shire of Ashburton
reef to range

Business Case

Pilbara Regional Waste Management Facility

March 2019

ashburton.wa.gov.au

Table of Contents

1. Organisation Details

Organisation	Shire of Ashburton
Organisation Type	Local Government
Core Business	Provision of services to local communities and ratepayers
Project Name	Pilbara Regional Waste Management Facility
Contact	Rob Paull
Position	Chief Executive Officer
Telephone	08 9188 4444
Address	246 Poinciana Street, Tom Price
Postal Address	PO Box 567, Tom Price WA 6751
Email	soa@ashburton.wa.gov.au
Website	www.ashburton.wa.gov.au

2. Executive Summary

The Shire of Ashburton (the Shire) has identified a need for the establishment of the Pilbara Regional Waste Management Facility (PRWMF) in Onslow. The rapid increase in industrial development and associated growth within the Shire and the Pilbara Region has resulted in a significant increase in the volume of waste generated. The complex and hazardous waste materials generated from mining and gas developments such as the Wheatstone and Macedon projects present challenges to current waste management infrastructure. As a result, the concept of a modern integrated waste

management facility situated within Onslow that can accommodate municipal and hazardous materials from both Onslow and the broader Pilbara Region was born.

Since 2013, the Shire has undertaken a number of studies in order to progress the project. These studies include a Site Selection Study, Original Feasibility Study, Strategic Waste Management Plan, Market Research, Revised Feasibility Study and Onslow Waste Disposal Strategy.

The Class IV PRWMF will be designed to Best Practice Standards and will provide a range of waste management services including sustainable initiatives such as reuse, recycling and recovery as well as treatment and disposal. The landfill design includes a basal lining system, capping and restoration, leachate collection system, landfill gas management system, supporting infrastructure and equipment.

A needs analysis was undertaken which considered waste volumes, waste projections, regional generators and the broad scale need for a Class IV facility. The data was then used to determine waste projections under a low growth and a high growth scenario. The waste generators identified in the Onslow area and wider Pilbara region were grouped into three main categories which include Local Governments, Resource Companies and Private Waste Service Providers.

The key approvals identified for the PRWMF include both planning and environmental approvals. These approvals include referral to the State's Environmental Protection Authority (EPA) to determine the appropriate level of assessment required.

A financial assessment was undertaken to establish the estimated capital and operational costs for the development of the PRWMF. The following table shows a summary of these costs.

Project Aspect	Cost
Professional Services	$1,700,000

Project Aspect	Cost
Capital Cost Year 0 (2019)	$13,000,000
Capital Cost Lifetime (2020-2041)	$32,600,000
Annual Operating Cost (average)	$1,000,000

The project will deliver a range of economic benefits, social benefits and value for money which include:

- Job creation;
- Supporting the growth of the region;
- Increasing efficiency of the transport system;
- Local opportunities;
- Improved services;
- Indigenous opportunities; and
- Benefits beyond the construction phase.

A number of social benefits were identified which include addressing disadvantage, improved services; community involvement, support of heritage and culture and health benefits.

The Project delivers value for money through leveraging additional partnerships, including the Department of Jobs, Tourism, Science and Innovation (JTSI) and Chevron and securing co-funding from one of the project partners, Chevron.

In order to deliver the Project, the Shire have ensured they are aware of all legislative approvals required, have access to skilled and experienced personnel and technical resources. The Shire has a good track record for delivering waste management infrastructure projects within Onslow through the recent establishment of a Waste Transfer Station and the closure and rehabilitation of the

Onslow Landfill. The Shire is confident that the project will be delivered on time, on budget and to the required quality standard.

The establishment of the PRWMF will fill a critical gap in waste management infrastructure in the Pilbara by providing a facility designed to Best Practice Standards that can cater for the hazardous and problematic wastes generated from industries across the region.

3. Introduction

In 2009, the Western Australian Government endorsed the commencement of investigations to create a Strategic Industrial Area at Ashburton, 11km south-west of Onslow town. After the successful completion of the investigations, the Ashburton North Strategic Industrial Area (ANSIA) was established in 2011 with the aim of promoting regional development and providing a gas hub to utilise gas fields in the Carnarvon Basin promoting more diverse sources of domestic gas.

There are now two major resource projects already within the ANSIA, Chevron's Wheatstone project and BHP Billiton's Macedon project. The Macedon facility was constructed in 2011 at a cost of $US1.5 Billion and has been operating since 2013 with a capacity to generate 200 terrajoules of gas per day.

Chevron reached its Final Investment Decision on the Wheatstone project in late 2011 and the 5 year construction works commenced in 2012 on the $US 34 Billion facility. The Wheatstone project includes an onshore facility located at the ANSIA. The project consists of two liquefied natural gas (LNG) trains with a combined capacity of 8.9 million tonnes per annum (MTPA) and a domestic gas plant.

Development of the ANSIA site and currently operational Wheatstone Project, is forecast to substantially increase the population of Onslow from 667 in 2011 (ABS) to 2,500 in 2025. To facilitate this growth, there is currently significant residential, commercial and industrial development within Onslow.

However, these major investments in the resource sector and the expedited growth of the Onslow townsite have put significant pressures on the infrastructure and services within the Onslow and wider region. In fact, in Western Australia there are currently no Class IV Waste Management Facilities outside of Perth. This means that hazardous waste must be transported via road from the Pilbara to Perth (to the Red Hill Waste Management Facility) for disposal, a round trip of between 2,800km and 3,200km. The cost to transport this hazardous waste to Perth is a major barrier in terms of logistics and financial viability and creates huge inefficiencies in the waste management systems.

Development within the Onslow Townsite has led to land use conflicts with the former Onslow landfill, which was closed and fully rehabilitated in 2013 at a cost to the Shire of $4.9 million. The waste management services provided by the Shire of Ashburton including collections, recycling and disposal is critical infrastructure and service that has experienced significant pressure.

This pressure has led to the recognition that radical transformation is required to advance the waste management infrastructure and services in the region to cater for the expanding and complex waste materials that will be generated within the region from the advancement of the resource sector.

This transformation must also ensure that these materials are dealt with in an environmentally sound and sustainable manner.

To address these pressures on the social infrastructure and services, in 2011 the WA State Government and Chevron executed the Ashburton North State Development Agreement (State Development Agreement) to provide financial contributions to improve infrastructure and critical services within Onslow to support the growing community and also promote further industrial development. Projects funded and completed to date include:

- Onslow Ring Road;
- Onslow Swimming Pool;
- Shire Administration Centre;
- Expansion of Onslow School;

- Waste Water Management Bindi Bindi;
- GROH Housing;
- Interim Service Worker Accommodation Project;
- Barrarda Estate Stage 1 Subdivision;
- Onslow Wastewater Treatment Plant Upgrade;
- Onslow Water Supply Upgrade;
- Onslow Airport;
- Old Onslow Conservation; and
- Four Mile Creek Recreation Area.

The industrial development within the ANSIA and the associated growth of the Onslow townsite has resulted in a significant increase in relation to the volume of waste generated within the region. More complex and hazardous waste materials are generated from the Wheatstone and Macedon projects which present further challenges. As a result, the concept of a modern integrated waste management facility situated within Onslow catering for municipal and hazardous materials was born.

