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# Roe Highway and Kalamunda Road Interchange: Project Sustainability Report 2021

Prepared by



This annual report covers the period from 1<sup>st</sup> July 2020 – 30<sup>th</sup> June 2021. A previous annual sustainability report was prepared for the Project for FY2019-2020.

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# About this Report

This report has been prepared by the Georgiou Group for the Roe Highway Kalamunda Road Interchange Project (the Project) on behalf of Main Roads Western Australia (MRWA). This report forms part of MRWA's annual sustainability reporting which is integrated into its Annual Report. The report content is prepared in accordance with GRI principals.

## Introduction

Roe Highway is part of a key road corridor linking Kwinana Freeway to Great Northern Highway, providing access to the Kewdale and Hazelmere industrial areas. Georgiou Group has been appointed as the main contractor to deliver the Project on behalf of MRWA. The Project will introduce a grade-separated interchange at the existing Roe Highway Kalamunda Road intersection with the following benefits anticipated:

- reduce commuter congestion;
- improve road safety by enabling Roe Highway through traffic to flow freely;
- improve access and reduce journey times in Perth's eastern suburbs; and
- enhance the efficiency and reliability of freight movement.

The Project involves the investigation, design and construction required to construct a grade-separated interchange at Roe Highway and Kalamunda Road and surrounding road improvements.

Infrastructure encompasses a commitment to society and when delivered sustainably, can provide positive long-term solutions that enhance the local community, environment and economy. Georgiou Group commits to promoting a culture of sustainability across all operations and minimising environmental and social impacts through measures outlined in Georgiou's Corporate Sustainability Policy (Appendix 4). The Project recognises the importance of integrating sustainable development with the delivery of infrastructure and is committed to applying sustainability principles to everything they do. To achieve this, the Project has adopted the Georgiou Corporate Sustainability Policy and consideration of the MRWA Corporate Sustainability Policy, providing a framework for the sustainability objectives set for the Project and a commitment to facilitating net positive outcomes for society and the environment.

To view this policy, please visit: <https://www.mainroads.wa.gov.au/globalassets/community-environment/sustainability/sustainability-policy.pdf>

The Project has developed a Sustainability Management Plan (SMP) that outlines the integration of sustainability throughout the design and construction of the Project, and application of the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) V2.0 Design & As-Built Rating Tool targeted sustainability outcomes and requirements. Application of the IS V2.0 rating scheme allows the Project to pursue sustainability objectives relevant to and exceeding industry aspirations, alongside a global commitment to pursuing the targets set out in the United Nations Sustainable Development Goals (SDGs) towards sustainable development. The SMP guides how the Project is planned and managed through delivery, taking into account sustainability risks and opportunities and specifically addresses client, contractual, legislation and other obligations and targets. This includes sustainability initiatives adopted or abandoned by the Project, assessed against sustainability criteria and progression of the IS V2.0 credit targets.

# Highlights



## Legacy - Poison Gully

The Project wishes to acknowledge Poison Gully, (Registered Site 25023) understood to be a significant location to Aboriginal women. In partnership with City of Kalamunda, we have instigated the installation of permanent artwork and signage alongside Poison Gully Creek, on a public shared path constructed as part of Roe Highway Kalamunda Road Interchange.



## Contamination Remediation Material

The old Roe Highway alignment is underlain with Coal Tar Stabilised Limestone (CTSL). The Project had to consider a wide range of remediation options during the evaluation stage, with particular focus on human health, sustainability and impacts to the environment. Working in strict accordance with a Site Management Plan for Coal Tar Remediation, created by Georgiou and approved by the Department of Water and Environmental Regulation (DWER) and Department of Health (DEH), the Project has been able to reuse this material on site and mitigate the material ending up in landfill.



## Principal Shared Path (PSP)

Completion of the Roe Highway Kalamunda Road Interchange will enable greater connectivity within the area, including pedestrian and cyclists accessibility, through the completion of a new Principal Shared Path. Running approximately 3.5 km in length, this new PSP connects Berkshire Road in the South and Kalamunda Road in the North. Design of the path follows a curvature that enabled the Project to avoid disturbing as much vegetation as possible.



## Resource Efficiency

Georgiou is committed to integrating resource efficiency and the sustainable use of all resources with the delivery of this Project. Minimising the use of virgin material and the volume of waste produced by the Project has been a key driving force throughout the planning and development phase, right through to the ongoing management of materials during construction. Thus far, 81,266 tonnes of material has been reused on the Project, and 763,023 tonnes of material has been reused outside the Project.



## Energy Efficiency

The Project has implemented an energy and carbon emissions reduction target of 5% over the duration of construction and operation. An energy model was completed at the end of design phase by external sustainability consultants, confirming a 7.2% lifecycle impact reduction, equating to an assumed saving of 1, 260 tonnes of CO<sub>2</sub> emissions.

Figure 1: Project Sustainability Highlights

# Overview

The Project involves construction of a grade-separated intersection, replacing one of the last signalised intersections on Roe Highway. This intersection was heavily congested and had a higher than average number of crashes, with up to 60,000 vehicles passing through the intersection every day. Ultimately, completion of the Project will dramatically improve road safety, traffic flow and create a more efficient thoroughfare for road users and the freight network.

Designed and constructed by Georgiou Group, the State and Federal governments allocated \$86 million for this Project. The Project is part of a \$2.3 billion package of road and rail infrastructure works, funded by the Australian (\$1.6 billion) and State (\$750 million) governments. Construction is anticipated to be completed in September 2021 and over the 21-month duration of construction works, the Project is estimated to have created over 600 jobs. The Project is located in High Wycombe within the Shire of Kalamunda. The Project Area is centralised at the Roe Highway and Kalamunda Road intersection and extends 2.5 km along Roe Highway, and has residential properties situated to both the east and west of the intersection (Figure 2). The Project is adjacent to the Hillview Golf Course, located on the north eastern side of the Project Area.

