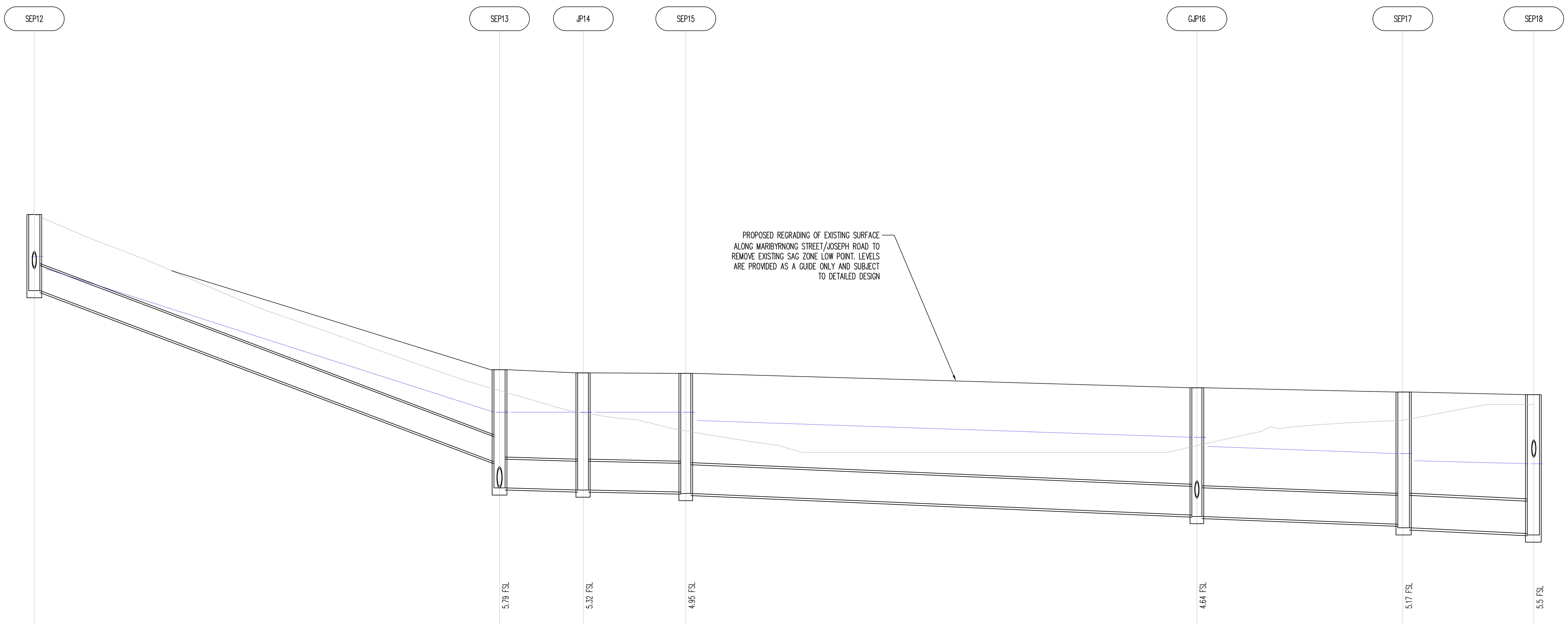

	SEP12–SEP13	SEP13–JP14	JP14–SEP15	SEP15–GJP16	GJP16–SEP17	SEP17–SEP18
PIPE FLOW (cu.m/s)	0.632 / 1.697	0.754 / 0.638	0.752 / 0.562	0.751 / 0.820	0.761 / 0.772	0.851 / 1.141
PIPE GRADE (%)	9.2%	0.6%	0.5%	1.1%	0.9%	1.1%
PIPE SLOPE (1 IN X)	10.9	156.6	201.9	94.7	107.1	91.8
PIPE SIZE (mm)	525	600	600	600	600	675
PIPE CLASS	RCP	RCP	RCP	RCP	RCP	RCP

DATUM R.L. -4.00

	SEP12	SEP13	JP14	SEP15	GJP16	SEP17	SEP18
HYDRAULIC GRADE LINE	8.591 / 8.374	5.339	5.339	5.339 / 5.170	4.815 / 4.631	4.474 / 4.330	4.264
INVERT LEVEL	8.038 / 7.876	4.303 / 3.760	3.715 / 3.715	3.673 / 3.643	3.193 / 3.163	3.002 / 2.927	2.808
DEPTH TO INVERT FROM DESIGN SURFACE	1.427 / 1.589	1.924 / 2.467	2.445 / 2.445	2.477 / 2.507	2.657 / 2.687	2.758 / 2.833	2.897
REGRADED SURFACE LEVEL	9.465	6.227	6.160	6.150	5.850	5.760	5.705
EXISTING SURFACE LEVEL	9.465	5.790	5.325	4.949	4.641	5.168	5.500
CHAINAGE	254.37	293.19	300.18	308.73	351.38	368.56	379.49

LINE 1 LONGITUDINAL SECTION

VERTICAL 1:50 AT ORIGINAL SIZE — 0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200 AT ORIGINAL SIZE — 0 2 4 6 8 10 m

FOR INFORMATION ONLY

Rev	Description	Eng	Draft	Date
C	ISSUED FOR INFORMATION ONLY	SK	RB	11.01.17
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Client: Maribyrnong City Council, 61 Napier Street, Footscray, VIC 3011

Taylor Thomson Whitting — 613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 3 OF 10

Scale : A1 | Drawn: SK

Job No 164020 | Drawing No C007 | Revision C

Plot File Created: Jan 11, 2017 - 9:43am

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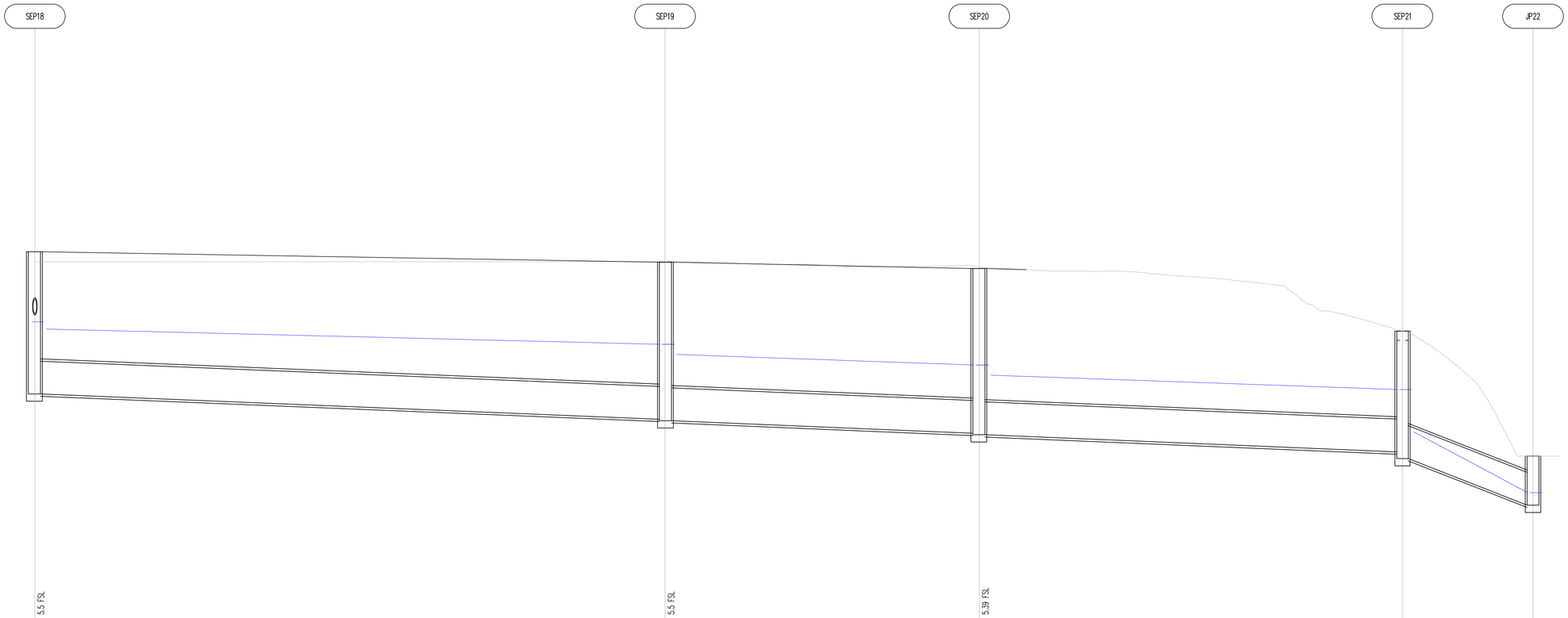

PIPE FLOW (cu.m/s)	0.855	1.012	1.013	1.007	
	1.093	1.093	1.100	3.261	
PIPE GRADE (%)	1.0%	1.0%	1.0%	8.9%	
PIPE SLOPE (1 IN X)	100.1	100.1	98.7	11.2	
PIPE SIZE (mm)	675	675	675	675	
PIPE CLASS	RCP	RCP	RCP	RCP	
DATUM R.L.	-7.00				
HYDRAULIC GRADE LINE	4.264 4.118	3.601 3.597	3.375 3.170	2.671 2.063	0.749
INVERT LEVEL	2.808 2.778	2.259 2.229	1.971 1.941	1.588 1.449	0.492 0.492
DEPTH TO INVERT FROM DESIGN SURFACE	2.897 2.927	3.231 3.261	3.388 3.419	2.465 2.623	1.008 1.008
REGRADED SURFACE LEVEL	5.705	5.490	5.360	4.073	1.500
EXISTING SURFACE LEVEL	5.500	5.500	5.394	4.073	1.500
CHAINAGE	379.49	431.40	457.28	492.13	502.89

LINE 1 LONGITUDINAL SECTION

VERTICAL 1:50
AT ORIGINAL SIZE
0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200
AT ORIGINAL SIZE
0 2 4 6 8 10 m

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61 Napier Street, Footscray, VIC 3011

Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 4 OF 10

Scale : A1 Drawn: SK

Job No 164020 | Drawing No C008 | Revision C

Plot File Created: Jan 11, 2017 - 9:43am

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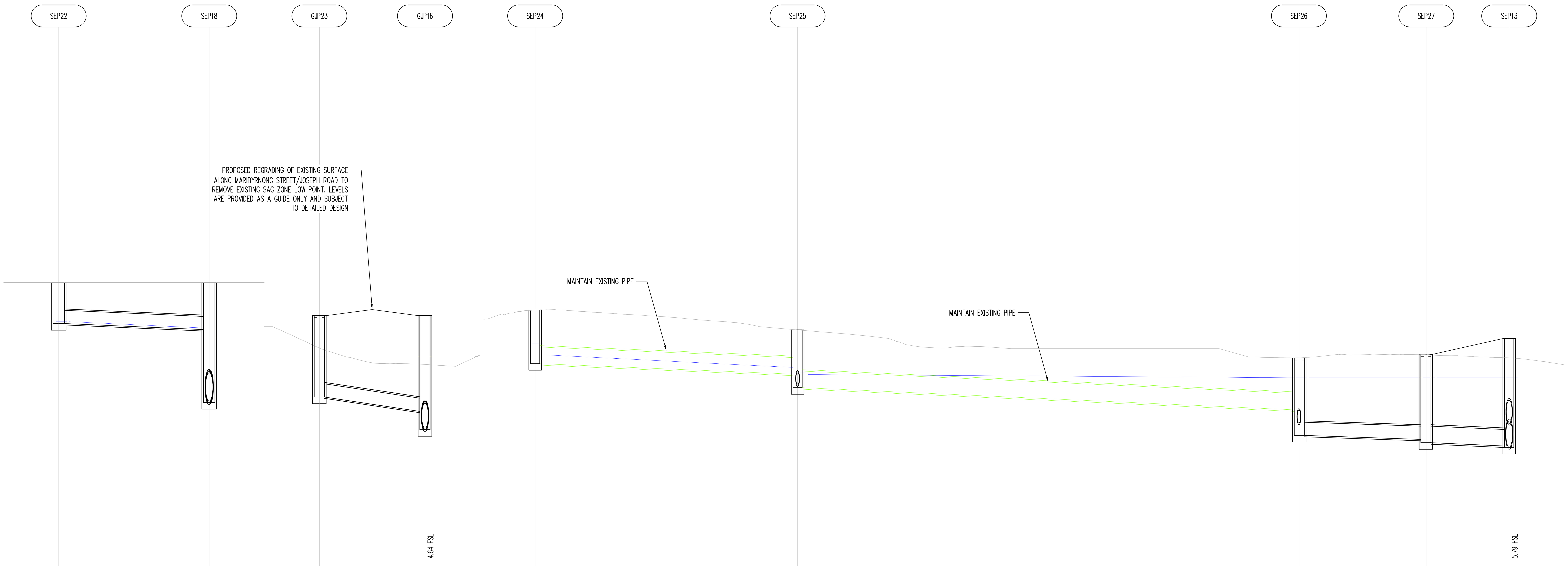

LINE 2 LONGITUDINAL SECTION (SEP22 – SEP18)