The delivery of the PRWMF (the Project) will provide a range of waste management services including sustainable initiative such as reuse, recycling and recovery as well as treatment and disposal. The infrastructure on site would include a Class IV landfill that can cater for the municipal waste generated within the Onslow townsite and all the industrial and hazardous waste generated within ANSIA and the broader Pilbara. The facility will be sited, designed and operated to the Victorian EPA 2015 Siting, Design, Operation and Rehabilitation of Landfills (Best Practice Landfill Guidelines) to ensure that all potential impacts are managed to appropriate standards. As the Class IV landfill will be the second such facility within WA, with the other in Perth, the PRWMF will cater for hazardous materials from the wider Pilbara, Kimberley and Midwest regions underpinning the continued economic development of these regions.

The Shire recognised the importance of the PRWMF and identified key project partners to help facilitate the progress of the Project. The project partners that form the Project Group include

representatives from the Shire of Onslow, JTSI, Chevron Australia and Talis Consultants ('Talis'). The Project Group is committed to the Project and recognises the significant benefit that it will bring to Onslow and the wider region.

The Shire received grant funding to develop the PRWMF through the Federal Government's Building Better Regions Fund (BBRF) Infrastructure Projects Stream, which is administered by JTSI on behalf of the Australian Government's Department of Infrastructure and Regional Development (DIRD).

4. Project Need

The following section provides background information on the Shire of Ashburton and the evolving waste management systems within Onslow.

4.1 Shire of Ashburton

The Shire is located within Western Australia's Pilbara region approximately 1,300 kilometres (km) north of Perth in one of the most remote and isolated areas of Australia. With just 11,000 residents (Australian Bureau of Statistics, 2015), the Shire covers an area almost half the size of Victoria (105,647km2) and is the second largest local government in Western Australia, by area. The Shire is renowned for mining, agriculture, fishing and tourism, where visitors come to experience its natural beauty.

The Pilbara region is Western Australia's mining powerhouse and makes a significant contribution to national wealth.

The region's iron ore and liquefied natural gas (LNG) industries are valued at over $70 billion (Department of Regulation Development, 2014) and the Pilbara region was estimated to produce 95% of Australia's iron ore, 70% of Australia's natural gas and 85% of Australia's crude oil and condensate (WA Mineral and Petroleum Statistical, Digest 2010).The Shire has four main population centres, namely Tom Price, Paraburdoo, Onslow and Pannawonica. Onslow is the only coastal town within the Shire and is strategically located for exploitation of oil and gas reserves on the North West

Shelf. However, it is also extremely isolated, with Pannawonica, over 200km away. Pannawonica is a small mining town of 700 people. The next closest regional centre is Karratha which is 310km northeast of Onslow.

The Pilbara region has experienced significant growth in the last 15 years due to the rapid expansion of the resources industry, in particular in the mining and oil and gas sectors. In Onslow, this growth is currently peaking as a result of recent development of on and off-shore liquefied natural gas (LNG) processing infrastructure. With deep water access and proximity to off-shore gas reserves, the town of Onslow was selected to support the construction and operation of the ANSIA. As outlined previously, this growth is putting significant pressure on the existing infrastructure and services within the region, including waste management.

4.2 Onslow's Waste Management Infrastructure

Historically, waste disposal operations across regional Western Australia have been undertaken at small local landfill sites situated within close proximity to the regional population centres they service. Generally these facilities have not been sited or constructed to modern Best Practice Standards and therefore have posed a number of environmental and public health risks. The former Onslow landfill was a typical old fashion landfill located on the edge of the townsite that did not comply with modern Best Practice Standards.

Arising from the significant resource sector investment within ANSIA, the town of Onslow has undergone significant transformation to cater for the rapid growth within the region. This transformation has included residential and industrial subdivisions and social infrastructure projects such as roads, wastewater treatment upgrade, potable water supply and a school expansion. This rapid development has resulted in land use conflicts with the former Onslow Landfill and the proposed developments, particularly Main Road WA's Onslow Ring Road which was designated to go through the north eastern corner of the landfill site. In addition, Landcorp's Barrarda Estate residential subdivision was to be developed within 100m of the eastern boundary of the landfill.

In 2015, the former Onslow Landfill was closed and rehabilitated to Best Practice Standards to facilitate the development. The works included the excavation of 30,000m^3 of waste material from the north eastern corner to facilitate Main Road WA's Onslow Ring Road Project. A capping system consisting of a Geosynthetic Clay Liner and 1.2 metre of soils was then constructed over the landfill. Gas management and surface water management systems were incorporated into the rehabilitation works to ensure that all potential emissions are managed to Best Practice Standards.

To ensure that the Shire could continue to provide critical waste management services to its community, while supporting the continued growth of the Onslow region, the Shire delivered a Waste Transfer Station (WTS) 6km from the townsite. All waste materials are accepted at the WTS and consolidated prior to transportation to the Shire's Tom Price landfill, which is a round trip of 850 km. Due to the excessive travel distances the WTS is an interim arrangement until the PRWMF can be developed. Once the PRWMF is delivered it is proposed that the WTS will be converted to a Community Drop off Facility to minimise travel for residents.

5. Project Overview

The following section provides an overview of the project including project summary, project objectives, project partners and project eligibility.

5.1 Project Summary

The aim of the Project is to develop an integrated facility built to best practice standards that can deliver sustainable resource recovery initiatives and accommodate hazardous wastes. The PRWMF will consist of a Class IV Landfill as well as a Greenwaste Facility, Construction and Demolition Recycling Facility, Liquid Waste Facility, Asbestos Monocell and Tyre and Rubber Monocell. A Class IV landfill is defined in the Landfill Waste Classification and Waste Definitions (Department of Environment Regulation, 1996 as amended 2009) as 'A double-lined landfill with leachate collection, designed to accept contaminated soils and sludges (including encapsulated wastes)'.

It is well understood that the Onslow and the Pilbara region are experiencing an increase in development that is highlighting the need for improved waste management services. BHP's Macedon project and Chevron's Wheatstone project are two significant developments that will benefit from the establishment of such a facility.

The Class IV Landfill will be able to cater for Class IV waste hazardous material generated from these projects and other developments across the Pilbara, the wider Kimberley and Mid-West Regions.

The importance of this project is recognised by the WA State Government and Chevron Australia who have both been involved in planning for the Project to date and are part of the PRWMF Project Working Group (Project Working Group). The PRWMF is considered a regionally significant project as it will be the only facility of its kind in the Pilbara and only the second such facility in the State (the other being Red Hill Waste Management Facility located on the outskirts of Perth). Therefore, the facility will provide the critical waste management service required to support the Onslow community and surrounds economic development of the area including ANSIA. As part of this economic development, the requirement for a Class IV facility was determined necessary in order to provide appropriate waste treatment options close to the generation source of the material.

The Shire has undertaken a number of studies, site investigations and submitted approval applications to progress the Project. The details of these are outlined in Section 6.

5.2 Project Partners

Under the Ashburton North State Development Agreement, Chevron committed approximately $280 million to social infrastructure projects in and around Onslow. This included an in-part contribution towards a new PRWMF of $2 million. The following provides an overview of the various Project Partners and their key project leads.

The Shire of Ashburton

The Shire is the key project manager and is responsible for the overall delivery of the project. The Shire is responsible for waste management for the towns of Tom Price, Paraburdoo and Onslow.