The Project’s key scope items are:

- Reconstruction of Roe Highway for approximately 2.5km (refer to Figure 2, in blue) to the east of the current alignment, grade-separated from Kalamunda Road;
- Construction of earthworks in Project case, for provision for ultimate Project scope;
- Realignment and construction of approximately 750m of dual lanes of Kalamunda Road, grade-separated from Roe Highway (refer to Figure 2, in purple);
- Reconstruction of access to Hillview Public Golf Course (refer to Figure 2) and Maida Vale Shopping Centre;
- Construction of Principal Shared Path from Maida Vale Road to the southbound exit ramp (refer to Figure 2, blue dashed line);
- Relocation of in ground utility infrastructure; and

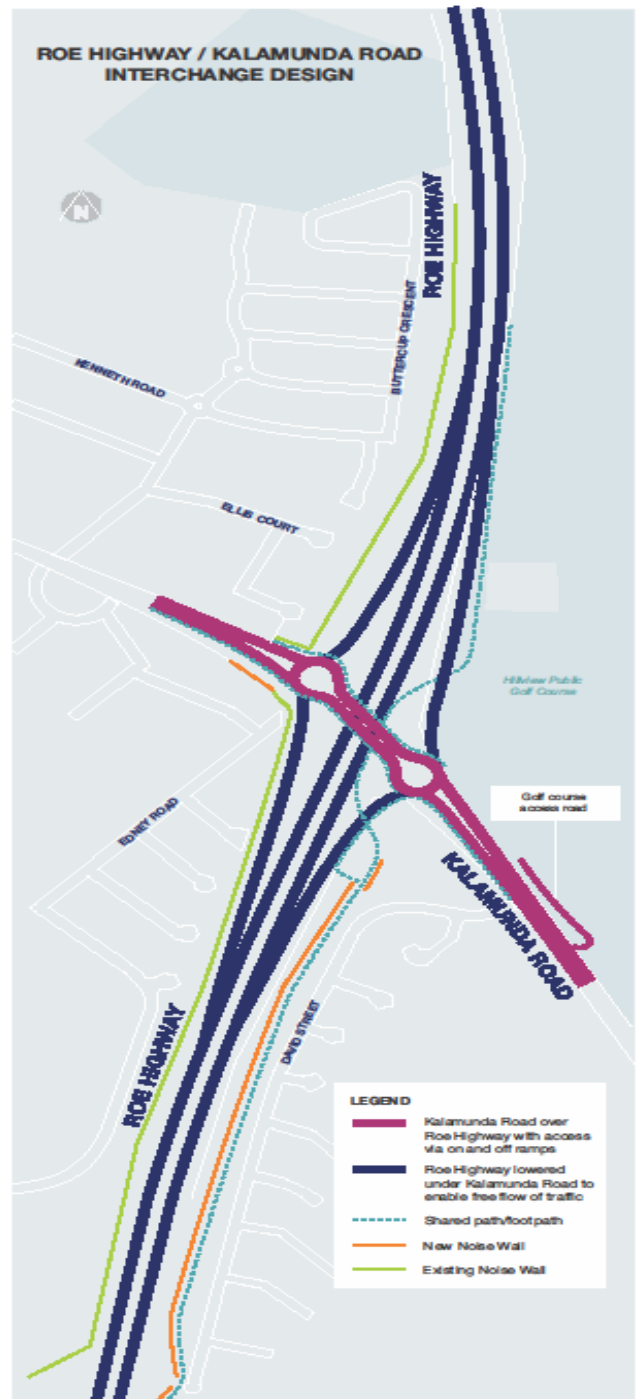


Figure 2: Project Area

- Principal Shared Path construction from Maida Vale Road to Berkshire Road.

More than 855,000 tonnes of material was moved to allow for the grade-separation of Roe Highway and Kalamunda Road. Managing resources and waste was one of the material issues on the Project, determined to divert waste from landfill and reuse as much material as possible. From the beginning the waste avoidance hierarchy was applied on the Project, having adopted the challenge of managing and designing the reuse of a contaminated soil (CTSL). To date, the Project has:

- Reused approximately 81,266 tonnes of material on the Project;
- Provided 763,023 tonnes of material to other Projects for reuse; and
- Reused approximately 10,726 tonnes of CTSL material.

Reducing material impacts, energy and carbon emissions, and water over the construction and operational life of the infrastructure are three of the main sustainability targets adopted on the Project.

The Project recognises the importance of developing infrastructure that is resilient, adaptable and achieves shared economic, social and environmental value. Delivery of the Project allowed for the critical management of voltage mitigation and the upgrade of Water Corporation drainage network. Whilst traffic was efficiently managed and diverted to allow for the upgrade, associated works were delivered alongside construction activities. Design provisions incorporated capacity for future mains connections with the upgrade to the Water Corporation drainage network, including the addition of a limestone retaining wall and sleeve under road to allow for future works.

For further Project related information, visit <https://www.mainroads.wa.gov.au/projects-initiatives/projects/metropolitan/Roe-Highway-Kalamunda-Road-Interchange/>

### **Overall approach to Sustainability**

A SMP has been developed for the Project, which sets out how Georgiou Group will deliver on environmental, social, economic and governance outcomes over design, construction and operation. The SMP provides methodology for achieving an ISCA IS v2.0 Design and As Built Rating Self-Assessment and target score of 50, as verified by MRWA. The ISv2.0 Rating Scheme has been embedded throughout the design and construction of the Project to achieve the targeted sustainability outcomes and requirements of the Scope of Works and Technical Criteria (SWTC).

Led by the Project Manager, a strong culture of sustainability has been adopted throughout construction involving all members of the Project team. Sustainability targets are championed by various disciplinary leads and these members are encouraged to identify and implement sustainability opportunities beyond implemented targets and initiatives. Quarterly sustainability risks and opportunities workshops were held with a multidisciplinary team including Senior Project Engineers, Project Management, Environmental Management and Community and Stakeholder Engagement. Material issues targeted by the Project team are discussed below.

Sustainability targets adopted by the Project include:

- ISCA ISv2.0 Design and As Built self-assessed rating score of 50 (verified by MRWA);

- Resource efficiency (and recovery of major waste streams) including landfill diversion of up to 60%;
- Material lifecycle impact measure, management and reduction of 5%;
- Water use reduction of 5%;
- Energy efficiency and carbon emissions reduction of 5%;
- Assessment and management of climate and natural hazards;
- Quadruple bottom line decision making and options' assessments;
- Urban and landscape design context; and
- Leave a positive lasting legacy.

The above targets are on track to be achieved at Project completion. The Project achieved an IS Design Rating of 50 as verified by MRWA. An energy model completed at the end of design phase confirmed a 7.2% lifecycle impact reduction, equating to an assumed saving of 1, 260 tonnes of CO<sub>2</sub> emissions.

Development of the Project SMP has considered the material issues for the Project and specifically addresses client, contractual and sustainability obligations. The SMP works in conjunction with Georgiou's Project Management Plan and interfaces other management plans including planning, design, procurement, construction, health and safety, community and stakeholder, and environment management.