	SEP22 → SEP18
PIPE FLOW (cu.m/s)	0.004
PIPE CAPACITY (cu.m/s)	0.127
PIPE GRADE (%)	1.0%
PIPE SLOPE (1 IN X)	98.4
PIPE SIZE (mm)	300
PIPE CLASS	RCP

DATUM R.L. −6.00	SEP22	SEP18
HYDRAULIC GRADE LINE	4.620 4.618	4.468 4.263 4.117
INVERT LEVEL	4.569	4.430 2.778
DEPTH TO INVERT FROM DESIGN SURFACE	0.931	1.070 2.722
REGRADED SURFACE LEVELS		
EXISTING SURFACE LEVEL	5.500	5.500
CHAINAGE	0.00	13.66

LINE 3 LONGITUDINAL SECTION (GJP23 – GJP16)

	GJP23 → GJP16
PIPE FLOW (cu.m/s)	0.014
PIPE CAPACITY (cu.m/s)	0.232
PIPE GRADE (%)	3.4%
PIPE SLOPE (1 IN X)	29.5
PIPE SIZE (mm)	300
PIPE CLASS	RCP

DATUM R.L. −5.00	GJP23	GJP16
HYDRAULIC GRADE LINE	4.835 4.815	4.814 4.629
INVERT LEVEL	3.901	3.576 3.163
DEPTH TO INVERT FROM DESIGN SURFACE	1.85	2.174 2.587
REGRADED SURFACE LEVELS	5.75	5.750
EXISTING SURFACE LEVEL	5.013	4.641
CHAINAGE	0.00	9.59

LINE 4 LONGITUDINAL SECTION (SEP24 – SEP13)

	SEP24 → SEP25	SEP25 → SEP26	SEP26 → SEP27	SEP27 → SEP13
PIPE FLOW (cu.m/s)	0.078	0.102	0.116	0.122
PIPE CAPACITY (cu.m/s)	0.228	0.240	0.201	0.228
PIPE GRADE (%)	1.0%	1.1%	0.8%	1.0%
PIPE SLOPE (1 IN X)	100.0	90.4	128.7	100.3
PIPE SIZE (mm)	375	375	300	375
PIPE CLASS	RCP	RCP	RCP	RCP

DATUM R.L. −4.00	SEP24	SEP25	SEP26	SEP27	SEP13
HYDRAULIC GRADE LINE	6.121 5.864	5.573 5.469 5.413	5.339	5.339	5.339
INVERT LEVEL	5.660	5.421 5.114	4.610 4.030	3.940 3.865	3.790 3.760
DEPTH TO INVERT FROM DESIGN SURFACE	1.217	1.003 1.311	1.176 1.757	1.930 2.005	2.437 2.467
REGRADED SURFACE LEVELS					6.227
EXISTING SURFACE LEVEL	6.876	6.425	5.787	5.870	5.790
CHAINAGE	0.00	23.82	69.33	80.89	88.42

VERTICAL 1:50 AT ORIGINAL SIZE — 0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200 AT ORIGINAL SIZE — 0 2 4 6 8 10 m

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Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 5 OF 10

Scale : A1 Drawn: SK
Job No 164020 Drawing No C009 Revision C
Plot File Created: Jan 11, 2017 - 9:43am

Attachment 2

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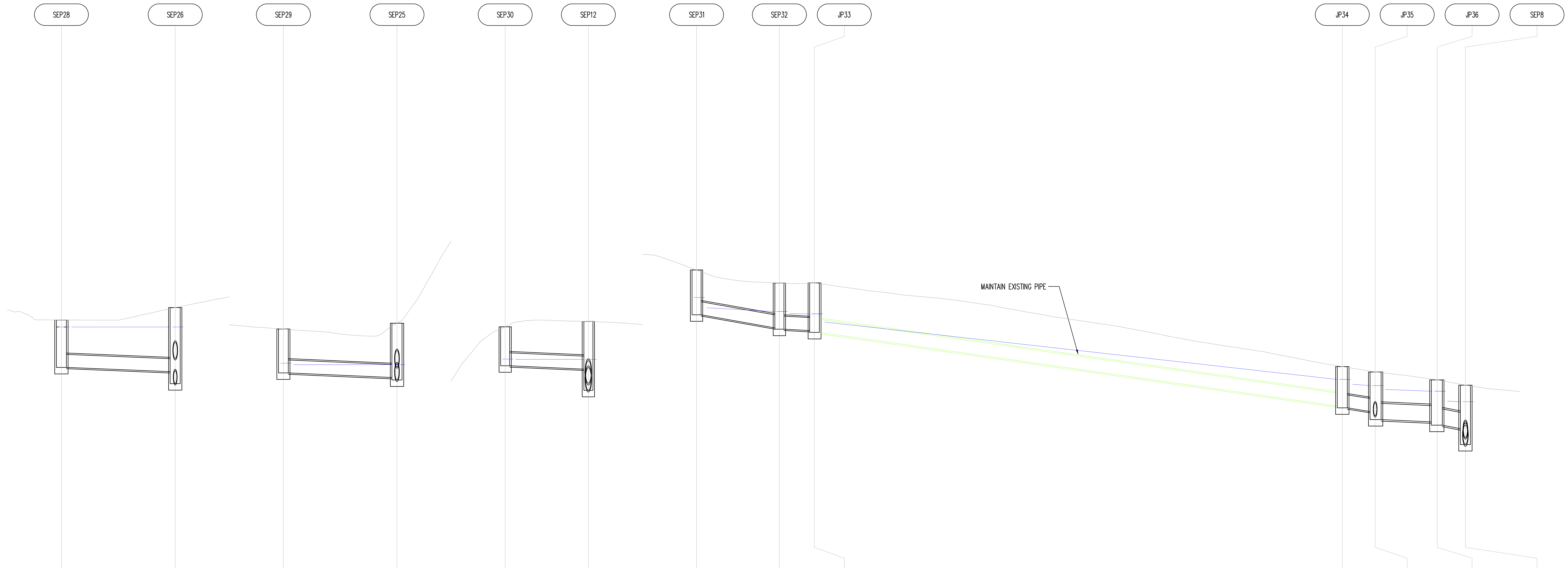

LINE 5 LONGITUDINAL SECTION

	SEP28 – SEP26
PIPE FLOW (cu.m/s)	0.009
PIPE CAPACITY (cu.m/s)	0.122
PIPE GRADE (%)	0.9%
PIPE SLOPE (1 IN X)	106.5
PIPE SIZE (mm)	300
PIPE CLASS	RCP

DATUM R.L. −5.00	SEP28	SEP26
HYDRAULIC GRADE LINE	5.339	5.339
INVERT LEVEL	4.405	4.307 / 4.030
DEPTH TO INVERT FROM DESIGN SURFACE	1.095	1.480 / 1.757
EXISTING SURFACE LEVEL	5.500	5.787
CHAINAGE	0.00	10.52

LINE 6 LONGITUDINAL SECTION

	SEP29 – SEP25
PIPE FLOW (cu.m/s)	0.018
PIPE CAPACITY (cu.m/s)	0.126
PIPE GRADE (%)	1.0%
PIPE SLOPE (1 IN X)	100.0
PIPE SIZE (mm)	300
PIPE CLASS	RCP

DATUM R.L. −4.00	SEP29	SEP25
HYDRAULIC GRADE LINE	5.502 / 5.468	5.469 / 5.413
INVERT LEVEL	5.277	5.172 / 5.114
DEPTH TO INVERT FROM DESIGN SURFACE	1.015	1.253 / 1.311
EXISTING SURFACE LEVEL	6.291	6.425
CHAINAGE	0.00	10.50

LINE 7 LONGITUDINAL SECTION

	SEP30 – SEP12
PIPE FLOW (cu.m/s)	0.009
PIPE CAPACITY (cu.m/s)	0.126
PIPE GRADE (%)	1.0%
PIPE SLOPE (1 IN X)	100.0
PIPE SIZE (mm)	300
PIPE CLASS	RCP

DATUM R.L. −1.00	SEP30	SEP12
HYDRAULIC GRADE LINE	8.598 / 8.590	8.591 / 8.374
INVERT LEVEL	8.442	8.365 / 7.876
DEPTH TO INVERT FROM DESIGN SURFACE	0.900	1.100 / 1.589
EXISTING SURFACE LEVEL	9.342	9.465
CHAINAGE	0.00	7.69

LINE 8 LONGITUDINAL SECTION

	SEP31 – SEP32	SEP32 – JP33	JP33 – JP34	JP34 – JP35	JP35 – JP36	JP36 – SEP8
PIPE FLOW (cu.m/s)	0.047	0.059	0.107	0.142	0.202	0.202
PIPE CAPACITY (cu.m/s)	0.250	0.126	0.235	0.209	0.217	0.403
PIPE GRADE (%)	3.9%	1.0%	3.5%	2.8%	0.9%	3.1%
PIPE SLOPE (1 IN X)	25.3	100.0	28.7	36.3	110.4	32.1
PIPE SIZE (mm)	300	300	300	300	375	375
PIPE CLASS	RCP	RCP	RCP	RCP	RCP	RCP

DATUM R.L. 5.00	SEP31	SEP32	JP33	JP34	JP35	JP36	SEP8
HYDRAULIC GRADE LINE	16.019 / 15.789	15.695 / 15.648	15.641 / 15.466	14.126 / 14.023	13.985 / 13.899	13.854 / 13.633	13.612 / 13.309
INVERT LEVEL	15.620	15.318 / 15.288	15.256 / 15.213	13.512 / 13.471	13.387 / 13.200	13.148 / 13.071	12.990 / 12.624
DEPTH TO INVERT FROM DESIGN SURFACE	1.034	1.034 / 1.064	1.100 / 1.143	0.912 / 0.954	0.912 / 1.099	0.970 / 1.046	1.005 / 1.371
EXISTING SURFACE LEVEL	16.654	16.352	16.356	14.424	14.299	14.117	13.995
CHAINAGE	0.00	7.65	10.88	59.68	62.73	68.47	71.07

VERTICAL 1:50 AT ORIGINAL SIZE — 0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200 AT ORIGINAL SIZE — 0 2 4 6 8 10 m

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61 Napier Street, Footscray, VIC 3011

TTW Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 6 OF 10

Scale : A1 | Drawn: SK
Job No 164020 | Drawing No C010 | Revision C
Plot File Created: Jan 11, 2017 - 9:43am

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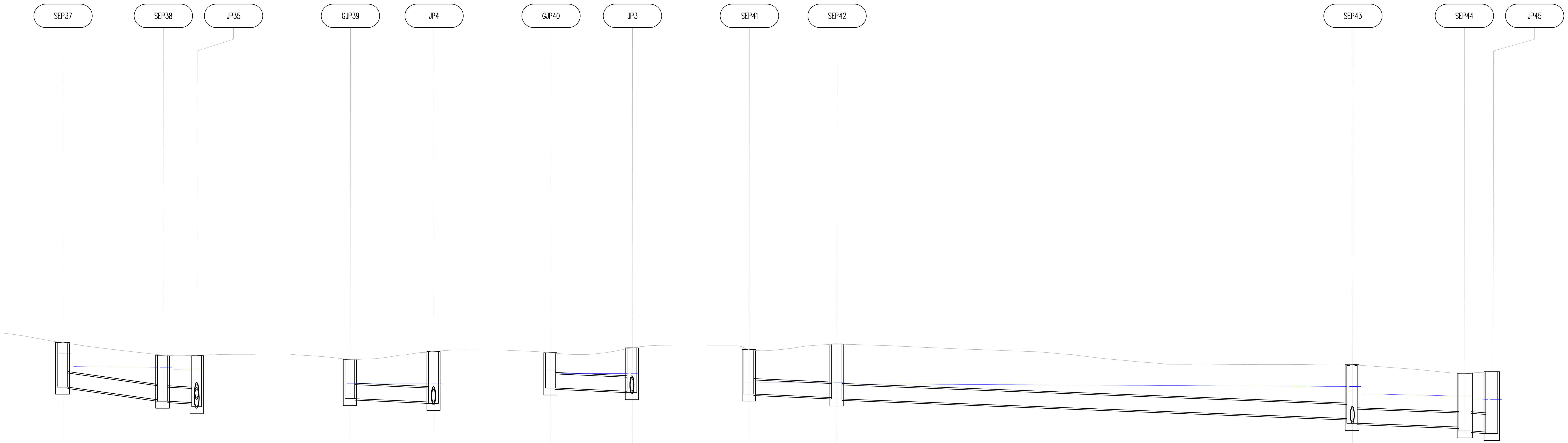

	SEP37		SEP38		JP35
PIPE FLOW (cu.m/s)		0.053		0.062	
PIPE CAPACITY (cu.m/s)		0.224		0.126	
PIPE GRADE (%)		3.2%		1.0%	
PIPE SLOPE (1 IN X)		31.6		100.0	
PIPE SIZE (mm)		300		300	
PIPE CLASS		RCP		RCP	
DATUM R.L.	4.00				
HYDRAULIC GRADE LINE	14.343 / 14.057		14.042 / 13.992		13.985 / 13.899
INVERT LEVEL	13.619		13.347 / 13.317		13.288 / 13.200
DEPTH TO INVERT FROM DESIGN SURFACE	0.953		0.953 / 0.983		1.010 / 1.099
EXISTING SURFACE LEVEL	14.572		14.300		14.299
CHAINAGE	0.00		8.58		11.48