Department of Jobs, Tourism, Science and Innovation (JTSI)

JTSI provides governance to facilitate responsible development for Western Australia. JTSI works with industry, communities and government agencies on significant resource, industrial and infrastructure projects. The department aims to invite strategic investment to WA, support the development of export markets, and facilitate the development of strategic industrial land and infrastructure. JTSI have been the key agency in bringing Chevron and the Shire together and oversee the delivery of the multiple social infrastructure projects within the Onslow region including the proposed PRWMF project.

Chevron Australia (Chevron)

Chevron is one of the world leaders in finding, producing and marketing oil and liquefied natural gas. Chevron has been established in Australia for 50 years supplying vital energy supplies to the region. Significant projects Chevron is currently involved in include the Gorgon, Barrow Island, Wheatstone and North West. Chevron is one of the largest waste generators within the region and recognises the benefit that such a facility will provide for their business activities and potential growth and has therefore provided the $2 million funding for the Project.

Consultancy Support

Talis specialise in waste infrastructure delivery and have provided the necessary consultancy support on the Project to date. Talis provide the full suite of services required for such projects including:

- Project Planning and Feasibility Assessments;
- Site Investigations;
- Approval and Community Consultation;
- Design and Procurement; and

- Construction Supervisors and Quality Assurance.

5.3 Project Commitment

The Shire is fully committed to this project and recognise the significant benefit that it will bring to Onslow and the wider region.

The Shire has a legislative requirement to provide waste management services to its communities pursuant to the *Local Government Act (1995)* and the *Waste Avoidance and Resource Recovery Act (2007).* In addition to these statutory drivers, the Shire is committed to providing value for money to its rate payers in all of its services and activities. The Onslow Waste Disposal Strategy assessed all potential waste disposal options available to the Shire on both financial and technical grounds. This process determined that the PRWMF, delivered in partnership with Chevron was the Preferred Option, particularly due to the cost sharing and economies of scale for consolidating tonnages.

As previously outlined, under the Ashburton North State Development Agreement (Wheatstone Project), Chevron has committed $2 million to develop a new waste management facility (WMF). This demonstrates Chevron's recognition of the requirement to provide suitable waste management infrastructure within the region to support its current and future economic activities. Chevron's financial contribution has been managed through multiple Project Implementation Plans (PIPs) and is contingent upon the facility meeting Chevron's environmental standards of a Class IV waste facility. Finally, the Shire has actively engaged with key waste generators in Onslow and the wider Pilbara region to obtain an understanding of the potential demand for the project. It is proposed that the Shire will commence with entering a Waste Supply Agreement with such parties as the project advances.

5.4 Project Objectives

The PRWMF project has the following key project objectives:

1. Deliver Sustainable Resource Recovery Initiatives

The PRWMF will be an integrated facility that will provide a variety of resource recovery initiatives including Greenwaste, Construction and Demolition and scrap metal recycling which divert such materials from landfill through recycling. It is anticipated that these resource recovery initiatives will continue to advance in the future aligning with the State Waste Policy and the Shire's Strategic Waste Management Plan (SWMP). Furthermore the landfill facility will be constructed and operated to Best Practice Standards to ensure that all disposal undertaken on site is delivered in a sustainable manner.

2. Provide Best Practice Waste Disposal Services

The delivery of a new WMF in Onslow will provide local residents, businesses and industries within the region with long-term access to best practice municipal, commercial and hazardous waste disposal services, ensuring public health and environmental issues and risk are managed to appropriate standards. This long term security for waste disposal facility will support future economic development within the region.

3. Provide Best Practice Regional Hazardous Waste Services

The PRWMF will provide the only Class IV hazardous waste landfill within northern Western Australia to support the globally significant mining and energy region. Furthermore, the PRWMF will support the continued growth and investment that has significant economic and strategic importance to State and National interests.

5.5 Project Site

The PRWMF will be located on Reserve 53324, being Lot 550 & 551 on Deposited Plan 414367, Onslow Road, Western Australia (the Site). The Site is approximately 36 km south of the town of Onslow, has not been developed and is characterised by low lying grasses and shrubs. The Site is approximately 435 hectares (ha) in size and the development envelope is approximately 76ha.

6. Project Scope and Evaluation

The Shire, in collaboration with the representatives of the Project Working Group, has been actively progressing the Project for a number of years and have made substantial progress.

The following section provides a detailed summary of the works completed on the Project to date and key outcomes.

6.1 Site Selection Study (2013)

A Site Selection Study was completed in late 2013 for the PRWMF to cater for the future needs of the Onslow region. The Site Selection process was undertaken utilising best practice siting and design principles to identify a Preferred Site for the PRWMF. The following sections describe the progress of the Site Selection Study and provide background information regarding the Preferred Sites arising from the study.

The initial phase of the Site Selection process involved defining Site Selection Criteria based on environmental, social and planning factors that governed the overall siting works. These included aspects such as distance from Onslow and recommended separation distances from social and environmentally sensitive areas. Following the adoption of Site Selection Criteria, Constraints Mapping was carried out utilising Geographical Information Systems (GIS) modelling and spatial data containing a range of environmental, planning and social data layers.

By applying these layers, Sites of Interest were identified that warranted further consideration. The Sites were then assessed through a Multi Criteria Analysis on a range of aspects including:

- Distance from Onslow
- Road Access
- Separation Distances
- Land Availability
- Area

- Environmental
- Flooding
- Vegetation Cover
- Hydrogeology
- Topography
- Infrastructure
- Soil Characteristics
- Screening
- Onsite Capital Costs

Based on the aspects, criteria, weighting and scoring applied, the Multi Criteria Analysis system allowed for the ranking of the Sites of Interest to prioritise the site, or sites, that warranted further consideration. Ultimately, the Multi Criteria Analysis was utilised as a decision making tool to assist stakeholders to better understand the strengths, weaknesses and points of difference between the various sites being evaluated.

Three Preferred Sites were identified from the Site Selection Study; Site 10, Site D and Site E. Following completion of a range of environmental studies the preferred site was determined to be Site 10 located at Lots 550 & 551 (formerly Lot 150) Onslow Road.

6.2 Strategic Waste Management Plan (2015)

In 2015, the Shire commissioned the development of a Strategic Waste Management Plan (SWMP). The SWMP was developed to create an achievable vision for the implementation of initiatives in the Shire and to move current waste management practices towards a more holistic, sustainable and efficient system.

The SWMP assessed the current waste management services and infrastructure across the Shire along with waste tonnages. Based on this, a variety of sustainable waste management initiatives were assessed across all levels of the waste hierarchy including Avoid, Reduce, Reuse, Recycle,

Recovery and Treat. The SWMP presented three integrated Clusters, which grouped complimentary initiatives. The initiatives focused on commingled recycling (Cluster 1), organics recycling (Cluster 2) and a New Energy Resource Recovery Facility (RRF) (Cluster 3). A number of recommendations were provided with the key ones being that the Shire undertakes a detailed assessment of the initiatives identified within Clusters 1, 2 and 3 to assess their technical and financial viability. The Shire was also encouraged to consider partnerships with other Local Government Authorities (LGAs) and mining companies to increase the likelihood of implementing the recycling initiatives identified and apply for funding for the waste disposal options.

Six waste disposal options were assessed within the SWMP on both the technical and financial

aspects. Option 1, to continue with current disposal services, was identified as the least costly option whereas Option 2, to establish an PRWMF with a Class IV cell, was identified as the second most beneficial to the Shire. As the current landfill facilities are unlined, the SWMP recommended that the Shire continue to collaborate with the Project Working Group on the development of the PRWMF.