### **Sustainability Policy**

The Project has adopted the responsibilities of Georgiou's Corporate Sustainability Policy (Appendix 4). Georgiou's Policy commits the organisation to promoting a culture of sustainability across all operations and minimising environmental and social impacts by:

- Integrating sustainability initiatives throughout the business;
- Maintaining ethical responsibility in project management, procurement and employment;
- Setting sustainable objectives and targets annually;
- Engaging with local communities;
- Supporting a diverse, engaged, motivated and competent workforce;
- Facilitating the sharing of ideas, knowledge and innovation that provide sustainable benefits;
- Maintaining health and safety of workforce, community and environment; and
- Delivering sustainable profits without compromising social, legal or contractual obligations.

For further information regarding Georgiou's sustainability commitment, please refer to [www.georgiou.com.au/responsibility/sustainability/](http://www.georgiou.com.au/responsibility/sustainability/)

### **Material Sustainability Issues**

The ISCA ISv2.0 Design and As Built Rating Framework is being applied to assess the level of sustainable practice embedded within the Project works throughout design and construction. Sustainability targets were established utilising a materiality assessment and taking into consideration the Project context, key stakeholders and targets nominated by MRWA. Completion of this assessment identified the most important (material) sustainability issues for the Project, listed in Table 1 below.

Table 1: Material Sustainability Credits identified for the Project

<b>ISv2.0 Credit</b>	<b>Aim</b>	<b>Materiality</b>
<b>Res-2 Climate and Natural Hazards</b>	To reward the assessment and treatment of risks associated with climate change and natural hazards.	High
<b>Env-1 Receiving Water Quality</b>	To reward the management of impacts on local receiving water quality.	Very High
<b>Env-2 Noise</b>	To reward the management of noise impacts.	High
<b>Env-3 Vibration</b>	To reward management of vibration impacts.	High
<b>Env-4 Air Quality</b>	To reward management of air quality impacts.	Very High
<b>Env-5 Light Pollution</b>	To reward prevention of light spill.	High
<b>Rso-2 Contamination Remediation Material</b>	To reward the consideration of sustainable contamination and remediation strategy within a broader resource efficiency strategy on a project-specific basis.	High
<b>Wfs-3 Workforce Culture and Wellbeing</b>	To reward a constructive and positive workplace culture appropriate for all people on the project team and the development and effective implementation of employee wellbeing programs.	High

# Environmental Aspects Performance

## At a glance

Table 2: Environmental Aspects Performance

Aspect	Year to 30 June	Total for Project
Forecast Clearing (ha)^	2.6	6.2
Clearing permit allowance (ha)^	2.7	9.4
Actual clearing to date (ha)^	2.6	6.2
Rehabilitation/revegetation planned (ha)	7.7	7.7
Actual rehabilitation/revegetation to date (ha)	5.2	5.2
Environmental offset via Monetary contribution actual (\$)	0	~\$200,000*
Total Water Consumption to date (kL)	26,670.95	52,521.95
Total water licence allowance (kL)`	130,000	260,000
Total GHG emissions (scope 1 & 2) to date (t CO <sub>2</sub> e)~	968 t CO <sub>2</sub> e	1,782 t CO <sub>2</sub> e
Total energy consumption to date (mj)	213,328	224,709
Total quantity of recycled content used in project (t)	5,392	6,096
Total imported materials used in project (t)	97,602	144,404
Total waste generated by project (t)	43,617	298,504

^vegetated areas

\*refers to the agreement between MRWA and Murdoch University, with a funding value for Black Cockatoo Grant of \$200,000.

`acknowledges extraction from two bores on the Project.

~includes fuel and electricity consumption.

## Environmental context

The Project Area contains previously disturbed and native vegetated areas. To allow for the upgrade of the Roe Highway and Kalamunda Road intersection, 5.72 ha of Black Cockatoo habitat was cleared within the Project Area. To attain approval under the *Environmental Protection and Biodiversity Conservation Act 1999* and compensate for the loss of Black Cockatoo habitat, MRWA secured an offset site managed by the Department of Biodiversity Conservation and Attractions (DBCA) for conservation. MRWA contributed \$200,000 for Black Cockatoo Grant to Murdoch University ([Roe Highway and Kalamunda Road Interchange Upgrade EPBC 2018/8316 Compliance Report 2020](#)). Pre-clearing inspections were completed by a suitably qualified Black Cockatoo expert confirming no Black Cockatoo breeding activity prior to all clearing works. An area of vegetation west of Roe Highway and north of Kalamunda Road has had Black Cockatoo foraging activity observed and has been retained as part of permanent design.

The Project had potential to cause indirect impacts on Black Cockatoo habitat adjacent and in the vicinity of the Project boundary. Of note is Hawkesvale Reserve, located adjacent to the north-west end of the Project boundary. This site is Bush Forever site 122 and a Class A conservation reserve managed by DBCA. The Project boundary avoids the remnant vegetation within the road reserve adjacent to Hawkesvale Reserve, which substantially reduces the potential construction impact interface with the reserve and maintains the highway vehicle activity at the same distance from the reserve.

A full list of protected areas the Project interfaces, and protected fauna and flora species, is included within the Appendix 1 and 2.



Poison Gully (registered Aboriginal Heritage site 25023) runs parallel to Roe Highway and intersects the Principal Shared Pathway (PSP) constructed as part of the Project. Poison Gully (also referred to as Poison Gully Creek) is understood to be a mythical site with significance to Aboriginal women. Poison Gully has water that is seasonally available and is dry for much of the year. Controls are outlined within the Project's Environmental Management Plan (EMP) to mitigate potential impacts and no reported incidents in relation to this area have taken place.

The Project is currently drawing groundwater for construction purposes in line with the Project's License to Take Water and License to Construct/Alter a Well. Most of the Project is underlain by groundwater that sits approximately 26 metres (m) below current ground level.

## Environmental Management

The Project EMP describes how environmental aspects are to be managed so the Project and those engaged by the Project will:

- comply with Georgiou Policy, client, legal and other obligations;
- minimise the impacts on the environment; and
- achieve Georgiou, MRWA and Project objectives and targets.

The Project's EMP is written in accordance with Georgiou's health, safety and environment management system that is third party certified to AS/NZS ISO 14001. Development of the EMP is based upon the risks and opportunities identified, and specifically addresses client, contractual, legal and other obligations. The following are key environmental legislation applicable to the Project:

- *Environment Protection and Biodiversity Conservation Act 1999 (C)*.
- *Environmental Protection Act 1986 (WA)*.
- *Environmental Protection Regulations 1987 (WA)*.
- *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)*.
- *Aboriginal Heritage Act 1972 (WA)*.
- *Aboriginal Heritage Regulations 1974 (WA)*.
- *Biodiversity Conservation Act 2016*.
- *Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (WA)*.
- *Rights in Water and Irrigation Act 1914 (RIWI Act) (WA)*.
- *Environmental Protection (Controlled Waste) Regulations 2004 (WA)*.
- *Environmental Protection (Noise) Regulations 1997 (WA)*.
- *Environmental Protection Act 1986 (WA)*.
- *Aboriginal heritage Act 1972 (WA) consent to disturb*.