LINE 9 LONGITUDINAL SECTION

	GJP39		JP4
PIPE FLOW (cu.m/s)		0.009	
PIPE CAPACITY (cu.m/s)		0.126	
PIPE GRADE (%)		1.0%	
PIPE SLOPE (1 IN X)		100.0	
PIPE SIZE (mm)		300	
PIPE CLASS		RCP	
DATUM R.L.	6.00		
HYDRAULIC GRADE LINE	15.698 / 15.691		15.690 / 15.556
INVERT LEVEL	15.372		15.300 / 15.270
DEPTH TO INVERT FROM DESIGN SURFACE	0.841		1.082 / 1.112
EXISTING SURFACE LEVEL	16.213		16.382
CHAINAGE	0.00		7.15

LINE 10 LONGITUDINAL SECTION

	GJP40		JP3
PIPE FLOW (cu.m/s)		0.027	
PIPE CAPACITY (cu.m/s)		0.126	
PIPE GRADE (%)		1.0%	
PIPE SLOPE (1 IN X)		100.0	
PIPE SIZE (mm)		300	
PIPE CLASS		RCP	
DATUM R.L.	7.00		
HYDRAULIC GRADE LINE	16.984 / 16.910		16.907 / 16.784
INVERT LEVEL	16.600		16.530 / 16.500
DEPTH TO INVERT FROM DESIGN SURFACE	0.752		0.926 / 0.956
EXISTING SURFACE LEVEL	17.352		17.456
CHAINAGE	0.00		6.97

LINE 11 LONGITUDINAL SECTION

	SEP41		SEP42		SEP43		SEP44		JP45
PIPE FLOW (cu.m/s)		0.007		0.046		0.091		0.168	
PIPE CAPACITY (cu.m/s)		0.126		0.122		0.115		0.228	
PIPE GRADE (%)		1.0%		0.9%		0.8%		1.0%	
PIPE SLOPE (1 IN X)		100.0		105.7		119.5		100.0	
PIPE SIZE (mm)		300		300		300		375	
PIPE CLASS		RCP		RCP		RCP		RCP	
DATUM R.L.	8.00								
HYDRAULIC GRADE LINE	17.727 / 17.722		17.722 / 17.690		17.632 / 17.478		17.428 / 17.369		17.355
INVERT LEVEL	17.470		17.395 / 17.365		16.947 / 16.845		16.766 / 16.683		16.658
DEPTH TO INVERT FROM DESIGN SURFACE	0.951		1.144 / 1.174		1.149 / 1.251		1.150 / 1.232		1.288
EXISTING SURFACE LEVEL	18.421		18.539		18.096		17.915		17.947
CHAINAGE	0.00		7.50		51.61		61.15		63.64

LINE 12 LONGITUDINAL SECTION

VERTICAL 1:50 AT ORIGINAL SIZE — 0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200 AT ORIGINAL SIZE — 0 2 4 6 8 10 m

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Taylor Thomson Whitting
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Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 7 OF 10

Scale : A1 | Drawn: SK
Job No: 164020 | Drawing No: C011 | Revision: C
Plot File Created: Jan 11, 2017 - 9:43am

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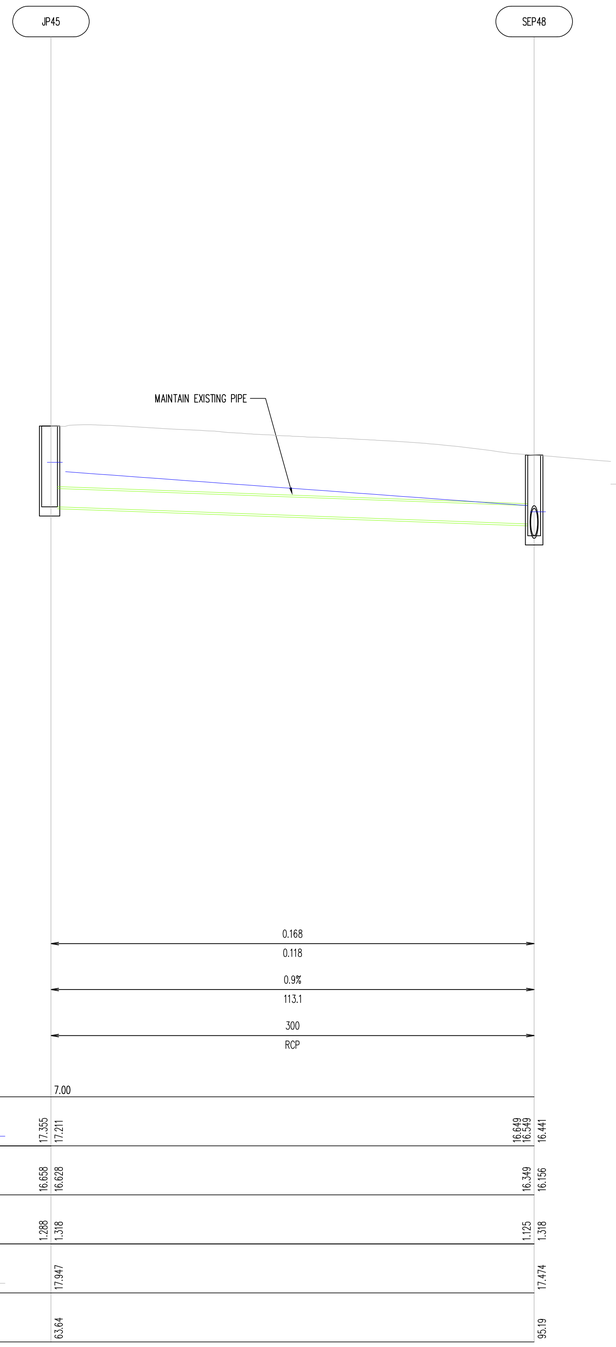
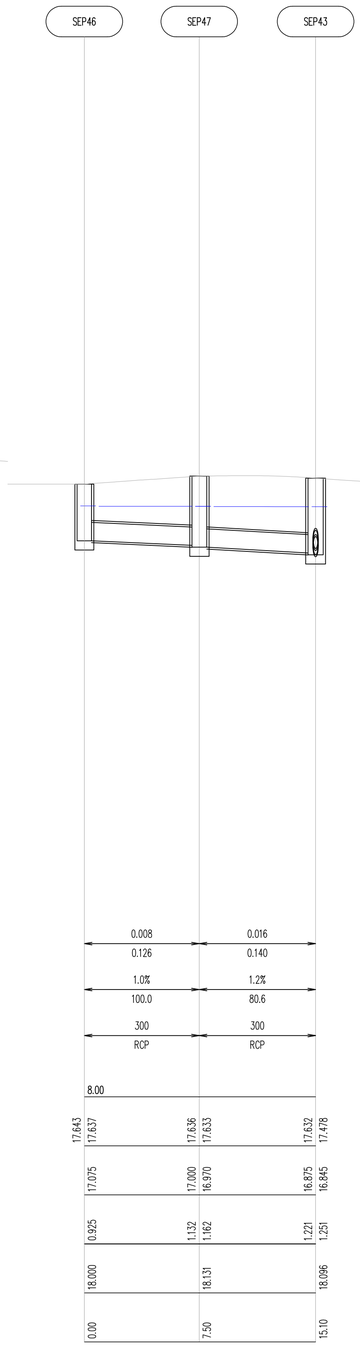


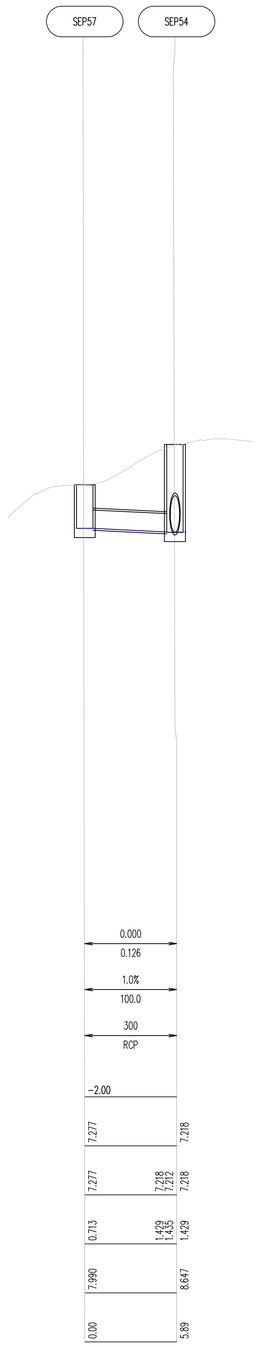
PIPE FLOW (cu.m/s)		0.168	
PIPE CAPACITY (cu.m/s)		0.118	
PIPE GRADE (%)		0.9%	
PIPE SLOPE (1 IN X)		113.1	
PIPE SIZE (mm)		300	
PIPE CLASS		RCP	
DATUM R.L.		7.00	
HYDRAULIC GRADE LINE	17.355	17.211	16.649 16.549 16.441
INVERT LEVEL	16.628	16.628	16.349 16.156
DEPTH TO INVERT FROM DESIGN SURFACE	1.288	1.318	1.125 1.318
EXISTING SURFACE LEVEL	17.947		17.474
CHAINAGE	63.64		95.19

LINE 12 LONGITUDINAL SECTION



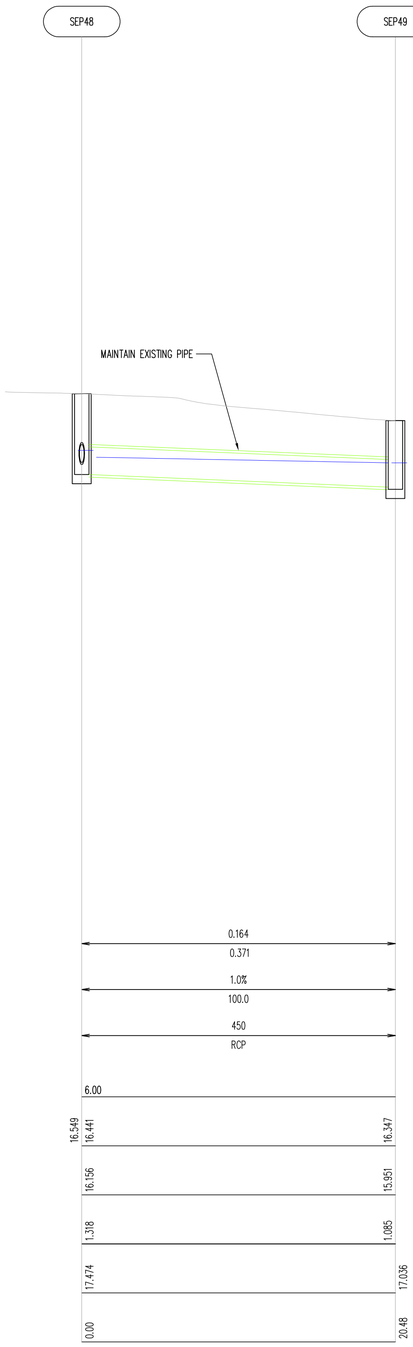
PIPE FLOW (cu.m/s)		0.008	0.016
PIPE CAPACITY (cu.m/s)		0.126	0.140
PIPE GRADE (%)		1.0%	1.2%
PIPE SLOPE (1 IN X)		100.0	80.6
PIPE SIZE (mm)		300	300
PIPE CLASS		RCP	RCP
DATUM R.L.		8.00	
HYDRAULIC GRADE LINE	17.643	17.637	17.636 17.633 17.632 17.478
INVERT LEVEL	17.075		17.000 16.970 16.875 16.845
DEPTH TO INVERT FROM DESIGN SURFACE	0.925		1.132 1.162 1.221 1.251
EXISTING SURFACE LEVEL	18.000		18.131 18.096
CHAINAGE	0.00		7.50 15.10

LINE 13 LONGITUDINAL SECTION



PIPE FLOW (cu.m/s)		0.000	
PIPE CAPACITY (cu.m/s)		0.126	
PIPE GRADE (%)		1.0%	
PIPE SLOPE (1 IN X)		100.0	
PIPE SIZE (mm)		300	
PIPE CLASS		RCP	
DATUM R.L.		-2.00	
HYDRAULIC GRADE LINE	7.277		7.218
INVERT LEVEL	7.277		7.218 7.212 7.218
DEPTH TO INVERT FROM DESIGN SURFACE	0.713		1.429 1.435 1.429
EXISTING SURFACE LEVEL	7.990		8.647
CHAINAGE	0.00		5.89

LINE 16 LONGITUDINAL SECTION



PIPE FLOW (cu.m/s)		0.164	
PIPE CAPACITY (cu.m/s)		0.371	
PIPE GRADE (%)		1.0%	
PIPE SLOPE (1 IN X)		100.0	
PIPE SIZE (mm)		450	
PIPE CLASS		RCP	
DATUM R.L.		6.00	
HYDRAULIC GRADE LINE	16.549	16.441	16.347
INVERT LEVEL	16.156		15.951
DEPTH TO INVERT FROM DESIGN SURFACE	1.318		1.085
EXISTING SURFACE LEVEL	17.474		17.036
CHAINAGE	0.00		20.48