6.3 Feasibility Study (2016)

Following the original 2014 Feasibility Study which identified the preferred landfill option as a single, lined landfill developed to Class IV standard but accepting both Class III and Class IV waste a Revised Feasibility Study reassessed the financial implications of developing the PRWMF with up to date information. Since the Original Site Selection Study undertaken in 2013, there were a number of significant changes, including an economic downturn. Therefore, the resources sector and projected growth rates for Onslow were revised. This reduced the projected waste generation rates for the facility which resulted in resizing and redesign. In addition, up to date construction rates had been obtained by the Shire from recent projects completed in Onslow. The Revised Feasibility Study assessed two broad options, namely:

- Option 1: Separate Class III and Class IV landfills; and
- Option 2: A single landfill developed to Class IV standard but accepting Class III and Class IV type waste.

The Revised Feasibility Study found that a single landfill developed to Class IV standard but accepting Class III and Class IV type waste (Option 2) was still the most suitable option due to the long-term regional demand for a Class IV landfill and the lower capital costs associated with constructing a combined Class III and Class IV landfill.

As part of the study, a financial assessment was undertaken that explored a number of potential funding opportunities for the project including capital investment funding streams such as the BBRF.

6.4 Onslow Waste Disposal Strategy (2016)

The Onslow Waste Disposal Strategy was prepared concurrently to the Revised Feasibility Study in late 2016, primarily to inform the Shire of their options for waste disposal to assist in determining the preferred long term solution. The Assessment analysed 12 options based around continuing to haul waste to Tom Price landfill and developing landfill infrastructure within Onslow including a Class II (unlined landfill) up to a Class III and IV landfill. The Strategy concluded that the ongoing haulage of waste from Onslow to Tom Price, or other surrounding landfills, is not considered to be financially viable long-term in comparison to developing a landfill within Onslow.

This is due to the inefficiency of transporting waste via road to Tom Price, cost sharing of operating the PRWMF that caters for waste materials from other generators including Chevron, and the potential revenue a Class IV facility will generate. The key recommendation was for the Shire to establish a Class IV landfill at Site 10 and to work with Chevron to deliver the Project. In order to finance the project the Strategy recommended the Shire commence engagement with relevant funding authorities and relevant stakeholders to seek funding.

6.5 Council Resolution (2016)

In October 2016, the Shire's Council was presented with a report detailing the findings of the Revised Feasibility Study and Onslow Waste Disposal Strategy. The Council unanimously resolved to authorise *"the Chief Executive Officer to proceed with the necessary site investigations, planning,*

approval, consultation and design works required to progress the PRWMF at the Preferred Sites in Onslow to a Class IV standard". This clearly illustrates the support of the elected members and the Officers of the Shire to the Project.

6.6 Site Investigations

A number investigations have been completed on the site to provide a detailed understanding of the site attributes and confirm its suitability for siting the PRWMF. The investigations completed include the following:

- Heritage Surveys
- Geotechnical Assessment
- Hydrogeological Investigation
- Flora and vegetation survey and terrestrial fauna survey
- Detailed flora and vegetation survey
- Topographical Survey

6.7 Studies and Plans

- Flood Modelling
- Hydrogeological Risk Assessment
- Surface Water Management System Design Review
- Hydrogeological Peer Review
- Stability Risk Assessment
- Landfill Gas Risk Assessment
- Surface water Management Plan
- Leachate Management Plan
- Asbestos Management Plan
- Operational and Environmental Management Plan
- Bushfire Management Plan

- Risk Management Plan
- Feral and Pest Management Plan

6.8 Approval Applications

The Shire recognises that there are a range of environmental approvals required for the facility. The key environmental approvals required for the PRWMF are:

Table 1: Key approvals required

Category	Approval	Approval Authority	Relevant legislation
Environment	Environmental - EIA	Western Australian Environmental Protection Authority	Part IV of the *Environmental Protection Act 1986*
	Clearing Permit	Department of Environment Regulation	*Environmental Protection (Clearing of Native Vegetation) Regulations 2004.*
	Environmental – Works Approval and Licensing	Western Australian Department of Environment Regulation	Part IV of the *Environmental Protection Act 1986*

On 4 February 2019 the Environmental Protection Authority determined not to formally assess the proposal.

6.9 Key milestones to date

The following diagram outlines the key milestones for the planning of the PRWMF to date.

2012	• Western Australian Waste Authority-commissioned Pilbara and Broome Waste Data Study published. The Study highlighted the dramatic increase in waste generation volumes and complexity of waste streams and the lack of hazardous waste treatment facilities in the Pilbara.
Late 13	• Waste Management Facility (WMF) Site Selection Study using Site Selection Criteria and Constraints Mapping (environmental, social and planning aspects).
July 14	• Feasibility and Procurement Study published including conceptualisation and costing of WMF.
Aug 15	• Former Onslow landfill closes • Onslow's new Waste Transfer Station opens with waste hauled to Tom Price landfill for disposal.
Oct 15	• Shire of Ashburton Strategic Waste Management Plan published. Sets out overarching framework for waste management including resource recovery initiatives and infrastructure planning.
Jan to Oct 16	• Shire progresses Contract Delivery Framework project in partnership with WA's Department of State Development and Chevron Australia.
Oct 16	• Revised Feasibility Study published • Onslow Waste Disposal Strategy published • Council Resolution passes to proceed with progress Onslow Waste Management Facility to a Class IV standard.
Jan 17	• Hydrological Modelling Pre-liminary Investigation • Hydrological Modelling Detailed Investigation
Sept 17	• Topographic Survey • Flora and vegetation survey and terrestrial fauna survey
Oct 17	• Heritage survey
Dec 17	• Geotechnical Investigation • Hydrogeotechnical investigation
Feb 18	• Detailed flora and vegetation survey
Jan 18-Oct 18	• Specialist studies and management plans preparation • Approval applications preparation and submission
Nov 18	• Land tenure granted
Feb 19	• Detailed design initiated

7.Project Key Milestones and Timeline

7.1 Detailed design

The development of PRWMF will require detailed designs to be prepared for all construction works. The designs will include both civil and structural designs for the facility. The design works will include modelling which will generate layout, cross-section and typical feature detail drawings. All detailed designs and drawings will be prepared in general in accordance with Australian Standard AS.1100 Part 101 - 1992 and 401 - 1984 and all other applicable project standards. All aspects of the facility, where appropriate, will be designed for cyclonic conditions in accordance with AS 1170-2. Building structures will be designed to comply with the Building Code of Australia (BCA) and referenced Australian Standards. The detailed designs will be utilised for the construction and procurement phases of the Project.

7.2 Procurement

The Shire of Ashburton will adhere to their Purchasing Policy (FIN12) which commits to procurement policies which ensure best practice in the purchasing of goods, services and works that align with the principles of transparency, probity and good governance. The Shire of Ashburton is committed to delivering best practice in the purchasing of goods, services and works that align with the principles of value for money, open and fair competition, accountability, risk management and probity and transparency.

All contractors tendering for work offered by this Project (i.e. design and construction) are required to nominate subcontractors, the local content of which is encouraged and assessed.

It is intended to engage local and/or regional contractors and suppliers for this Project's implementation as it has the following benefits:

- Fosters government and non-government partnerships.
- Demonstrates investment in the community.