Management methods have been outlined to control potential noise, air quality and vibration impacts created by construction activities within the Project's EMP. Key stakeholders of the Project include City of Kalamunda and Hillview Golf Course, and a full list can be found in Appendix 3.

Significant environmental aspects of the Project are identified as:

- Flora & Fauna;
- Soil/Materials Management;
- Air Quality and Dust;
- Contamination (Coal Tar Stabilised Limestone);
- Noise and Vibration; and

- Weed, Pest and Disease.

Objectives and targets set for the Project consider the significant hazards and environmental aspects of the job, the group objectives and client and contractual requirements. These are documented in the Site HSEQ Objectives and Targets. Additional objectives and targets may be set specifically for activities identified for upcoming works. Performance against all HSE objectives are monitored, as a minimum, monthly, at Project meetings.

A risk management approach has been used to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance. This process considers potential regulatory and legal risks as well as taking into consideration the concerns of community and other key stakeholders. Risk assessments for the Project are based on AS/NZS 4360:1999, the Australian standard for risk assessments.

The Project has retained a mature *Eucalyptus marginata* (Jarrah) tree within a median island of the Kalamunda Road. Monthly arborists' inspections have been completed for the entirety of construction works, to assess the health of the mature jarrah tree located on Kalamunda Road. These inspections also provide advice and best practice to maintain health of the tree related to upcoming construction works within proximity of the tree. An example of this is during installation of posts within 12 m of the base of the tree. Installed by hand digging and vacuuming material to ensure no damage to tree roots. A Tree Protection Zone (TPZ) is maintained and fenced off as per the arborists' recommendations to ensure construction activities do not cause damage to the root plate of the tree. As of the latest inspection completed on 29 June 2021, the jarrah was found to remain in good health and condition, with canopy density appearing unchanged since previously and new growth retained throughout the canopy.



*Image 1: Mature Jarrah tree to be retained on Kalamunda Road*

## Water Management

The EMP includes a Water Management Sub Plan, outlining the need for water to be conserved, reused and recycled, where reasonably practical.

The Project has identified areas of construction that can utilise the use of non-potable water sources (groundwater). The Project does not fall within a Public Drinking Water Source Area (DWER, 2019), but does fall within a proclaimed Perth Groundwater Area (DWER, 2020). As such, the Project has been issued a License to Construct and Alter a Well and License to Take Water by the Department of Water and Environmental Regulation (DWER). Part of this licensing involves tracking the usage of groundwater in accordance with the annual entitlement to take water under the License to Take Water. Water usage is tracked monthly and reported to MRWA as part of monthly reporting requirements for the Project.

Groundwater is a valuable resource to the community and, as such, Georgiou seeks to reduce the amount of potable water used and groundwater extracted over the lifetime of the Project. The Project has implemented a target to reduce overall water usage over construction and operation of the Project by 5%, compared to a base case. At the submission of the ISv2.0 Design Self-Assessment to MRWA, the Project reported a reduction of 22% water use in construction and operational phases.

A major source of water usage is through the need for dust suppression and the Project has implemented the use of DustX and hydromulch as dust suppression in lieu of using groundwater. The application of DustX alone is estimated to have saved over 150 kL of water.

*Table 3: Water usage on the Project*

Source	Year to 30 June	Total for Project
Water purchased from the scheme in litres	249,000	705,000
Water pumped from bores in litres	26,421,950	51,816,950
Water pumped from rivers, lakes or harvested in litres	0	0
Recycled or waste water use (typically from another industry) in litres	0	0

## Clearing

Clearing has been undertaken on the Project with strict adherence to the EMP and permit conditions. Clearing for the Project is to be done in accordance with Clearing Permit CPS 8219/2 amended under the *Environmental Protection Act 1986* (EP Act), CPS 8296/1 and EPBC Referral 2018/8316. During the planning stage, three audits were conducted to determine suitability of the Project's EMP and confirmed all requirements were adequately captured (Roe Highway and Kalamunda Road Interchange Upgrade EPBC 2018/8316 Compliance Report 2020).

Native vegetation is protected, where reasonably possible. The Project has cleared only vegetation that was essential to construct. Prior to clearing operations, inspections were completed of Black Cockatoo breeding habitat by an external Black Cockatoo expert. Inspections observed no Black Cockatoo breeding activity and confirmed no hollows with Black Cockatoos present. Noteworthy,

this specialist confirmed vegetated areas on the Western side of Roe Highway (within the Project footprint) contained no hollows large enough to be used by Black Cockatoos as breeding hollows.

Workers are informed of the site-specific controls required to minimise potential impacts and protect flora and fauna. The following conservation significant flora species were identified during the environmental surveys undertaken prior to Project commencement:

- One Threatened species *Conospermum undulatum* (T); and
- One Priority species *Isopogon drummondii* (P3).

Threatened Flora (Declared Rare Flora – Extant) are described as “Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such (Schedule 1 under the Wildlife Conservation Act 1950)”. Please note that the Wildlife Conservation Act 1950 was replaced by the Biodiversity and Conservation Act 2016 (WA).

Priority species – in this case Priority Three (P3) is described as “Taxa which are known from collections or sight records from several localities not under imminent threat, or few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.”

Across the Project Area there are 7 recorded individual *Conospermum undulatum* and a single *Isopogon drummondii*. All of these recorded individuals are in the northern extent of the Project. The Project has ensured that individuals of these species were not impacted during construction works.

A detailed Black Cockatoo habitat assessment was conducted by 360 Environmental on behalf of MRWA. A total of 401 trees were recorded during the assessment that met the criteria of potential breeding trees (within the Site Boundary). A total of 19 of these potential breeding trees were observed as containing hollows of which only 6 contained hollows that may be suitable for Black Cockatoo species.

## Air Quality

Large infrastructure projects like this have the potential to generate dust. The Project has employed construction methods to keep dust minimal and ensure site-related dust does not infringe site boundaries as reasonably practical. To date, the Project has implemented all dust control measures as outlined within the EMP that being:

- dust/wind fencing;
- dust monitoring equipment;
- the use of water carts;
- application of DustX and hydromulch to open areas;
- regular environmental inspections to monitor dust impacts; and
- cessation of works in adverse weather conditions.

The Project engaged a suitably qualified specialist to set up and maintain a dust monitoring station on site. The specialist provides the Project with weekly reports, outlining dust levels on the Project and adverse weather events that may have caused peaks in data. The dust monitoring station location is revised as per the upcoming scheduling of works as to best capture dust being generated on site.