LINE 14 LONGITUDINAL SECTION

VERTICAL 1:50
AT ORIGINAL SIZE
0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200
AT ORIGINAL SIZE
0 2 4 6 8 10 m

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61 Napier Street, Footscray, VIC 3011

Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 8 OF 10

Scale : A1 Drawn: SK
Job No 164020 Drawing No C012 Revision C
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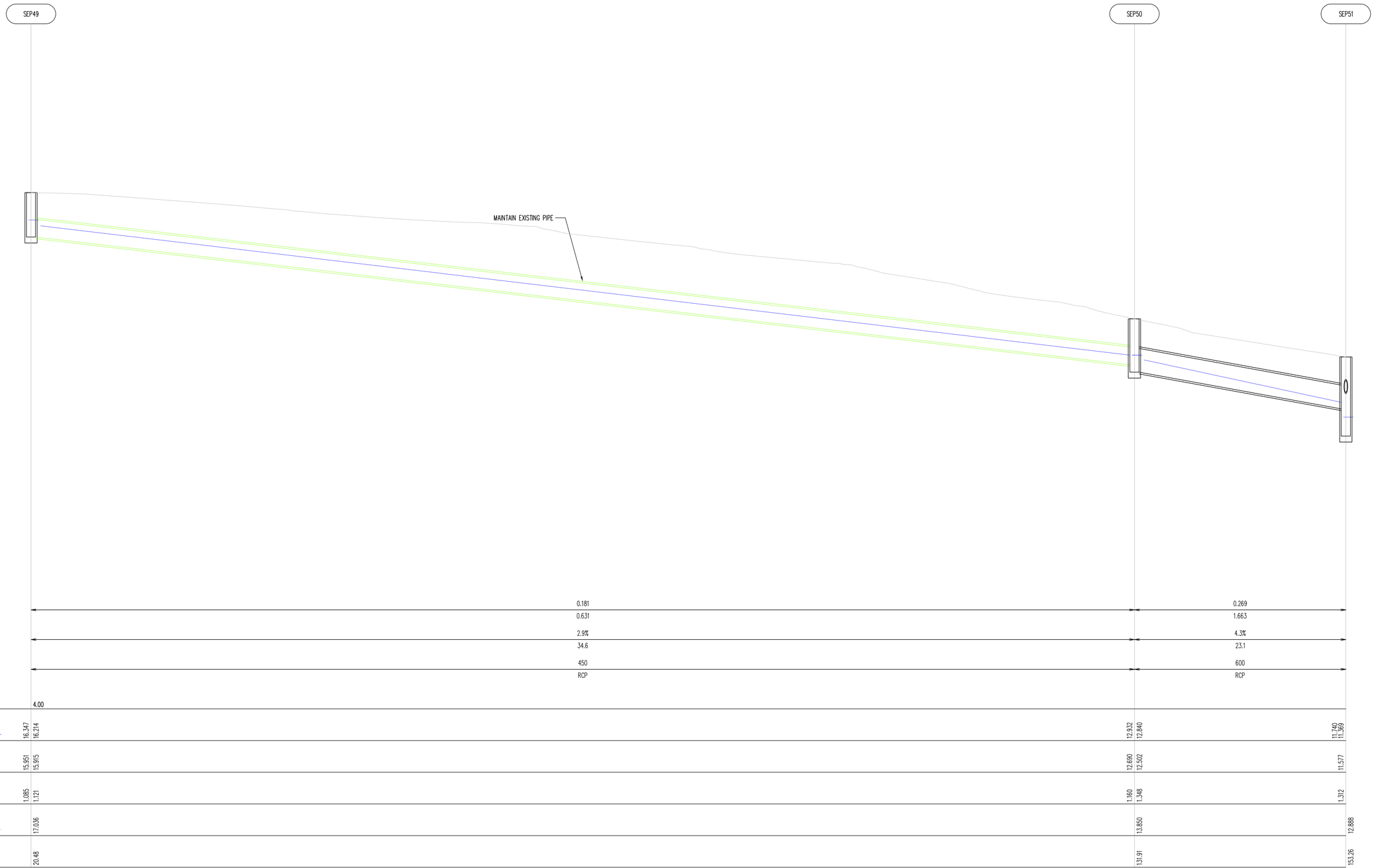

PIPE FLOW (cu.m/s)		0.181	0.269
PIPE CAPACITY (cu.m/s)		0.631	1.663
PIPE GRADE (%)		2.9%	4.3%
PIPE SLOPE (1 IN X)		34.6	23.1
PIPE SIZE (mm)		450	600
PIPE CLASS		RCP	RCP
DATUM R.L.	4.00		
HYDRAULIC GRADE LINE	16.347 16.214	12.932 12.840	11.740 11.369
INVERT LEVEL	15.951 15.915	12.690 12.502	11.577
DEPTH TO INVERT FROM DESIGN SURFACE	1.085 1.121	1.160 1.348	1.312
EXISTING SURFACE LEVEL	17.036	13.850	12.888
CHAINAGE	20.48	131.91	153.26

LINE 14 LONGITUDINAL SECTION

VERTICAL 1:50
AT ORIGINAL SIZE
0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200
AT ORIGINAL SIZE
0 2 4 6 8 10 m

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Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 9 OF 10

Scale : A1 Drawn: SK
Job No 164020 Drawing No C013 Revision C
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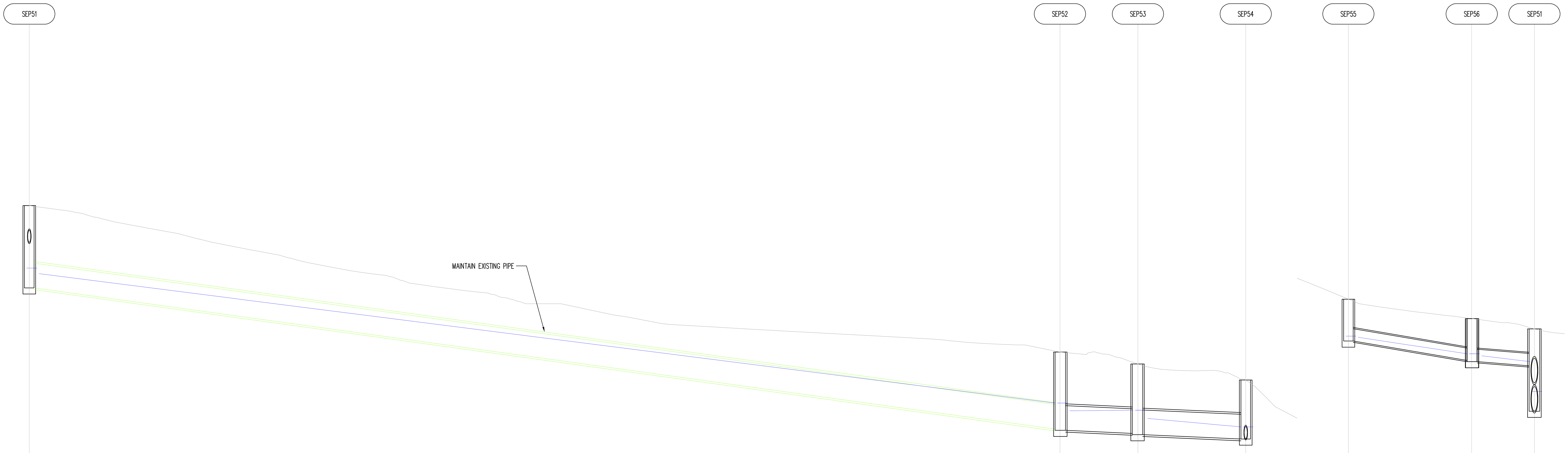

LINE 14 LONGITUDINAL SECTION

	SEP51 – SEP52	SEP52 – SEP53	SEP53 – SEP54
PIPE FLOW (cu.m/s)	0.307	0.386	0.385
PIPE CAPACITY (cu.m/s)	1.477	0.799	0.799
PIPE GRADE (%)	3.4%	1.0%	1.0%
PIPE SLOPE (1 IN X)	29.2	100.0	100.0
PIPE SIZE (mm)	600	600	600
PIPE CLASS	RCP	RCP	RCP

DATUM R.L. 0.00

	SEP51	SEP52	SEP53	SEP54
HYDRAULIC GRADE LINE	11.740 / 11.369 / 11.249	8.086 / 7.896	7.913 / 7.723	7.506
INVERT LEVEL	11.577 / 10.887	7.453 / 7.423	7.347 / 7.317	7.212 / 7.212
DEPTH TO INVERT FROM DESIGN SURFACE	1.312 / 2.001	1.872 / 1.902	1.689 / 1.719	1.435 / 1.435
EXISTING SURFACE LEVEL	12.888	9.325	9.036	8.647
CHAINAGE	153.26	253.63	261.23	271.73

LINE 15 LONGITUDINAL SECTION

	SEP55 – SEP56	SEP56 – SEP51
PIPE FLOW (cu.m/s)	0.021	0.041
PIPE CAPACITY (cu.m/s)	0.249	0.162
PIPE GRADE (%)	3.9%	1.7%
PIPE SLOPE (1 IN X)	25.5	60.0
PIPE SIZE (mm)	300	300
PIPE CLASS	RCP	RCP

DATUM R.L. 3.00

	SEP55	SEP56	SEP51
HYDRAULIC GRADE LINE	12.713 / 12.704	12.285 / 12.250	12.095 / 11.369 / 11.249
INVERT LEVEL	12.594	12.123 / 12.093	11.992 / 10.887
DEPTH TO INVERT FROM DESIGN SURFACE	1.016	1.016 / 1.046	0.897 / 2.001
EXISTING SURFACE LEVEL	13.611	13.139	12.888
CHAINAGE	0.00	12.01	18.09

VERTICAL 1:50 AT ORIGINAL SIZE — 0 0.5 1.0 1.5 2.0 2.5 m
HORIZONTAL 1:200 AT ORIGINAL SIZE — 0 2 4 6 8 10 m

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Project: JOSEPH ROAD PRECINCT

Sheet Subject: CONCEPTUAL STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 10 OF 10

Scale : A1 | Drawn: SK
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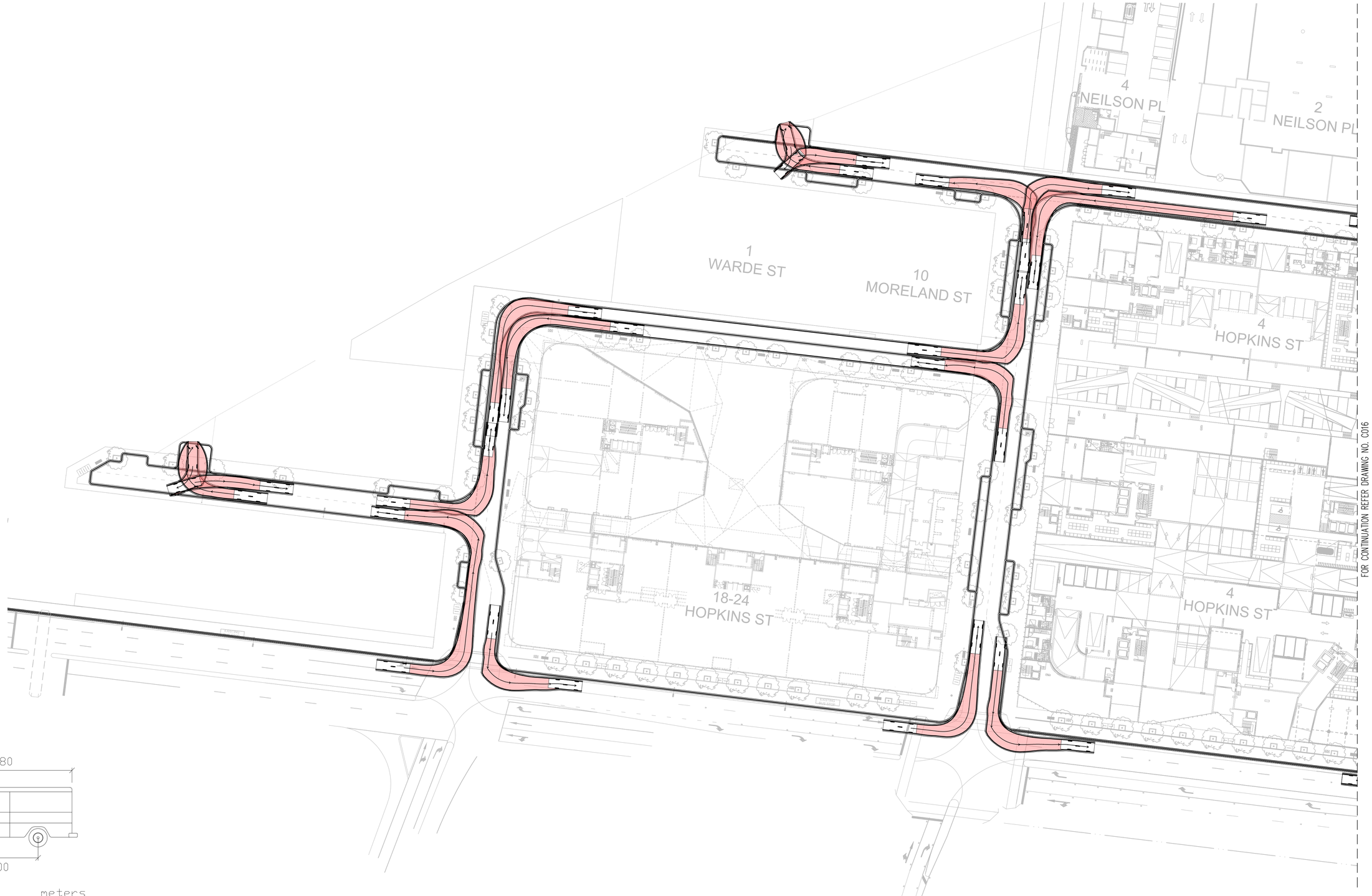