- Local suppliers would place considerable value on serving their local community and the benefits associated with it.
- Close proximity makes it far easier to travel to them for supplier development and contract management purposes, as well as for site inspections which minimises costs.
- The local knowledge of local suppliers means that they are well-placed to appreciate and satisfy local preferences - this is particularly relevant where specialised products and services are concerned.
- Supply chains are generally shorter, leading to greater certainty and predictability of delivery times.

This Project will provide full, fair and reasonable opportunity to regional businesses in its planning, tendering and contract management through advertisement of the tender via local, regional and state publications

The Price Preference will apply to suppliers who are based in, and operate from, the Shire of Ashburton in relation to all tenders and quotations invited by the Shire of Ashburton for the supply of goods and services and construction services.

Following evaluation of the submitted Tenders, a preferred civil contractor will be identified and the contract awarded. Due to the anticipated value of the Project, the preferred contractor will require a resolution of the Shire's Council.

7.3 Construction

Once the contract is awarded, the contractor is given a specified time to mobilise before construction of the PRWMF commences. Following the selection of the preferred contractor to undertake the works, the construction contract for the Project needs to be administrated from a Principal perspective. This is to ensure that the services and contract procedures are followed and delivered by the contractor within the established timeframes and budgets. For specialist projects such as landfills, there is also a requirement to have construction Quality Assurance (CQA) of the landfill

engineering elements of the project, particularly the landfill lining system. An independent CQA consultant will be required to supervise and verify all such works.

7.4 Operations

Following completion of the construction works for the PRWMF, the facility will be ready for the acceptance of waste. It is currently proposed that the Shire will commission an operations manual for all activities and operations on site that includes:

- Waste Acceptance and Handling,
- Environmental Management Measures and Monitoring;
- Infrastructure and Plant Maintenance; and
- Administration and Financial Management.

The operations manual will outline the procedures for the management of the Class IV landfill to ensure that all appropriate techniques to prevent, reduce, control emissions and discharges to the environment and the monitoring and reporting of them are delivered reliably and on a consistent basis.

7.5 Key Activities Summary

Table 2 summarises the key tasks and dates for the Project moving forward.

Table 2: Project Timeline

Main Activities/Milestones	Commencement Period	Completion Period
Detailed Design	February 2019	April 2019
Procurement	March 2019	August 2019
Construction	July 2019	December 2019
Operations	Early 2020	-

8. Policy and Strategy Framework

The following section sets out the policies and strategies at the various levels of Government that the PRWMF project aligns with, namely:

- National Waste Policy;
- Western Australian Waste Strategy;
- Pilbara Regional Investment Blueprint;
- Pilbara Planning and Infrastructure Framework;
- Regional Development Australia Pilbara - Investment Prospectus;
- Shire of Ashburton 10 Year Community Strategic Plan 2017-2027;
- Ashburton Strategic Waste Management Plan; and
- Onslow Townsite Strategy.

8.1 National Waste Policy

The National Waste Policy sets Australia's waste management and resource recovery direction to 2020 and was agreed by all state Environment ministers in 2009. The Policy focuses on six key areas and contains a number of priority strategies including "*identify actions to build capacity and ensure an appropriate suite of services is available to regional and remote communities*".

The PRWMF facility will satisfy the key areas along with the priority strategy listed above. In addition, it is important to note that the landfill and surrounding site infrastructure will be designed, constructed and operated to national best practice standard.

8.2 Western Australian Waste Strategy

The Western Australian Waste Strategy “Creating the Right Environment” (WA Waste Strategy) was developed pursuant to the State *Waste Avoidance and Resource Recovery Act 2007*.

The WA Waste Strategy aims to provide the required knowledge, infrastructure and incentives to change current behaviour to more sustainable waste management practices. The document acknowledges:

"*Western Australia faces unique challenges in managing waste in regional and remote areas, especially in the north of the State where resource development is placing unprecedented pressures on existing systems*".

The lack of infrastructure, along with transport and access to markets are cited as key issues limiting progress in the Pilbara and other northern parts of Western Australia.

The proposed development of a new, modern WMF aligns with the State Waste Strategy by:

- Providing 'best practice and continuous improvement' within waste management services;
- Showing the importance of effective partnerships between the community, local government including regional local governments, State Government and industry;
- Improving Local Government Authorities' performance against best practice outcomes relevant to their local circumstances; and
- Improving landfill practices and incentives to reduce waste to landfill.

The WA Waste Strategy recognises that appropriate planning and development of waste infrastructure is needed as early as possible, particularly in the regional and remote areas of the State. In order to assist in the development of sustainable waste management systems it is considered vital that stakeholders, including the Waste Authority, local governments and private industry, have access to accurate and consistent data. As a result, the Waste Authority commissioned Talis to undertake a Waste Data Study of the Pilbara Region and Shire of Broome (Pilbara Waste Data Study) in 2012. The Pilbara Waste Data Study also aimed to assist in infrastructure planning and policy and to facilitate advancement of waste management systems in the area.

8.3 Pilbara Regional Investment Blueprint

The various Regional Development Commissions across Western Australia were required to prepare Regional Blueprints to outline future population and economic growth in their areas. These Regional Blueprints outlined key regional projects required to facilitate this growth. Pilbara's Regional Investment Blueprint (PRIB) provided the Region with a road map, and sets out its aspirational vision.

The PRIB focuses on nine strengths or 'Pillars" that require development and growth within the region. One of those Pillars is Land Access and Economic Infrastructure. Provision of suitable land and infrastructure was identified as a barrier to the development of the Pilbara. Areas that require investment include energy, water (potable and for agriculture and industry), waste, digital communications and transport.

8.4 Pilbara Planning and Infrastructure Framework

The Pilbara Planning and Infrastructure Framework (Infrastructure Framework) was prepared by the Western Australian Planning Commission and published in 2012. It defines a strategic direction for the future development of the Pilbara region over the next 25 years. The framework provides a context for the preparation of local planning strategies by local authorities.

It seeks to ensure that development and change in the Pilbara is achieved in a way that improves people's lives and enhances the character and environment of the region.

The Infrastructure Framework sets a number of Utility Infrastructure Priorities for 2015. The following Priorities are set with regard to waste management in the region:

1. Develop a system of townsite transfer stations;
2. Investigate recycling options in service hubs;
3. Continue to monitor and identify new waste management facilities or upgrade existing waste management facilities; and

4. Promote the implementation of improved waste management practices in aboriginal communities.
5. The proposed PRWMF aligns with the Utility Infrastructure Priorities particularly through the delivery of a new waste management facility.

8.5 Regional Development Australia Pilbara - Investment Prospectus

Regional Development Australia (RDA) Pilbara works in partnership with the Australian, state and territory and local governments to support the growth and development of the Pilbara region. The Investment Prospectus, prepared by RDA Pilbara was published in 2012. It outlines major investment opportunities in the region.

This includes the establishment of a "*Class IV waste management and hazardous waste disposal facility*" management which is seen to be "*critical to the long term growth of the region*". As outlined previously, the PRWMF will not only provide local waste service but also satisfy the Regional requirement for a Class IV landfill facility as specified in the RDA.

8.6 Shire of Ashburton 10 Year Strategic Community Plan 2017-2027

The Shire of Ashburton has the responsibility as a Local Government Authority to effectively plan for the future interests of the communities it serves, to create vibrant places to live life. The Strategic Community Plan is a long-term overarching document that sets out our community's vision and aspirations for the future.