Due to adverse weather conditions and site conditions, the Project experienced peaks of dust particulates during the summer months of 2020-2021. To reduce particulates, the Project ceased works during high wind events and employed additional dust suppression techniques including an additional water cart to reduce impacts. Residents potentially impacted have had both the Project's Communications Advisor and MRWA Communications Lead reach out to discuss and endeavour to resolve.

## Materials & Recycling

### Material and Waste Statistics

<b>Imported Materials</b>	<b>Year to 30 June</b>	<b>Total for Project</b>
Sand (t)	0	750302
Gravel (t)	0	0
Clay (t)	0	0
Limestone (including crushed) (t)	0	0
Crushed Rock (t)	39164.96	61535.15
Crusher Dust (t)	0	0
Aggregate (t)	1401.9	1408.20
Asphalt (t)	42156.79	42156.79
Concrete (t)	1070.94	1070.94
Steel (t)	83.13	496.17
Precast concrete (t)	1062.54	2301.44
Emulsion (t)	125.425	125.43
Bitumen cutter (t)	51.812	57.98
Bitumen (t)	117.678	121.58
Glass (t)	0	0
Paint (t)	2.29	2.55
Topsoil (t)	0	0
Mulch (t)	0	0
Other (t)	110 (rock)	110 (rock)

<b>Waste to Landfill</b>	<b>Year to 30 June</b>	<b>Total for Project</b>
Unsuitable material (t)	0	0
Existing seal / asphalt (t)	0	0
Roadside litter / municipal solid waste (t)	0	0
Commercial / industrial waste (t)	0	0
Green waste (t)	0	0
Concrete / kerbing (t)	600	600
Construction / demolition waste (t)	0	0
Contaminated material (t)	0	0
Asbestos (t)	0	1330.35

General/Green Waste (t)	24	60
Other (t)	0	0
<b>Waste Recycled</b>	<b>Year to 30 June</b>	<b>Total for Project</b>
Sand (t)	450324	750302
Road base (t)	0	0
Asphalt (t)	1150	1600
Timber (t)	0	0
General waste (site office / roadside litter) (t)	54	87
Steel (t)	0	0
Concrete (t)	0	0
Green waste / mulch (t)	0	0
Plastic (t)	0	0
Other (t)	0	0

<b>Imported recycled content</b>	<b>Year to 30 June</b>	<b>Total for Project</b>
Sand (t)	0	0
Road Base (t)	0	0
Crumbed Rubber (t)	0	0
Recycled asphalt (t)	0	0
Steel (t)	0	0
Concrete (t)	0	0
Crushed Glass / beads	0	0
Limestone (t)	0	0
Plastic (t)	0	0
Green waste / mulch (t)	0	0
Topsoil (t)	0	0
Unsuitable material (t)	0	0
Other (t)	0	0

## Case Study

The grade separation of Roe Highway and Kalamunda Road involved the excavation of copious amounts of spoil. The challenge for the Project was to avoid and reduce the amount of waste produced in delivery. The final alignment of the design was optimised saving an additional quantity of material that would have otherwise been excavated and become waste material. Reusing spoil was the next priority, having incorporated the reuse of 81,266 tonnes of material (non-contaminated) on the Project.

The existing Roe Highway alignment was underlain with CTSL. Rather than disposal, the Project was able to critically manage this material and reuse 10,726 tonnes of CTSL within the final design.

The remaining 763,023 tonnes of material (non-CTSL) was reused outside the Project, on nearby projects in WA. The totality of this material, and those reused on the Project, mitigated 855,015 tonnes of material from landfill. Refer to Images 2 and 3 for visible high volume of non-CTSL material to be excavated.



*Images 2 & 3: Roe Highway before and after excavations*

# Economic Aspects Performance

## At a glance

Table 4: Economic Aspect Performance

Economic Aspect	Year to 30 June	Total for Project
Funding	\$86M	\$86M
No. of vehicles per day	Up to 60,000	Up to 60,000
Travel Time Saving	115 seconds*	151 seconds**
Increase in cycling and pedestrian facilities (i.e. increase in PSP length)	0.73 km	4.23 km
<i>Workforce and Supply Chain</i>		
Number of people employed by supply chain at various stages of project <sup>^</sup>	1,236	2,211
Total number of suppliers engaged	99	252
Total number of Indigenous Enterprise	8	8
Total number of Disability Enterprise	0	0
Buy Local Spend (to date)	\$7.5M	\$8.9M

<sup>^</sup>all workers on site

\*Calculations based on time taken to travel along Roe Highway between Maida Vale Road and Great Eastern Highway Bypass via Roe Highway Kalamunda Road signalised intersection (assuming lower speed during peak times and phasing of traffic signals) vs time taken to travel along Roe Highway between Maida Vale Road and Great Eastern Highway Bypass via Roe Highway, under Kalamunda Road bridge, under temporary traffic management and speed reduction in place.

\*\*Calculations based on time taken to travel along Roe Highway between Maida Vale Road and Great Eastern Highway Bypass via Roe Highway Kalamunda Road signalised intersection (assuming lower speed during peak times and phasing of traffic signals) vs time taken to travel along Roe Highway between Maida Vale Road and Great Eastern Highway Bypass via Roe Highway, under Kalamunda Road bridge at posted speed limit with no congestion.

## Economic context

This Project is part of a \$2.3 billion package of road and rail infrastructure works, funded by the Australian (\$1.6 billion) and State (\$750 million) Governments. The design and construction of the new interchange at Roe Highway and Kalamunda Road provides a critical improvement to safety, congestion and traffic flow.

The Project will see a critical upgrade to Roe Highway, removing one of the last remaining signalised intersections on Roe Highway. All road users including the wider community of Kalamunda, will benefit from a safer network, reduced travel times and a new public shared path connection.

Geographically, this intersection is bounded by residential areas (Maida Vale and High Wycombe) to the north-west and south-west, Hillview Public Golf Course to the northeast and land owned by the City of Kalamunda and State Government, bordered by residential, to the south-east. This significant thoroughfare is used by residents, heavy freight vehicles and pedestrians. The grade-separation provides a more efficient route for all users and improves the safety of utilising this thoroughfare.

Project staging, temporary traffic arrangements and communications were structured to minimise disruption to local businesses and residents. During all stages of construction, access is maintained



to facilities and additional signage and other arrangements are made to ensure business operations are as per normal. The final outcome of the Project is expected to improve traffic flow through to these surrounding businesses due to reduced congestion and travel times. The Project also intends to enable improved freight network efficiency and reliability.

The primary stakeholders, inclusive of industries and business can be found in Appendix 3.