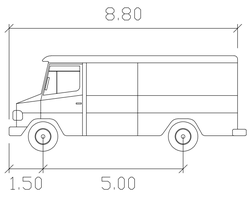

SVEH meters

Width : 2.50
Track : 2.50
Lock to Lock Time 6.0
Steering Angle : 26.2

SCALE 1:500 0 5 10 15 20 25 m
AT ORIGINAL SIZE

Note:
Moreland Street was renamed to Hallenstein Street and Maribyrnong Street was renamed to Joseph Road in May 2017

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Project
JOSEPH ROAD PRECINCT

Sheet Subject
PRELIMINARY SWEPT PATH PLAN - SHEET 1

Scale : A1 Drawn: SK

Job No	Drawing No	Revision
164020	C015	C

Plot File Created: Jan 11, 2017 - 9:44am

SVEH meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	6.0
Steering Angle	: 26.2

SCALE 1:500 0 5 10 15 20 25 m
AT ORIGINAL SIZE

Note:
Moreland Street was renamed to Hallenstein Street and Maribyrnong Street was renamed to Joseph Road in May 2017

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Project
JOSEPH ROAD PRECINCT

Sheet Subject
PRELIMINARY SWEPT PATH PLAN - SHEET 2

Scale : A1 Drawn: SK

Job No	Drawing No	Revision
164020	C016	C

Plot File Created: Jan 11, 2017 - 9:44am

PROPOSED PEDESTRIAN OPERATED SIGNALS LEGEND:

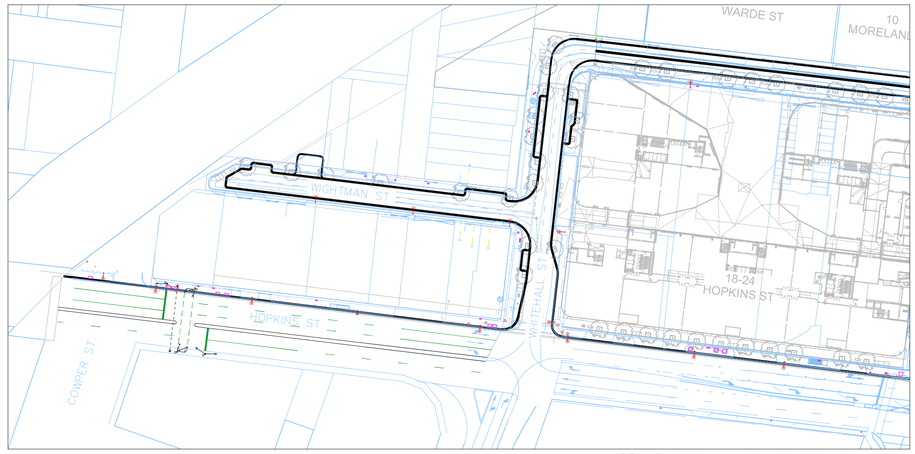
NEW PEDESTAL – TYPE 2A, TYPE 2B	○ 2A, 2B
3 ASPECT LANTERN – 200mm	○—▷
PEDESTRIAN PUSH BUTTON & LANTERN	▸ —C
CONDUIT WITH NUMBER/DUCT DIAMETER	1/100
PIT – CONDUIT	◒
PROPOSED LINEMARKING	▬
PROPOSED ONE WAY RRPM	

EXISTING SERVICES LEGEND LEGEND:

Existing Drainage	
Existing Electricity	E
Existing Telecommunication	T
Existing NBN	T
Existing Water	W
Existing Gas	G
Existing Sewer	S
Existing Contours	

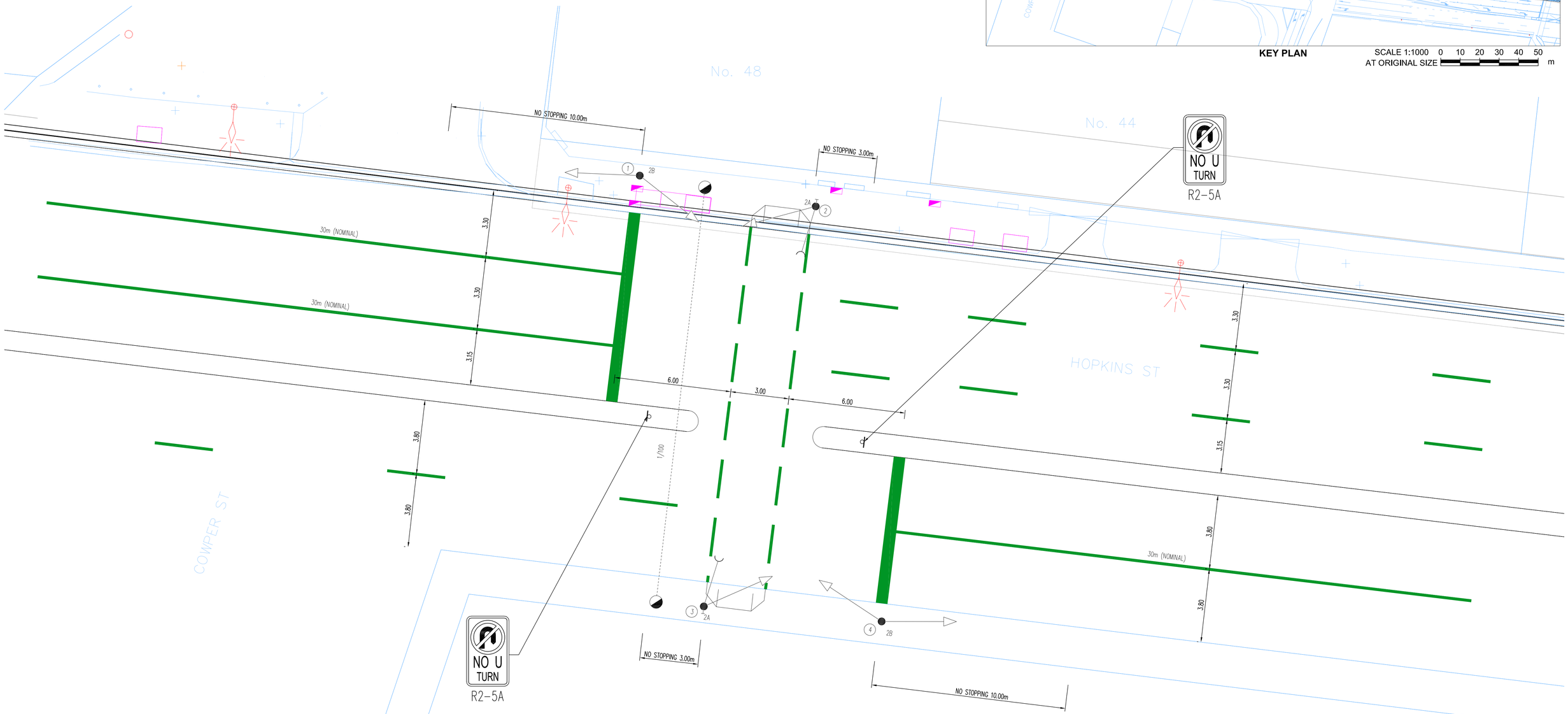
NOTES:

1. PREQUALIFIED CONTRACTOR UNDER THE VICROADS PREQUALIFICATION SCHEME TO UNDERTAKE ALL SIGNAL ASSOCIATED WORKS
2. ALL SIGNAL WORKS TO BE IN ACCORDANCE WITH RELEVANT VICROADS STANDARDS
3. CONCEPT LAYOUT SHOWN IS FOR INFORMATION PURPOSES ONLY.
4. ALL PEDESTRIAN OPERATED SIGNALS RELATED WORKS INCLUDING LAYOUT, HARDWARE, ELECTRICAL SUPPLY AND LINEMARKING TO BE DESIGNED BY A PREQUALIFIED CONSULTANT UNDER THE VICROADS PREQUALIFICATION SCHEME
5. CONSTRUCT 2 DDA COMPLIANT PRAM CROSSINGS IN ACCORDANCE WITH AUSTRALIAN STANDARDS
6. REMOVE REDUNDANT LINEMARKING AND INSTALL NEW LINEMARKING AS SHOWN
7. REMOVE REDUNDANT RRPM'S AND SUPPLY AND INSTALL NEW RRPM'S AS SHOWN
8. SUPPLY AND INSTALL NEW ROAD SIGNAGE AS SHOWN



KEY PLAN

SCALE 1:1000 0 10 20 30 40 50 m
AT ORIGINAL SIZE



SCALE 1:100 0 1 2 3 4 5 m
AT ORIGINAL SIZE

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TTW Taylor Thomson Whitting
613 9602 1433 | L13 379 Collins Street Melbourne VIC 3000

Project: JOSEPH ROAD PRECINCT

Sheet Subject: PEDESTRIAN OPERATED SIGNALS PLAN

Scale : A1 Drawn: SK

Job No 164020 | Drawing No C017 | Revision B

Plot File Created: Jan 11, 2017 - 9:47am

Joseph Road Precinct
Development Contributions Plan

Attachment 3

Joseph Road Precinct Preferred WSUD
Concepts by Alluvium Consulting
(May 2017)

Memo

Subject	Joseph Road Precinct Preferred WSUD Concepts
Distribution	[redacted]
Date	12 May 2017
Project	Joseph Road Precinct WSUD

1 Introduction

Maribyrnong City Council (council) engaged Alluvium to investigate the concept design of a stormwater treatment asset to treat flows from the redeveloped Joseph Road precinct in Footscray. The Joseph Road precinct will accommodate 3000 additional residents over the next 10 years. Redevelopment of the site must consider effects on stormwater quality and quantity with the aim of protecting the downstream environment in the Maribyrnong River.

This project investigated **three preliminary options** for stormwater quality treatment, followed by the development of **two preferred options** at a concept design level.

The three preliminary concept options investigated were:

1. Option 1: A bioretention system within Council owned land
2. Option 2: A wetland system (with sediment basin) requiring acquisition of privately owned land, and reconfiguration of the existing open drain into a vegetated swale
3. Option 3: A bioretention system with pre-treatment sediment basin requiring acquisition of privately owned land, and reconfiguration of the existing open drain into a vegetated swale

Based on Council feedback, Option 3 and a variant of Option 1 (Option 1b) were refined to a full concept design level providing Council with an option of a WSUD asset wholly located within Council owned land, and an option of a WSUD asset located within private land and partly within Council owned land.

2 Site context

The Joseph Road site encompasses approximately 15 hectares of previously industrial land bounded by the Maribyrnong River to the east, the Regional Rail Link corridor to the north and west, and Hopkins Road to the south (Figure 1).

The existing terrain around the Joseph Road site slopes towards the Maribyrnong River. The current drainage network splits runoff from the site to two outfalls on the Maribyrnong River. The northern outfall and network collects the majority of runoff and enters the river via a brick lined open drain (catchment area of 4.8 ha).

The open space in proximity of the outfall is the intended location for the stormwater quality treatment asset. Figure 2 shows the catchment area and drainage network upstream of the proposed treatment asset site.

This space is split between council owned land closer to the river and privately land northward (Figure 1). It has been assumed that Council acquisition of the private land portion is a possibility, and this has been considered into the stormwater quality treatment options developed (see section 4).