The plan provides a holistic approach to planning for the future development and growth across the Shire, while recognising and responding to the distinctive nature of each town and community.

The PRWMF presents an opportunity for resource product value adding and supply chain completion to provide local employment and greater diversification of the local economy. Economic Prosperity, Unique Heritage and Environment and Quality Services and Infrastructure are Goals being achieved through the Strategic Direction of the Strategic Community Plan.

8.7 Ashburton Strategic Waste Management Plan

The objective of the Ashburton Strategic Waste Management Plan (SWMP) was to create an achievable vision for the implementation of initiatives in the Shire and to move current waste management practices towards a more sustainable and efficient system.

The SWMP aimed to ensure that the vision for resource recovery in the Shire is achievable and the assessment of initiatives included considerations of the associated infrastructure, support services and capital requirements.

8.8 Onslow Townsite Strategy

The Onslow Townsite Strategy (Townsite Strategy), which was adopted by the Shire in July 2011, sets out the Shire's vision and the longer term development for Onslow.

The Townsite Strategy forms the basis for land use, zoning, subdivision and development, implemented through the statutory planning framework.

The Onslow Strategy identifies Onslow as a strategic location of interest to resource companies due to factors such as its location, deep-water access and proximity to offshore gas reserves. The Townsite Strategy also recognises that current and proposed gas and LNG facilities at the Ashburton North Strategic Industrial Area will require a significant expansion of the town to accommodate plant workers and their facilities.

To accommodate the forecast population increase, Onslow's existing infrastructure requires upgrading, improving, replacing and complementing with additional infrastructure to support the residential, community and civic requirements of the anticipated population growth.

The development of PRWMF supports or aligns with three key objectives underpinning the Townsite Strategy including:

- Provide utility infrastructure in a coordinated, cost effective and timely manner;

- Provide community facilities and services in a coordinated and timely manner; and
- Ensure that resource and associated companies associated with Ashburton North utilise Onslow for operational purposes.

8.9 Policy Summary

The following table summarises the project-relevant policies detailed in the sections above.

Table 3: Summary of relevant policies

Policy Document	Project Alignment with Objectives
National Waste Policy	▪ To support improved waste management and re-use of waste in regional, remote and Indigenous communities; ▪ Local government plays an important role in managing and operating landfill sites; ▪ Local governments 'Form cooperative groups to work together on waste management issues of regional significance'; and ▪ Improved management of landfill sites.
Western Australian Waste Strategy: "Creating the Right Environment"	▪ Providing 'best practice and continuous improvement' within waste management services; ▪ Showing the importance of effective partnerships between the community, local government including regional local governments, State Government and industry; ▪ Improving LGA performance against best practice outcomes relevant to their local circumstances; and ▪ Improving landfill practices and incentives to reduce waste to landfill.
Pilbara Regional Investment Blueprint	▪ Investment in land access and economic infrastructure to overcome barriers to development in the Region.
Pilbara Planning and Infrastructure Framework (2012)	▪ Framework provides a context for the preparation of local planning strategies by local authorities. The Framework sets a number of Utility Infrastructure Priorities for 2015 with regard to waste management in the region.
Pilbara Regional Development Australia - Investment Prospectus (2012)	▪ The document outlines major investment opportunities in the region including waste management.

Policy Document	Project Alignment with Objectives
Shire of Ashburton 10 Year Community Strategic Plan 2017-2027	▪ Provide and maintain affordable infrastructure that serves the current and future needs of the community, environment, industry and business. ▪ Actively advocate for the effective supply of utilities and services that meet commercial, industrial and retail needs. ▪ Promote and encourage protection of natural assets and sustainable use of resources and utilities. ▪ Encourage and implement improved waste minimisation practices, including proactive approaches to recycling and reuse. ▪ Partner with industry and government to target their investment in stimulating more diversified business and economic development to benefit communities and the local economy.
Ashburton Strategic Waste Management Plan (2015)	▪ The SWMP identifies a variety of recycling and resource recovery initiatives that should be developed for Onslow which have been included within the PRWMF. In addition, the SWMP identified the requirement for a new landfill and Class IV facility to cater for the disposal requirement of the region.
Onslow Townsite Strategy (2011)	▪ Provide utility infrastructure in a coordinated, cost effective and timely manner; ▪ Provide community facilities and services in a coordinated and timely manner; and ▪ Ensure that resource and associated companies associated with Ashburton North utilise Onslow for operational purposes.

9. Needs Analysis

The following sections outlines the need for the proposed PRWMF by considering:

- Waste Volumes;
- Waste Projections;
- Regional Waste Generators; and
- Regional need for a Class IV Facility.

9.1 Waste Volumes

Waste volumes were required to ensure that the proposed WMF could cater for current and future demands. Traditionally, two methods are used to estimate future waste generation quantities.

Population growth rates combined with per capita waste generation rates are utilised for Municipal Solid Waste (MSW). Forecasting in economic and construction activities are generally utilised to project future Commercial and Industrial (C&I) and Construction and Demolition (C&D) waste quantities.

Given its geographical isolation, relatively small population and typically large size of resource development projects in Onslow, population is strongly influenced by growth in the resources sector. Most of the population is involved directly or indirectly in the resources industry. Such growth also results in increases in construction activity, generating C&D waste.

The Original Feasibility Study used waste data projections developed through the Pilbara Waste Data Study and the Pilbara Waste Projections Project. The Revised Feasibility Study drew upon updated waste generator data through a targeted engagement exercise to gather up to date waste data from Onslow and the wider Pilbara region. Updated waste data was considered to be required due to a reduction in growth rates forecast for the area, reduction in overall waste generation, the economic downturn in the resources sector and reduction in capital works costs.

Up to date Class IV waste data for the Region was also gathered as part of the Revised Feasibility Study. This was also compared to previously published data from the Pilbara Waste Data Study was utilised for Class IV (hazardous) materials. Utilising these data sets, high and low current volumes of Class IV was generated.

9.2 Waste Projections

The waste tonnage figures were utilised to determine waste projections. Waste projections are required to ensure that the proposed WMF can cater for future demand. Population projections assist to determine per capita waste generation with forecasting in economic and construction activities utilised to project future C&I and C&D waste quantities.

Population projections data was sourced from the Pilbara Development Commission's (PDC) report, Assessment of Accommodation Need in Tom Price, Onslow and Paraburdoo: Final Report which

was published in 2015 and included a High growth and Low growth scenario. Conservative linear growth rates of 0% for the low scenario and 1% for the high scenario up to 2039 were adopted. In September 2016, PDC advised they are further revising these projections as they were considered to be too conservative. However, these were not available prior to completion of this report and therefore have not been included in the projections.

Table 4: Annual Average Growth rates for population

Scenario	Average Annual Growth Rate	
	Pilbara Development Commission (2015) 2015-2024	2025-2039
Low	-3%	0%
High	0%	1%

Onslow's projected waste generation volumes up to 2039 under the High growth scenario indicates incremental growth around 2018-19 and 2024-25. There were no published population projections data available after 2024. Therefore, Talis assumed population and associated waste generation levels off for the High growth scenario with 1% growth from 2024 to 2039. This scenario assumes that expansion of existing projects, which would potentially result in increased population and increases in overall waste generation. Other development projects anticipated in the area have not be accounted for due to a lack of available data, such as the K+S Group salt project and the Onslow Marine Supply Base at Beadon Creek. It is pertinent that the High growth waste projections should be considered to be conservative as they do not take account of development projects proposed outside of Chevron's expansions.