### Key Economic Outcomes

By upgrading the intersection to a grade-separated interchange, the below critical improvements to the area will be realised:

- Improved safety for all road users by removing conflict between turning and through traffic;
- Improved travel times and traffic flow by reducing congestion;
- Improved freight productivity; and
- Improved freight reliability.

Through the improvement of the above key aspects, the Project will ultimately support economic development within the surrounding area and servicing surrounding industries.

### Sustainable Procurement and Buy Local

As outlined in Georgiou’s Corporate Sustainability Policy (Appendix 4), Georgiou is ethically responsible in managing the materials we procure and people we employ. The Project endeavours to leverage procurement processes to achieve sustainable outcomes, including increasing Aboriginal participation and supporting WA (and Australian) industries.

As a Western Australian owned and operated business, Georgiou has given due consideration to local WA vendors within the Project’s procurement process. The grade-separated interchange demands a large tonnage of export, awarded to local businesses within 5 km of the Project. At this stage in development, the Project has spent over \$8.9M on suppliers and subcontractors within 20 km of site.

Georgiou demonstrates its commitment to Indigenous participation within its Indigenous Relations Policy and company Reconciliation Action Plan (RAP). Commitment and accountability for the policy and plan stems down from the executive team to all Georgiou employees. As per MRWA requirements for the Project, Georgiou has implemented the following Project targets for Aboriginal participation as listed within the table below.

Table 5; Workforce targets

Workforce Aspect	Target	Performance to Date
Indigenous Business Procurement	2%	2.15%
Indigenous Employment	10%	3.82%

Further information is available at the link below: <https://www.georgiou.com.au/responsibility/>

### Climate Change Assessments

Our climate is changing. The Project recognises the importance of building infrastructure that is resilient to current and impending risks of climate change. The Project held a Climate and Natural

Hazard Risks Workshop with key stakeholders, including MRWA representatives from within the Project team and externally, such as the Manager Metropolitan Road Program and the Principal Advisor Sustainability (as pictured within Image 4). Attendees were guided through an overview of current climatic conditions and potential risks, based on best available climate change analysis that addresses the region in which the asset is located, and the asset’s forecast useful life. Projections are based on Representative Concentration Pathway (RCP) 8.5 across two timeframes to 2030 and 2090.

This Climate and Natural Hazards Risk Assessment included assessing the likelihood of shocks and stresses relating to the Project in terms of assets impacted, including wind and hail, bushfire, flooding, and drought. The assessment is guided by several key policies and standards, including AS/NZS ISO 31000:2013 Risk Management standard and AS 5334: 2013 Climate change adaptation for settlements and infrastructure – a risk-based approach. Participants then broke out into working groups to identify risks and potential adaptation options (Image 4). The Project endeavours to manage climate change and natural hazard risks in accordance with the *MRWA Guidelines Climate Change Risk Assessment (Version 2, August 2019)*.



*Image 4: Project team at Climate and Natural Hazards Risk Workshop*

## **Sustainable Transport**

Extension of the PSP provides greater connection and convenience for pedestrians and cyclists through the area. The Project has completed a 4.2km increase in pedestrian and cyclist connections. The PSP connection between Kalamunda Road and Berkshire Road provides a safe route and improved connectivity along Roe Highway. The Project staged the works strategically to deliver majority PSP as early on as possible for community to utilise.

This PSP is part of a major upgrade to the cycle and pedestrian path network in WA. This PSP provides another critical link in the Roe Highway PSP network, providing connectivity for residents of High Wycombe, Maida Vale and Kalamunda.

## Case Study

Earlier in the year, the Project team planned and delivered a presentation to all subcontractors to support on-boarding, upskilling and achieving greater Aboriginal employment and engagement within the supply chain. The Project endeavours to support small to medium enterprises in building capacity and understanding the opportunities available to them within WA. The purpose of the presentation was to provide guidance on:

- Apprentice and trainee training requirements;
- Priority start requirements;
- State and Federal funding;
- Payment and funding overview;
- Construction Training Fund subsidies; and
- Requirements of employer.

The presentation received positive feedback from attendees and invited a line of support within Georgiou for all subcontractors to reach out for further information. Based on the high attendance rate and feedback provided this workshop is planned for future Georgiou projects.

# Social Aspects Performance

## At a glance

Table 6: Social Aspects Performance

Social Aspect	Year to 30 June	Total for Project
Community Satisfaction to Project	N/A <sup>^</sup>	N/A <sup>^</sup>
No. of Stakeholders engaged with during project development	199	413
No. of complaints	110	190
No. of legacy commitments	2	2
No. of heritage sites in project vicinity	1	1
No. of heritage sites significantly impacted	0	0
No. of traffic safety incidents within project boundary	10	17
% of women in workforce	5%	6%
% indigenous in workforce	5%	4%
LTIFR	7.32	4.63
No. of development employees and apprentices on the project	28	64
No. of employees (FTEs) sourced from local community	0	0

<sup>^</sup>no satisfaction surveys have been undertaken thus far on the Project

## Social context

Community and stakeholder engagement are vital components of the Project due to the potential for significant impact on residents, road users and other stakeholders. Significant community and stakeholder engagement has been undertaken by MRWA and Georgiou, including the convening of a Community Reference Group (CRG). The CRG met four times during the Project. At these meetings, the Project provided information and updates on design, planning and progress. The agenda for each meeting allowed for questions on community issues. Project primary stakeholders are listed in Appendix 3.

The Project borders two residential suburbs, High Wycombe and Maida Vale, comprising high to medium density housing with some semi-rural holdings. Residents range from older people and retirees, some of whom have lived in the area since mid-last century when it comprised market gardens and orchards, to young families who benefit from the many primary, secondary and childcare centres in the area. Large community hubs include a church camping and convention centre on the south eastern side of the Project, and a public golf course on the north eastern side. Also bordering the Project is a small shopping centre including fast food and a liquor outlet. Newer subdivisions alongside Roe Highway to the North West have attracted homeowners who appreciate the area's proximity to the Perth Hills, as well as airports and major transport routes.

Cyclists and pedestrians took a keen interest in the Project as PSPs were constructed along Roe Highway. The PSP alongside the eastern side of Roe Highway between Maida Vale Road and Berkshire Road runs 2.4 km total. This PSP provides better connections to the popular Kalamunda hills area for sports cycling enthusiasts, improves the attractiveness of cycling in this area and enhances access to workplaces and recreational areas. The PSP running north of Maida Vale extends a total of 1.8km.