Figure 1. *Site context*

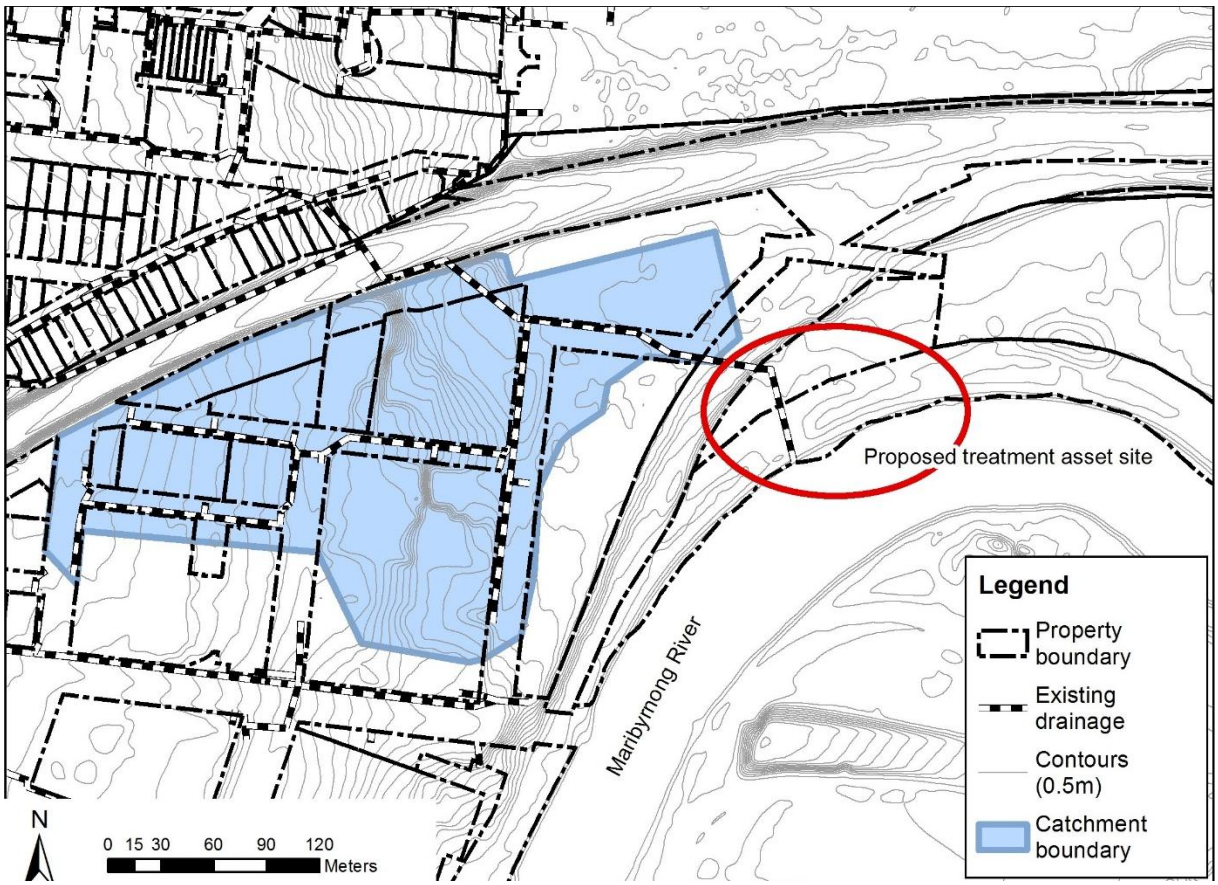


Figure 2 *Drainage catchment plan*

3 Asset type considered

The following asset types were considered in developing the preliminary concept options.

3.1 Wetland

Constructed wetland systems use enhanced sedimentation, fine filtration and biological uptake processes to remove pollutants from stormwater. They generally consist of:

- An inlet zone (such as a sediment basin)
- A macrophyte zone (a shallow heavily vegetated area to remove fine particulates and take up soluble pollutants), and
- A high-flow bypass pipe or channel (to protect the macrophyte zone).

Wetland systems can incorporate open water areas. In addition to playing an important role in stormwater treatment, wetlands can also have significant community benefits. They provide habitat for wildlife and a focus for recreation, including walking paths and resting areas. They can also improve the aesthetics of new developments and can be a central landscape feature. An example of an Alluvium designed constructed wetland is shown in Figure 3.

Figure 3 *Alluvium/Rakali designed wetland recently constructed in 2016*

3.2 Bioretention system

Bioretention systems treat stormwater by infiltrating it through a vegetated sand filter media (Figure 4). Bioretention systems are particularly efficient at removing nutrients and can achieve treatment performance over a small footprint compared to wetlands. The main components of the bioretention system include:

- A filter media layer
- Vegetation that uptakes nutrients in stormwater
- A transition layer (of sand or geotextile) that prevents the filtration media being washed away, and
- Perforated pipes to transfer treated stormwater downstream.

Figure 4. *Bioretention system examples*

3.3 Swale

A swale is a vegetated open channel, designed to convey flows and provide limited treatment of stormwater. Swales can be easily integrated into the surrounding landscape and provide additional amenity benefits over a traditional open drain. Swales typically occupy a larger footprint than a concrete drain to convey a given flow rate owing to higher surface roughness.

4 Preliminary concept designs

Three preliminary WSUD options were proposed to Council on 27th March 2017.

4.1 Option 1 – Bioretention system within council owned land

Option 1 consists of a bioretention system with a coarse sediment forebay (see Appendix B for concept plans). Table 1 outlines the key design parameters.

The 3-month ARI flows is diverted into the system for treatment from the proposed pit SEP21 with higher flows bypassing to the existing open drain. Treated flow re-joins the open drain before the outfall into the Maribyrnong River.

This option is constrained by the existing tree line to the south and the property boundary to the north. The existing site levels require a small section of mounding to maintain necessary pipe cover. Alternatively, a surcharge inlet could be used to avoid a fill mound. This arrangement will result in a submerged inlet pipe over approximately half its length.

Table 1 Option 1 key design parameters

Parameter	Figure
Treatment area/filter surface a (m^2)	150
NWL (m AHD)	RL 0.9
EDD (m)	0.35
TED (m AHD)	RL 1.25
Total footprint including batters (m^2)	490
Batter	1 in 5
Filter media depth	0.5 m
Transition layer and drainage layer	0.5 m

4.2 Option 2 – Wetland (with sediment basin) requiring acquisition of private land

Option 2 assumes Council acquisition of the privately owned land. This opens the opportunity for a constructed wetland system (refer to appendix B for concept plan). Table 2 outlines the key design parameters.

This option will include a sediment basin and macrophyte zone area for stormwater treatment, with the existing open drain replaced by a vegetated swale. Flows up to the 3-month event are diverted into the system for treatment from the proposed pit SEP21 with higher flows bypassing the wetland. Treated flow re-joins the proposed swale before the outfall into the Maribyrnong River. Due to the downstream tailwater levels it must be noted that this outlet arrangement will require the sediment basin to be drained using pumps during maintenance clean outs (every 3-5 years).

Reconfiguration of the open drain into a swale provides a more integrated visual drainage. The wetland provides improved amenity over a larger footprint compared to the bioretention system options. However, the larger wetland footprint also takes up valuable open space for public use (assuming Council acquires the land in the first place).

Table 2 Option 2 key design parameters

Parameter	Figure
Sediment basin NWL area (m^2)	200
Treatment area at NWL (m^2)	870
NWL (m AHD)	RL 0.9
EDD (m)	0.35
TED (m AHD)	RL 1.25
Total footprint inc. batters (m^2)	2420
Batter	1 in 6
Swale length (m)	41
Swale top width (m)	6.5
Swale capacity (m^3/s)	2.0

4.3 Option 3 – Bioretention system and pre-treatment sediment basin requiring acquisition of private land

Option 3 assumes Council acquisition of the privately owned land to fit a larger asset and in turn improve treatment performance (compared to option 1). Acquisition of the private parcel also enables the opportunity to include a sediment basin to the bioretention system, which both serves to provide an interim stormwater quality asset during construction phase of the precinct and improve the overall treatment performance of the system enabling best practice targets to be achieved for TSS, TN and TP (Refer to appendix A for concept plan). Table 3 outlines the key design parameters.

Option 3 uses a bioretention system as the main treatment asset to the west side of the existing open drain and retains the swale design from option 2. Option 3 requires a smaller total footprint compared to Option 2, and achieves a higher level of water quality treatment (Total Nitrogen removal).

Table 3 Option 3 key design parameters

Parameter	Figure
Sediment basin NWL area (m^2)	200
Treatment area at filter surface (m^2)	100
NWL (m AHD)	0.9
EDD (m)	0.35
TED (m)	1.25
Total footprint inc. batters (m^2)	490
Batter	1 in 5
Filter media depth	0.5 m
Transition layer and drainage layer	0.5 m

4.4 Water quality modelling

The performance of the different options was modelled in MUSIC (v6.2) and results are outlined in Table 4.

Table 4 Treatment train performance for concept options

Pollutant	Sources	Percentage removed		
		Option 1	Option 2	Option 3
Flow (ML/yr)	19.3			
Total Suspended Solids (kg/yr)	3880	72 %	70.5 %	82.7 %
Total Phosphorus (kg/yr)	7.96	35.9 %	59.5 %	44.1 %
Total Nitrogen (kg/yr)	55.8	39.6 %	39.1 %	48 %
Gross Pollutants (kg/yr)	745	100 %	100 %	100 %

Table 5 BPEM requirements for treating urban pollutant loads

Pollutant	Target
Total suspended solids	80% retention (or removal) of the typical urban load
Total phosphorus	45% retention of the typical urban load
Total nitrogen	45% retention of the typical urban load
Litter	70% retention of the typical urban load
Flows	Maintain discharges for the 1-in-1.5 year ARI at pre-development

4.5 Preliminary high level cost estimate

A preliminary estimate of total construction and maintenance costs for the concept options has been prepared based on high level rates in the Melbourne Water WSUD Life cycle costing data guidelines (Table 6 and

Table 7). These are high-level cost estimates and are intended to be used as a reference guide when comparing options. More accurate cost estimate have been developed for the preferred options.

Table 6 Unit cost rates for construction and maintenance

	Wetland	Sediment basin	Swale	Bioretention system
Construction cost ($/m^2)	100	200	60	350
Maintenance cost ($/m^2/yr)	2	10	3	5

Table 7 Construction and maintenance cost estimate for concept options

Concept	Wetland area (m^2)	Sediment basin area (m^2)	Bioretention area (m^2)	Swale area (m^2)	Construction cost ($)	Maintenance cost ($/yr)
1	-	-	150	-	52,500	750
2	830	200	-	267	139,020	4460
3	-	200	100	267	91,020	3300

4.6 Summary – Option comparison

Table 8 provides a brief summary of the pros and cons of the proposed concept options, including their ranking in total footprint, treatment performance, cost, amenity, land acquisition and loss of open space.

Table 8 Concept option comparison

Concept	Ranking							
	Construction cost	Maintenance cost	Total footprint	Treatment performance	Interim treatment option	Improved amenity	Land acquisition	Loss of open space
Option 1	1	1	1	3	2	2	1	1
Option 2	3	3	3	2	1	1	3	3
Option 3	2	2	2	1	1	2	2	2

*Note: ranking is such that 1 = more desirable (i.e. lowest cost, lowest footprint, best performance).

5 Final concept designs – Preferred options

Based on feedback from Council, a bioretention system was preferred for the site and two options were developed to a full concept design level – Option 3 and a variant of Option 1.

1. Variant of Option 1 (Option 1b): A bioretention system within Council owned land (see Appendix A)

   The preference was to relocate the WSUD asset to the west side of the open drain. This reduces the length of pipe required, and the ground is also lower on the West side reducing the extent of batters. This location impacts on an existing treed area, however only one tree needs to be removed.

   A surcharge inlet pit is preferred to avoid mounding above the diversion pipe. This inlet arrangement will require more frequent maintenance as it is more prone to blockages. However, the inclusion of an upstream GPT will provide pre-treatment of litter and coarse sediment, and thus reduce the risk of the surcharge pit becoming blocked.

2. Option 3: A bioretention system with pre-treatment sediment basin requiring acquisition of privately owned land, and reconfiguration of the existing open drain into a vegetated swale (see Appendix A)

   This concept was largely based on the preliminary option. The asset footprint has been refined with improved earthwork modelling.

The options have also been optimised to meet best practice pollutant removal targets (Table 5 and Table 9).

Table 9 Treatment train performance for final concept options

Pollutant	**Sources**	**Percentage removed**	
		Option 1b	**Option 2**
Total Suspended Solids (kg/yr)	3920	79 %	83 %
Total Phosphorus (kg/yr)	8	45 %	50 %
Total Nitrogen (kg/yr)	55	47 %	47 %
Gross Pollutants (kg/yr)	745	100 %	100 %

5.1 Costing

The costing for option 1b and 3 are presented in Table 10 and Table 11 below.

The construction cost of Option 1b is estimated at $ 397,000.

The construction cost of Option 3 is estimated at $ 464,000. However, this does not include land acquisition.

5.2 Risks

A key risk with the WSUD options presented is tidal influences from the Maribyrnong River. Given that the invert level of the asset outlet pipe is low (0.35 m AHD), there is possibility of inflows from the Maribyrnong River into the WSUD asset during high tides. This will impact on the ability of the asset to drain effectively. Salt water intrusion can also impact on plant health. To manage this risk, further investigation of the water level in the Maribyrnong River is required in future design stages, as well as monitoring of flows from the Maribyrnong River at the existing open drain to confirm the extent of tidal influences. In terms of design, this risk can also be managed by elevating the invert of the outlet pipe by another 150 mm, and/or lifting the bioretention filter media by another 150 mm (i.e. NWL of 1.0 m AHD with higher embankment required), and/or locating the bioretention system closer to the existing escarpment (i.e. where the sediment pond of Option 3 is located) on slightly higher ground (approximately 350 mm higher).

6 Conclusion and recommendations

This projects has provided Council with two potential WSUD concept options for the Joseph Road Precinct with sufficient detail to progress further to detailed design and construction.

The selection of a preferred option by Council will depend on the potential to acquire the private parcel, available budget, Council's interest in an interim treatment asset during the precinct development (i.e. sediment pond in Option 3), and Council's view on the loss of available open space and impact on existing trees.

Future design stages will require further investigation of the Maribyrnong River water level and monitoring of flows at the existing open drain.