The Onslow population would also be likely to increase as a result of these developments, which would result in an increase in the Shire's waste volumes above the currently projected levels.

The waste projections under the Low growth scenario show a significant reduction in population after 2017, which coincided with the completion of Chevron's Wheatstone construction phase as this scenario assumes no further expansion of Wheatstone or other Chevron projects.

The tonnages for Class III and IV waste over the estimated lifespan of the Facility are shown in **Table 5.**

Table 5: Total estimated waste accepted over lifespan of the PRWMF

Waste Category	Low growth scenario	High growth scenario
Class III	105,643	138,857
Class IV	76,791	159,623
Total	**182,434**	**298,481**

9.3 Waste Generators

Waste Generators in the Onslow Area and wider Pilbara region can be grouped into three main categories:

- Local Governments;
- Resource Companies; and
- Private Waste Service Providers.

The significant growth in the Pilbara region in the last 15 years has seen a rapid expansion of the resources industry, in particular in the mining and oil and gas sectors. Currently, the major resource projects within the Onslow Area are Chevron's Wheatstone gas project and BHP Billiton's Macedon gas project. Other development projects anticipated in the area have not be accounted for due to a lack of available data, such as the K+S Group salt project and the Onslow Marine Supply Base at Beadon Creek.

There are also numerous major resource companies operating in the wider Pilbara region including Rio Tinto, Woodside, Atlas Iron and Fortescue Metals Group that would benefit from the PRWMF.

The PRWMF will have the capacity to cater for the hazardous materials that are generated from these operations including Class IV and Potentially Class V materials. Class IV and Class V waste generated from these industries.

9.4 Regional Need for Class IV and Hazardous Facility

The WA Waste Strategy acknowledges that remote areas in WA face challenges in regards to managing waste and that there is a current lack of infrastructure. The strategy also stresses that waste infrastructure are required particularly in the Pilbara. The need for a Class IV facility is also highlighted within the Pilbara Planning Infrastructure Framework which emphasized the need to identify new waste management facilities or upgrade existing waste management facilities within the region. The Regional Development Australia Investment Prospectus also outlined that one of the major investment opportunities in the region included the establishment of a Class IV waste management and hazardous waste disposal facility. The Regional Development Australia recognized the establishment of a waste facility that caters for hazardous materials was critical to the long term growth of the region.

The Waste Data Study for the Pilbara Region (the Waste Data Study) established a Pilbara Waste Projections Model to consider what was needed to improve waste management in the Pilbara. The outcomes of the Waste Data Study and modelling were then analysed in 2014 during a Pilbara Priorities Assessment to establish priorities that warranted further attention by the PDC and Waste Authority. The priorities assessed included specific waste streams, establishment of waste infrastructure or development of markets. One of the key opportunities that were identified in the study included the potential for infrastructure opportunities such as the improvement of existing facilities or establishment of new facilities in the Pilbara.

The rapid expansion of the resources industry within the region, particularly in the mining and oil and gas sectors, will likely result in an increase in waste generation as highlighted within the high growth scenario in the PDC report. The increase in population if Chevron's Wheatstone and Gordon projects expand will intensify the need for a WMF within the region. As mentioned previously there

are also other developments within the region that cannot be accounted for due to a lack of available data. As mines close in the region, a need presents for the management of hazardous and problematic wastes.

These hazardous and problematic waste streams may include timber railway sleepers, rubber, waste oil, contaminated soils, wooden pallets oil contaminated solids and oil/water mixtures. Due to the lack of appropriate hazardous waste treatment options within Western Australia to cater for these materials, it is widely acknowledged that there is a significant stockpile of these materials on a variety of mine sites across the State particularly in the Pilbara. Alternatively, hazardous waste must be transported via road from the Pilbara to Perth (to the Red Hill Waste Management Facility) for disposal, a round trip of between 2,800km and 3,200km. The cost to transport this hazardous waste to Perth is a major barrier in terms of logistics and financial viability and creates huge inefficiencies in the waste management systems.

The PRWMF will include a Class IV landfill which will be able to provide secure, best practice disposal options for the treatment of these materials. It is common practice the Class V materials can also be accepted at Class IV landfills with appropriate methods of pre-treatment including concrete encapsulation. The PRWMF will have the opportunity of providing a greater level of hazardous waste services to the surrounding industrial and resources sectors.

10. Project Description

The PRWMF will be an integrated facility which will provide a range of recycling, treatment and disposal activities. The facility will be sited, designed and operated to Victorian EPA 2015 Siting, Design, Operation and Rehabilitation of Landfills (Best Practice Landfill Guidelines). The following section provides an outline of the design of each element of the PRWMF.

10.1 Green Waste Processing Area

The Green Waste Processing Area has been designed to accommodate stockpiling of unprocessed

green waste. The facility will also accommodate the separate stockpiling of untreated timber as in general, these waste streams create two different mulch products. As is common practice at waste management facilities throughout Western Australia, when sufficient amounts of green waste accumulate, a mulcher or shredder will be brought to site to process the green waste. Based on the anticipated volumes and the remoteness of Onslow, the stockpile area has been sized to cater for one year of storage of un-mulched green and timber waste.

10.2 Construction and Demolition Waste Recycling Facility

The purpose of the Construction and Demolition (C&D) Recycling Facility will be to divert the anticipated volumes of mixed rubble and clean C&D streams from landfill. Modern C&D Recycling facilities comprise extremely resilient fixed plant and equipment including heavy-duty conveyors, automated screening technology, trommels and crushers to recover concrete, wood, metals, glass, plastics and other salvaged building components. In remote areas such as Onslow where generated C&D waste volumes are relatively low, the most economical approach is to periodically process these materials on site.

10.3 Scrap Metal Stockpiling Area

Given the anticipated volumes of scrap metals which will be generated in the Onslow area, it is proposed that these materials would be stockpiled on the C&D waste hardstand. As is current practice at many transfer stations in the State, a metals reprocessor would periodically come to site to bale and transport scrap metal off site for recycling once a viable volume of material has accumulated or when market conditions are favourable.

10.4 Liquid Waste Facility

The Liquid Waste Area will be comprised of two main treatment areas, namely the Fixation Ponds and Evaporation Ponds. The Fixation Ponds will cater for the treatment of a range of liquid wastes and industrial sludges predominantly from generators in the mining resources and natural gas

sectors. Hazardous wastes must undergo a suitable treatment process prior to disposal to landfill to ensure they meet Class IV waste criteria. The evaporation ponds will accept sullage and wastewater for treatment by evaporation. The sullage and waste water treatment area consists of three ponds (two receival ponds and one evaporation pond).

10.5 Tyre and Rubber Monocell

A Tyre Monocell will cater for the acceptance, baling and disposal of tyres in a dedicated area. This will provide safe, short term storage arrangements while maximising the future resource recovery option for these materials.