### Community & Stakeholder Engagement

A Community and Stakeholder Engagement Plan (CSEP) was implemented to address the requirements related to management of community and stakeholder engagement and to achieve the targets set for the Project. The CSEP was guided by the established targets and principles of MRWA’s CSEP and the engagement programs conducted by MRWA. Specific objectives of the CSEP aim to heighten awareness and support for the Project, and gain community understanding of the Project benefits included responding to and accommodating reasonable community and stakeholder expectations and needs.



Image 5: Signage on newly constructed PSP

During unavoidable closures of Kalamunda Road opposite the Maida Vale Shopping Village during night works, the Project did not start works until after 8pm. This allowed patrons of the bottle shop and fast-food outlets to access the front carpark during peak times for the shops.

### Addressing community concerns

Georgiou’s approach to engagement is based on:

- The International Association of Public Participation (IAP2) Consultation Spectrum. Stakeholders are profiled to identify the most appropriate engagement technique to suit the complexity of the issue, desired objective and target audience.
- Adherence to the MRWA Strategy and Communications Directorate protocols, ensuring consistency of messaging for the Project. Public communication materials were approved by MRWA prior to public release.

Community engagement has been ongoing by Georgiou, building on the engagement programs conducted by MRWA at the start of the Project. Community concerns have been addressed within the infrastructure design and delivery, where feasible.

In addition to follow-up calls and emails to people who contacted the MRWA call centre, other stakeholder contact included meetings, doorknocks and home visits. At various times during the Project, some off-ramps were closed and turning movements at the intersection restricted. This resulted in extra traffic on local roads, including Hawkevale Road in High Wycombe. Some drivers didn’t follow detour signs and used residents’ driveways to make U-turns. The community stakeholder manager met residents at their homes and offered to lend them some of the Project’s traffic bollards to block their driveways as needed. Residents said the measure was a success and improved their amenity and safety.

The Project engaged with the community through direct correspondence including construction and roadworks updates advising of traffic impacts, road closures, detours, after hour's works, and any major events. The updates were hand-delivered to approximately 1,000 High Wycombe and Maida Vale residents and emailed to more 1,300 people who signed up via the Project site. The Project also distributed targeted communication via smaller letter drops to specific areas and met residents who raised concerns. For example, residents in an area alongside the construction compound in David Street were advised in advance of extra truck movements during times when use of the street was needed to transport construction materials. David Street residents also expressed concerns about the location of a driveway into a Water Corporation pumping station built in conjunction with the Project. The design was changed to shift the access road to a location off Kalamunda Road.

## Heritage

The Project endeavours to maintain the integrity of the cultural (Indigenous and European) aspects of the Project site and surrounds. Heritage aspects are managed on the Project in accordance with the requirements of the SWTC, the *Aboriginal Heritage Act 1972 (WA)*, *Heritage Act 1990 (WA)*, and *Aboriginal Heritage Regulations 1974 (WA)*. Multiple Aboriginal heritage sites were identified within the vicinity of the Project Area, but none within the Project Area itself. There was also known European Heritage places identified within proximity to the Project. These locations are stipulated within the EMP along with monitoring and management measures, developed by the Project team and signed off by MRWA. All controls outlined in the Project's EMP have been implemented to date with no reported incidents in relation to heritage.

The PSP constructed as part of the Project, running alongside Roe Highway, comes into contact with Poison Gully. Poison Gully (also referred to as Poison Gully Creek) is a registered Aboriginal Heritage site (25023), understood to be a mythical site with significance to Aboriginal women. According to the *Amergin Report* in 2008 (Kalamunda Activity Centre, 2017) when this site was first registered, the women from the Noongar Circle of Elders identified the whole length of Poison Gully Creek as a site relating to 'women's business'. Controls were put in place to manage works within and nearby this area.

Prior to ground-breaking works at Poison Gully, female Whadjuk representatives undertook proprietary rituals at the area, attended by only female representatives from Georgiou and MRWA. During initial excavation works around Poison Gully Creek, female Aboriginal 'monitors' were present as nominated by the South West Aboriginal Land and Sea Council (SWALSC). In the attempt to acknowledge and conserve the heritage significance of this site, Georgiou partnered with the Local Government Authority and City of Kalamunda, to develop permanent artwork and signage at this location where the Poison Gully Creek meets the PSP (Image 7).



*Image 6: Location of Poison Gully Creek artwork and signage on PSP*

A European Heritage Place (No. 10460) – Seventh Day Adventist Church and Camp Ground (situated at 345 Kalamunda Road Maida Vale) is located within close proximity to the Project. The Project scope of works were deemed unlikely to have any impact on this known heritage place, however the Project sought the opportunity to support this local facility's operations and hired their facilities to hold large meetings and workshops throughout the construction phase.

### **Traffic Management / Community Safety**

Traffic Management is a high-risk activity on the Project. Georgiou planned to ensure public traffic operates continuously and safely whilst being segregated from construction activities associated with these Project works. The objectives of the Project are to meet the specific requirements of the contract documentation for traffic management and as far as practicable define planning criteria which will:

- Enable management of potential adverse impacts on traffic flows to ensure network performance is maintained at a level prescribed in the SWTC.
- Provide protection to workers, visitors, agents of the Principal and the general public from traffic hazards that may arise as a result of the construction activity.
- Prevent adverse impacts to users of the road reserve and adjacent properties and facilities to be minimised.

In order to meet these objectives, a Project Traffic Management Plan (PTMP) and site-specific Traffic Control Plans (TCP) and Temporary Road Designs (TRD) are prepared during the course of the Project. Strategies implemented to ensure important Project specific criteria are achieved include:

- Requirements of MRWA Specification 202 for traffic are met.
- Road users, including pedestrians and cyclists are safely managed.
- Temporary traffic management implemented only occur during those periods when flows can be accommodated.

- Minimum lane widths are always maintained.
- Work activities are carried out sequentially, where possible, to minimise adverse impacts, and - where activities are concurrent - they shall be carried out so they do not have a cumulative negative impact on traffic.
- Provision is made for work personnel to enter the work area in a safe manner in accordance with safety procedures, including entry and exit movements to and from traffic streams are in accordance with the requirements of safe working practices.
- Contingency plans are developed to manage incidents arising out of construction activities that will significantly impact traffic flows.
- Proactive communication with key traffic stakeholders including City of Kalamunda, property / business owners, Public Transport Authority (PTA) and residents.
- Advanced notification of major road network changes via Notification of Roadworks, Variable Message Signs, Letter-drops / email mailing list, face to face communication with immediate stakeholders, social media, etc.

Georgiou maintain all through traffic lanes in a suitable condition to support traffic flow at the posted speed limits. The implementation of an ongoing inspection regime ensures any issues with the existing thoroughfare are detected and remedied with minimal impact upon the existing traffic flow. To ensure ongoing compliance, regular auditing and road safety inspection is carried out on implemented TCP's. Auditing of TCP's is carried out through desktop auditing, compliance auditing, road safety inspections and road safety audits.