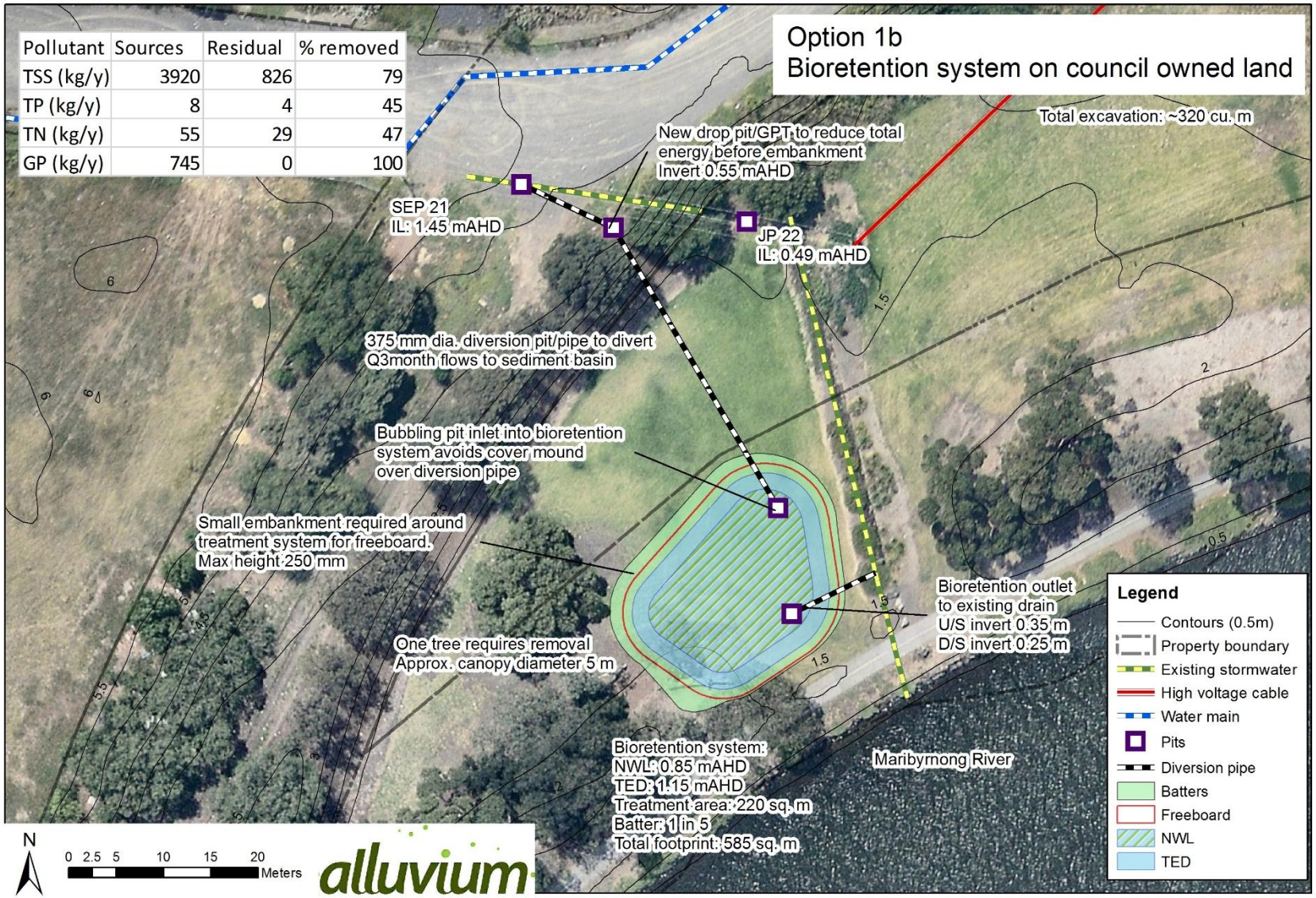
Table 10 Costing (Option 1b)

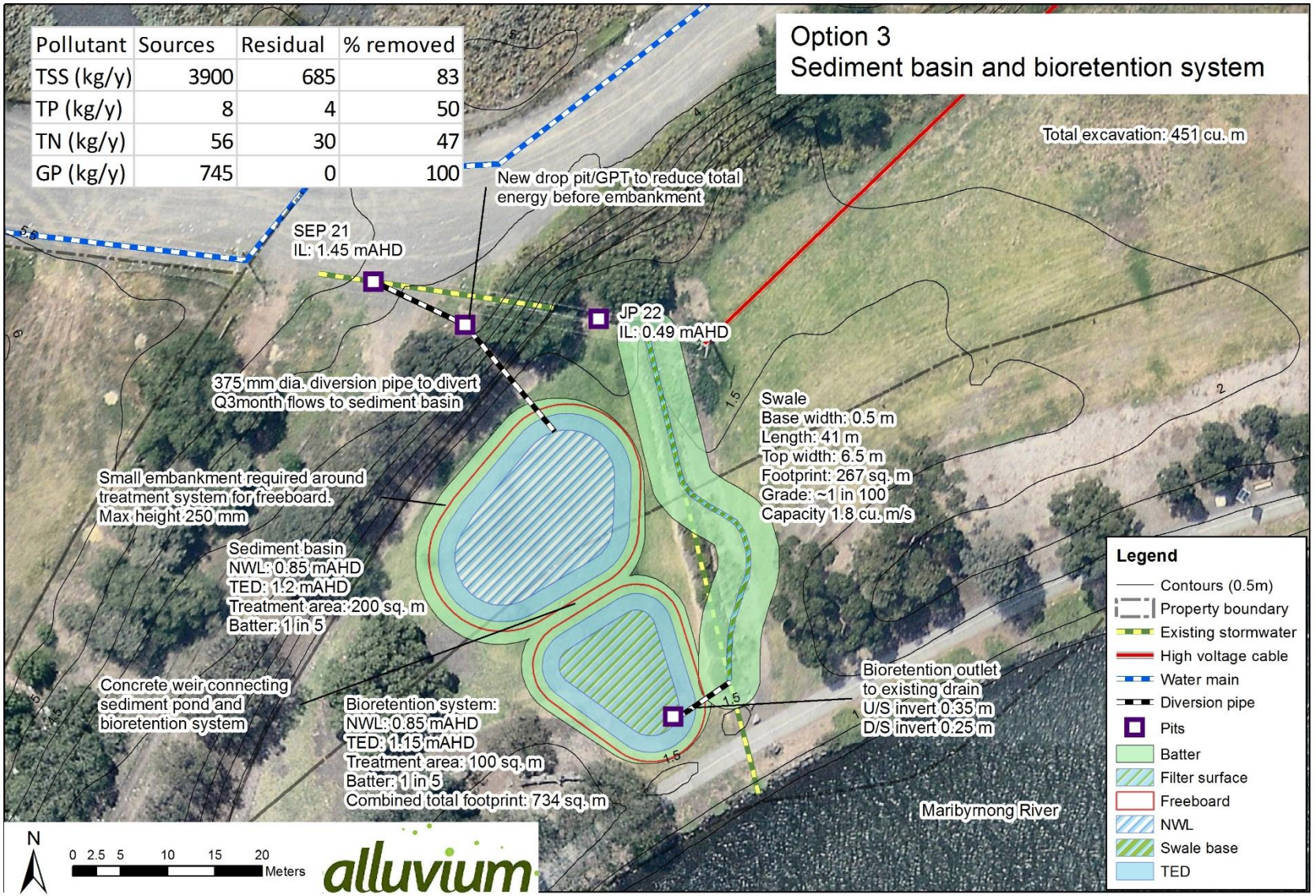
	Quantity	*Unit*	*Unit Rate*	*Cost*
General items				
Site establishment, sediment and erosion control	1	No	5%	$ 12,106
Subtotal				***$ 12,106***
GPT				
Supply and install < 300 L/s	1	No	$ 60,000	$ 60,000
Subtotal				***$ 60,000***
Bioretention system				
Strip and stockpile site topsoil prior to bulk excavation (avg. depth 100mm)	58.5	m^3	$ 50	$ 2,925
Excavation	262	m^3	$ 20	$ 5,230
Dispose of excess spoil offsite (Category C)	233	m^3	$ 420	$ 97,650
Supply and place liner	372	m^2	$ 30	$ 11,153
Supply and place subsoil drain	146	m	$ 26	$ 3,792
Supply and lay gravel and filter media (bioretention)	220	m^3	$ 80	$ 17,600
Supply and place rock mulch in bioretention system (50mm)	11	m^3	$ 150	$ 1,650
Supply and place bark mulch on batter (50mm thick)	18	m^3	$ 60	$ 1,095
Re spread 200 mm depth site top soil to batters surrounding bioretention areas	29	m^3	$ 50	$ 1,450
Planting (6 plants/sqm)	220	m^2	$ 30	$ 6,600
Inlet zone				
Supply and construct 375 dia pipe outlet endwall	1	No.	$ 2,000	$ 2,000
Install rock apron at inlet	4	m^2	$ 150	$ 600
Embankment				
Compaction of soil to 85% using site soil	20	m^3	$ 50	$ 1,000
Subtotal				***$ 152,745***
Stormwater drainage works				
Modify pit with concrete weir (diversion point)	1	No	$ 5,000	$ 5,000
Supply and install new drop pit and bubbling pit	1	No	$ 8,000	$ 8,000
Supply and install stormwater diversion pipe / inlet pipe	44	m	$ 45	$ 1,980
Supply and install overflow/outlet pipe	10	m	$ 45	$ 450
Supply and install new pit (overflow pit)	1	No	$ 3,000	$ 3,000
Subtotal				***$ 18,430***
Landscaping				
Planting (4 plants/sqm)	365	m^2	$ 30	$ 10,950
Subtotal				***$ 10,950***
Subtotal for all items				**$ 254,231**
Other				
Allowance for approvals (heritage, ecology etc.)	0	No	$ 5,000	$ -
Allowance for service alterations	0	No	$ 5,000	$ -
Design	1	No	10%	$ 25,423
Site investigations (geotech, survey, service detection, potholing, contam, etc)	1	No	5%	$ 12,712
Maintenance and establishment period	1	No	15%	$ 38,135
Subtotal				***$ 76,269***
Subtotal for all items				**$ 330,501**
Contingency			20%	$ 66,100
Total				**$ 397,000**

Table 11 Costing (Option 3)

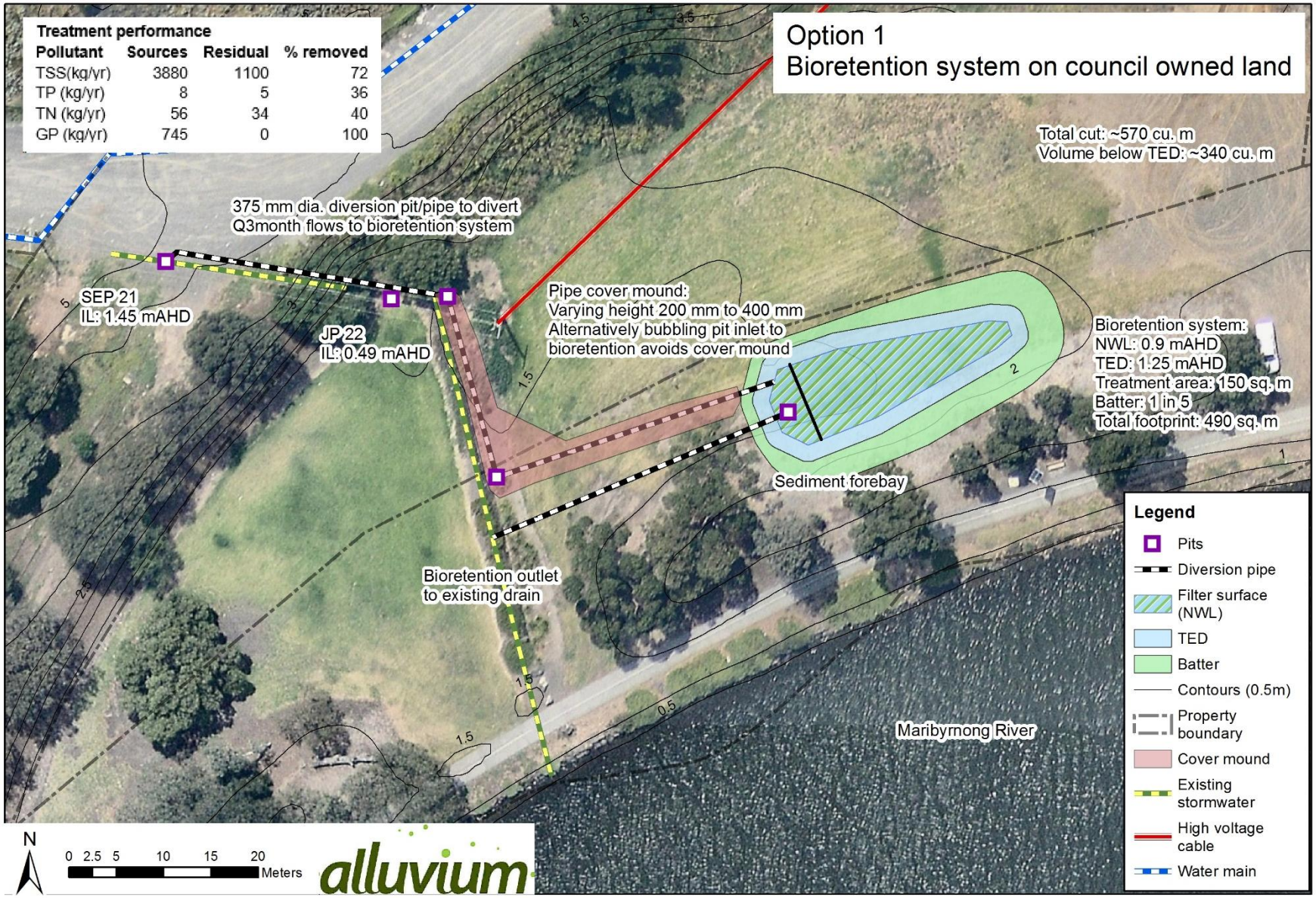
	Quantity	*Unit*	*Unit Rate*	*Cost*
General items				
Site establishment, sediment and erosion control	1	No	5%	$ 14,164
Subtotal				***$ 14,164***
GPT				
Supply and install < 300 L/s	1	No	$ 60,000	$ 60,000
Subtotal				***$ 60,000***
Bioretention system				
Strip and stockpile site topsoil prior to bulk excavation (avg. depth 100mm)	73.4	m^3	$ 50	$ 3,670
Excavation (bioretention system + sediment pond)	378	m^3	$ 20	$ 7,552
Dispose of excess spoil offsite (Category C)	311	m^3	$ 420	$ 130,536
Supply and place liner	206	m^2	$ 30	$ 6,187
Supply and place subsoil drain	72	m	$ 26	$ 1,872
Supply and lay gravel and filter media (bioretention)	100	m^3	$ 80	$ 8,000
Supply and place rock mulch in bioretention system (50mm)	5	m^3	$ 150	$ 750
Supply and place bark mulch on batter (50mm thick)	9	m^3	$ 60	$ 510
Re spread 200 mm depth site top soil to batters surrounding bioretention areas and sed pond	67	m^3	$ 50	$ 3,340
Planting (6 plants/sqm)	100	m^2	$ 25	$ 2,500
Sediment pond				
Supply and construct 375 dia pipe endwall	3	No.	$ 500	$ 1,500
Install rock beaching at inlet zone	4	m^3	$ 150	$ 600
Access ramp bulk excavation (200 mm deep) and compaction of ground	8	m^3	$ 50	$ 400
Ramp construction (bottom100 mm layer of FCR and top 100 mm layer of 0-40 mm NDCR)	10	m	$ 150	$ 1,500
Supply and build rock base	2	m^3	$ 600	$ 1,260
Embankment				
Compaction of soil to 85% using site soil	22	m^3	$ 50	$ 1,100
Subtotal				***$ 171,277***
Stormwater drainage works				
Modify pit with concrete weir (diversion point)	1	No	$ 5,000	$ 5,000
Supply and install new drop pit	1	No	$ 5,000	$ 5,000
Supply and install stormwater diversion pipe / inlet pipe	26	m	$ 45	$ 1,170
Supply and install overflow/outlet pipe	7	m	$ 45	$ 315
Concrete weir separating sediment pond and bioretention system	2.45	m^3	$ 550	$ 1,348
Supply and install new pit (overflow pit)	1	No	$ 3,000	$ 3,000
Subtotal				***$ 15,833***
Landscaping				
Planting (2 plants/sqm)	434	m^2	$ 20	$ 8,680
Subtotal				***$ 8,680***
Swale				
Demolition of brick drain	1	No	$ 7,500	$ 7,500
Earthworks and drainage (approximate)	1	No	$ 12,500	$ 12,500
Preparation, supply and planting for revegetation works (approximate)	300	m^2	$ 25	$ 7,500
Subtotal				***$ 27,500***
Subtotal for all items				**$ 297,454**
Other				
Allowance for approvals (heritage, ecology etc.)	0	No	$ 5,000	$ -
Allowance for service alterations	0	No	$ 5,000	$ -
Land acquisition	910	m^2	TBC	
Design	1	No	10%	$ 29,745
Site investigations (geotech, survey, service detection, potholing, contam, etc)	1	No	5%	$ 14,873
Maintenance and establishment period	1	No	15%	$ 44,618
Subtotal				***$ 89,236***
Subtotal for all items				**$ 386,691**
Contingency			20%	$ 77,338
Total				**$ 464,000**

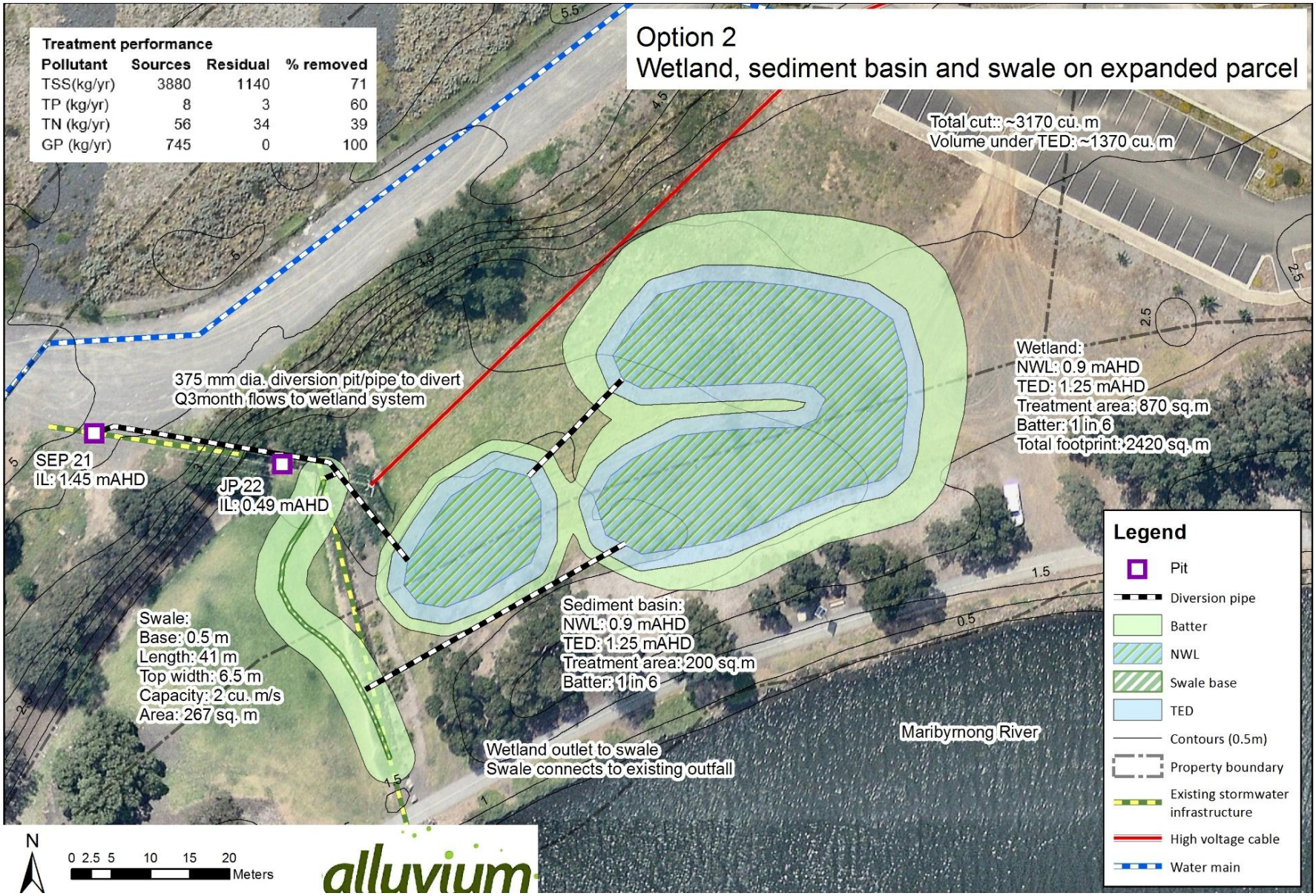
Appendix A: Preferred Options


Option 1b
Bioretention system on council owned land
Pollutant | Sources | Residual | % removed
TSS (kg/y) | 3920 | 826 | 79
TP (kg/y) | 8 | 4 | 45
TN (kg/y) | 55 | 29 | 47
GP (kg/y) | 745 | 0 | 100
Total excavation: ~320 cu. m
New drop pit/GPT to reduce total energy before embankment
Invert 0.55 mAHD
SEP 21
IL: 1.45 mAHD
JP 22
IL: 0.49 mAHD
375 mm dia. diversion pit/pipe to divert Q3month flows to sediment basin
Bubbling pit inlet into bioretention system avoids cover mound over diversion pipe
Small embankment required around treatment system for freeboard.
Max height 250 mm
Bioretention outlet to existing drain
U/S invert 0.35 m
D/S invert 0.25 m
One tree requires removal
Approx. canopy diameter 5 m
Bioretention system:
NWL: 0.85 mAHD
TED: 1.15 mAHD
Treatment area: 220 sq. m
Batter: 1 in 5
Total footprint: 585 sq. m
Maribyrnong River
Legend
Contours (0.5m)
Property boundary
Existing stormwater
High voltage cable
Water main
Pits
Diversion pipe
Batters
Freeboard
NWL
TED
N
0 2.5 5 10 15 20
Meters
alluvium


Option 3
Sediment basin and bioretention system
Pollutant | Sources | Residual | % removed
TSS (kg/y) | 3900 | 685 | 83
TP (kg/y) | 8 | 4 | 50
TN (kg/y) | 56 | 30 | 47
GP (kg/y) | 745 | 0 | 100
Total excavation: 451 cu. m
New drop pit/GPT to reduce total energy before embankment
SEP 21
IL: 1.45 mAHD
JP 22
IL: 0.49 mAHD
375 mm dia. diversion pipe to divert Q3month flows to sediment basin
Swale
Base width: 0.5 m
Length: 41 m
Top width: 6.5 m
Footprint: 267 sq. m
Grade: ~1 in 100
Capacity 1.8 cu. m/s
Small embankment required around treatment system for freeboard. Max height 250 mm
Sediment basin
NWL: 0.85 mAHD
TED: 1.2 mAHD
Treatment area: 200 sq. m
Batter: 1 in 5
Concrete weir connecting sediment pond and bioretention system
Bioretention system:
NWL: 0.85 mAHD
TED: 1.15 mAHD
Treatment area: 100 sq. m
Batter: 1 in 5
Combined total footprint: 734 sq. m
Bioretention outlet to existing drain
U/S invert 0.35 m
D/S invert 0.25 m
Maribyrnong River
Legend
Contours (0.5m)
Property boundary
Existing stormwater
High voltage cable
Water main
Diversion pipe
Pits
Batter
Filter surface
Freeboard
NWL
Swale base
TED
N
0 2.5 5 10 15 20
Meters
alluvium

Appendix B: Other options investigated


Treatment performance
Pollutant Sources Residual % removed
TSS(kg/yr) 3880 1100 72
TP (kg/yr) 8 5 36
TN (kg/yr) 56 34 40
GP (kg/yr) 745 0 100
Option 1
Bioretention system on council owned land
Total cut: ~570 cu. m
Volume below TED: ~340 cu. m
375 mm dia. diversion pit/pipe to divert Q3month flows to bioretention system
SEP 21
IL: 1.45 mAHD
JP 22
IL: 0.49 mAHD
Pipe cover mound:
Varying height 200 mm to 400 mm
Alternatively bubbling pit inlet to bioretention avoids cover mound
Bioretention system:
NWL: 0.9 mAHD
TED: 1.25 mAHD
Treatment area: 150 sq. m
Batter: 1 in 5
Total footprint: 490 sq. m
Sediment forebay
Bioretention outlet to existing drain
Maribyrnong River
Legend
Pits
Diversion pipe
Filter surface (NWL)
TED
Batter
Contours (0.5m)
Property boundary
Cover mound
Existing stormwater
High voltage cable
Water main
N
0 2.5 5 10 15 20
Meters
alluvium


Option 2
Wetland, sediment basin and swale on expanded parcel
Treatment performance
Pollutant | Sources | Residual | % removed
TSS(kg/yr) | 3880 | 1140 | 71
TP (kg/yr) | 8 | 3 | 60
TN (kg/yr) | 56 | 34 | 39
GP (kg/yr) | 745 | 0 | 100
Total cut:: ~3170 cu. m
Volume under TED: ~1370 cu. m
375 mm dia. diversion pit/pipe to divert Q3month flows to wetland system
SEP 21
IL: 1.45 mAHD
JP 22
IL: 0.49 mAHD
Wetland:
NWL: 0.9 mAHD
TED: 1.25 mAHD
Treatment area: 870 sq.m
Batter: 1 in 6
Total footprint: 2420 sq. m
Swale:
Base: 0.5 m
Length: 41 m
Top width: 6.5 m
Capacity: 2 cu. m/s
Area: 267 sq. m
Sediment basin:
NWL: 0.9 mAHD
TED: 1.25 mAHD
Treatment area: 200 sq.m
Batter: 1 in 6
Maribyrnong River
Wetland outlet to swale
Swale connects to existing outfall
Legend
Pit
Diversion pipe
Batter
NWL
Swale base
TED
Contours (0.5m)
Property boundary
Existing stormwater infrastructure
High voltage cable
Water main
N
0 2.5 5 10 15 20
Meters
alluvium