### Workforce Safety

All Project activities are supported by Georgiou's Safety is My Way (SIMW) initiative and the Health and Safety Management Plan is kept up-to-date to ensure compliance with:

- MRWA Safety, Health and Wellbeing Policy Statement;
- Georgiou Health and Safety Policy Statement;
- *Occupational Safety and Health Act 1984*; and
- Occupational Safety and Health Regulations 1996.

All relevant works, including those conducted by subcontractors or by other companies on Georgiou's behalf, will conform to these Policies. For more information regarding Georgiou's Policies, visit <https://www.georgiou.com.au/responsibility/policies/#1588144910848-bf2e88e2-93fd>

The Project records lead and lag health, safety and environmental statistics on a monthly basis. Lead indicators include detailed hazard inspection and workplace inspections. These are completed by supervision engineering personnel and site management. Hazards are identified by this process and corrective actions implemented for rectification.



## Case Study

The Project wishes to acknowledge the cultural and heritage significance of Poison Gully (Registered Site 25023), understood to be a significant location to Aboriginal women. Upon learning of this significance, Georgiou established a partnership with the City of Kalamunda to commission permanent signage and acknowledge the heritage value of this natural area.

An Aboriginal artist was invited to identify the cultural and heritage values of the site through artwork and message. Aurora Abraham created the Poison Gully artwork (Image 7) alongside a 'Message from the Dreaming', to be permanently displayed along the PSP that runs adjacent to Poison Gully Creek.

The Project hopes this initiative acknowledges the heritage of Poison Gully, highlights its importance and shares its story with members of the public, to preserve the Aboriginal cultural and heritage values of the area.



Image 7: Signage commissioned at Poison Gully Creek alongside PSP

# Appendix 1 - List of Protected Areas Project interfaces with:

The following culturally and environmentally sensitive areas have been identified as occurring within, adjoining or in close proximity to the Project;

- Aboriginal Heritage: No registered or lodged places lie within the Project Area. There are five registered sites and eight lodged (not registered at the time of writing) within 1 km of the Project Area (EIA, 2018);
- There are no listed Bush Forever sites within the Project Area. One Bush Forever Site is adjacent the Project Area and five other Bush Forever sites are within close (<450m) proximity (Section 13 - Figure 5). The northern end of the Project Area is mapped as an ESA, accounting for the buffer zone surrounding Bush Forever Site 122, which has been identified as containing a TEC.
- Surface water/wetlands: A small water body is located within the Hill View Public Golf course approximately 150 m east of the Project envelope (Figure 8). The Project Area is not located within a Surface Water Protection Area, as defined under the *Rights in Irrigation and Water Act 1917* (RIWI Act);
- A search of the Department of the Environment and Energy (DoEE) *Protected Matters Search Tool* and Department of Biodiversity, Conservation and Attractions (DBCA) (formally DPaW) Managed Lands database determined that the Project Area does not intersect National Parks or nature reserves (DoEE 2016, DBCA [DPaW] 2014).

## Appendix 2 - Protected fauna and flora species and habitat

MRWA commissioned 360 Environmental Pty Ltd (360 Environmental), to undertake an Environmental Impact Assessment (EIA) for the Roe Highway and Kalamunda Road Upgrade. According to the EIA the following conservation significant fauna species recorded during the environmental survey:

- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*);
- Rainbow Bee-eater (*Merops ornatus*); and
- Southern Brown Bandicoot (Quenda) (*Isodon obesulus fusciventer*) (based on diggings).

One species, *Conospermum undulatum* (DRF/T) was recorded within the Survey area. *Conospermum undulatum* (DRF/T) is listed under the EPBC Act as Vulnerable and gazetted as Declared Rare Flora (Threatened) pursuant to the WC Act. It was recorded in the Survey area in eight locations. The vegetation within the buffers of these conservation significant plants are considered critical habitat and therefore are regarded as ESAs.

One Priority species, *Isopogon drummondii* (P3) was found at one location.

## Appendix 3 – List of Stakeholders to the Project

The primary stakeholders, inclusive of industries and business are summarised below:

<b>Category</b>	<b>Stakeholder</b>
<b>Local Government Authorities</b>	City of Kalamunda
<b>Local community</b>	Local residents in vicinity of the works including suburbs of Maida Vale and High Wycombe, local community groups
<b>Local businesses</b>	Owners of property and businesses in vicinity of the works. Hill View Golf Club, Maida Vale Shopping Centre.
<b>Environmental stakeholders</b>	Department of Parks and Wildlife (DPaW), Urban Bushland Council WA, Department of Water and Environmental Regulation
<b>Indigenous</b>	Local Nyoongar Indigenous groups, South West Aboriginal Land and Sea Council
<b>Road users</b>	Freight industry bodies, Transperth (bus routes 294, 296, 298), motorists, pedestrians, cyclists, cyclewest, and other recreational users, taxis
<b>Service providers</b>	Includes Water Corporation, Western Power, Public Transport Authority (Transperth buses), Atco, Telstra
<b>Emergency Services</b>	St John Ambulance, DFES, WA Police
<b>MRWA's Project Review Group and Asset Management</b>	MRWA
<b>General public</b>	CRG/PRG

# Appendix 4 – Sustainability Policy



## COMPANY POLICY

Georgiou

### SUSTAINABILITY

Georgiou is committed to achieving sustainable growth by managing its operations to positively influence environmental, economic and social outcomes.

In order to achieve this commitment, Georgiou will:

- apply innovation, lifecycle thinking and effective planning to drive sustainable performance;
- be ethically responsible in managing project construction, materials procurement and companies employed;
- build long-term relationships with communities and stakeholders;
- support the workforce in being diverse, engaged, motivated and competent;
- engage with supply chain to achieve project sustainability objectives and targets;
- value a culture based on leadership, inclusiveness and personal development;
- facilitate the sharing of ideas, knowledge and innovation within the business and stakeholders;
- manage and minimise all environmental impacts;
- implement risk and hazard management principles to maintain the health and safety of its people, the surrounding community and the environment;
- create long-term sustainable outcomes for our clients aligned to their objectives; and
- deliver sustainable profitable growth while satisfying social, legal and contractual obligations.

All employees, and persons who work with Georgiou, have a personal responsibility for implementing this Policy.

SAFETY | PROFIT | RELATIONSHIPS | PEOPLE | INNOVATION

Rob Monaci  
Chief Executive Officer  
Georgiou Group  
September 2020



# Appendix 5 – Document Reference List

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