10.6 Landfill

The landfill will include a double composite lined, fully engineered landfill designed and constructed to Class IV specifications. The landfill will include the following engineering controls:

- Lining System
- Environmental Controls
- Capping System

10.7 Supporting Site Infrastructure and Equipment

Supporting infrastructure and/or equipment will be constructed or installed including:

- Site Access Road
- Weighbridge and gatehouse
- Office and car park
- Tyre Washing Facility
- Environmental monitoring points
- Perimeter access roads
- Fencing and Security Gate

- Maintenance Shed and Secure Storage
- Oily water separator
- Generator pad
- Fire and process water tank
- Refuelling pad and fuel tank
- Generator pad
- Washdown pad

In order to operate the PRWMF efficiently, a number of vehicles would also be required including:

- Compactor;
- Back-hoe Excavator;
- Dump Truck; and
- Utility Vehicle.

11. Financial Assessment

As outlined previously, the PRWMF is an integrated facility that will consist of the following:

- Class IV Landfill;
- Greenwaste Recycling;
- C&D Recycling;
- Scrap Metal Recycling;
- Liquid Waste; and
- Tyre Facility.

The following section details the costs associated with constructing and operating the PRWMF.

11.1 Capital Cost

The capital costs of the facility were prepared following completion of the conceptual design, from which the bills of quantities of the landfill and each of the Ancillary Waste Activities.

A lifetime model was produced to determine the capital costs over the whole life of the facility. This model outlines all financial stages of the facility from construction to closing of the landfill. The capital costs for the PRWMF is shown below in Table 6, as well as Total Capital Costs over the 20 years of life currently modelled.

The procurement of machinery and equipment required for the PRWMF operations prior to operations being initiated is also included within the capital costs. Amortisation of this plant and equipment is considered as part of the operating costs.

Table 6: Total Capital Costs

	Capital Cost	Total Capital Cost
	Year 0 (2019)	Lifetime (2020 - 2041)
Estimated Total Cost	**$13,000,000**	**$32,600,000**

11.1.1 Class IV Landfill

The preferred option to accommodate Class III and Class IV type waste over the life of the PRWMF is to develop a landfill to Class IV standard. The capital costs for the Class IV landfill facility represent all expenses associated with the establishment of physical infrastructure items such as earthworks, road works and buildings, landfill lining, leachate collection, surface water management, pond lining and the materials required for restoration to close the landfill. The financial model for the landfill has been based on the volumetric material requirements over its lifespan.

The Associated Site Infrastructure and Ancillary Waste Activities costs have also been included. The total cost for all capital works during the 21 years of operational life of the facility is approximately $33 million.

11.1.2 Professional Services

The Professional Services that are required to support delivery of the PRWMF have been split into two categories:

- Pre-construction Professional Services; and
- Construction Professional Services.

Table 7: Breakdown of Professional Services

Sub-project	Budget	Percentage of Total
Pre-construction Professional Services		
Estimate Sub-total	$900,000	53%
Construction Professional Services		
Sub-total	$800,000	47%
Total	**$1,700,000**	**100%**

11.2 Operational Costs

Operational cost estimates have also been prepared for the operations of the PRWMF.

The operational cost estimates were generated drawing upon a range of datasets including operational budgets, previous similar projects undertaken by Talis and general industry knowledge and experience. This included obtaining costs for:

- Labour;
- Consumables;
- Machinery and Vehicle amortisation;
- Utility Services; and
- Additional operating expenditure.

The additional operating expenditure is inclusive of the general maintenance and repair costs required to keep this facility operational. This includes such activities as annual mulching in the Green Waste Processing Area and the crushing and screening performed every 5 years at the C&D Recycling Facility.

The key plant items required have been included with the capital cost items. However, amortisation was included within the operational costs to cover the replacement cost of the item over a designated period of time. In this case, the amortisation has been calculated differently for each item of machinery or vehicle depending on operational activities and expected life. **Table 8** provides details of the approach to calculating the amortisation for the machinery and vehicles, which are considered to be conservative.

Table 8: Machinery and Vehicle Costs

Amortised Item	Capital Cost (ex GST)	Description of Amortisation
Landfill Compactor	$800,000	8 years, 96 monthly repayments, 5% interest, residual of $0 at end of life
Dump Truck	$220,000	8 years, 96 monthly repayments, 5% interest, residual of $0 at end of life
Backhoe Excavator	$150,000	8 years, 96 monthly repayments, 5% interest, residual of $0 at end of life
Utility Vehicle with Water cart	$70,000	8 years, 96 monthly repayments, 5% interest, residual of $0 at end of life
Weighbridge	$160,000	20 years, 240 monthly repayments, 5% interest, residual of $0 at end of life

Table 8 shows that no residual machinery or vehicle value will remain once the amortisation period ends. Table 9 summarises the operational costs for the landfill facility.

Table 9: Summary of Operating Expenditure

Operational Aspect		Total (ex GST)	Percentage of Total
Labour		$506,000	39%
Consumables		$146,048	11%
Machinery & Vehicles		$268,541	20%
Utility Services		$15,600	1%
Additionally Operating Expenditure		$377,000	29%
Total		**$1,313,189**	**100%**
Local Loading	30%	$393,956.83	
Total incl. Local Loading (30%)		**$1,707,146**	

As can be seen in Table 9, the annual operational cost for the landfill is $1,707,146, including a local loading of 30%, based on today's current prices.

11.3 Project Funding Stream

The State Development Agreement between Chevron and the State, saw the allocation of $2 million to the PRWMF in recognition of the importance of this project. The BBRF contribution is $9,082,620 and the Shire's contribution is $2,060,970. The allocation of funds is shown in **Table 10**.

Table 10: Project Cost including BBRF and Chevron Funding

Total	BBRF Funding Percentage	BBRF Contribution	Total Co Funding	Chevron	Shire
$12,975,171	70%	$9,082,620	$3,892,551	$1,831,582	$2,060,970

12. Project Benefits

There are a range of benefits associated with the project including:

- Economic benefits;
- Social benefits;
- Value for money; and
- Project delivery.

The following section provides a detailed overview of how the PRWMF addresses each.

12.1 Economic Benefits

As outlined within this Business Case, there are significant Economic benefits associated within the Project which will not only be realised within Onslow but also the surrounding regions including the Pilbara, Kimberley and the Mid-West. The key economic benefits can be categorises as:

- Job creation;
- Supporting the growth of the region;
- Increasing efficiency of the transport system;
- Local opportunities;
- Improved services;
- Indigenous opportunities; and
- Benefits beyond the construction phase.

These are discussed in detail within the following sections.

12.1.1 Job Creation

There are a variety of employment opportunities that are directly and indirectly associated with the successful completion of the Project. The two key direct job creation opportunities that the Project will deliver include the construction and operational phases.

The overall capital cost of the project over the 20 years currently modelled is $33M. Using Australian Bureau of Statistics (ABS) National Accounts: Inputs-Outputs data show that for every $1 million spent on construction gives rise to nine jobs in the construction industry, indicating a total of 297 jobs will be created across the initial 20 years of Project life. As per normal financial modelling works for landfill facilities, the planning has only be undertaken for 20 years. However, it is widely accepted that the PRWMF will continue to operate well beyond this term and potentially for 100 years.

If so, over the next 100 years, the actually construction employment opportunities could be approximately 1500.

The most significant capital investment for the Project is the Initial Capital Costs for establishing the site which would take place in 2019. This equates to $13M which presents 117 construction job opportunities. Then over the life of the facility new cells will be constructed and old cells capped and rehabilitated. Therefore, the capital costs of the Project are spread across its operational life which could be up to 100 years. New cells development and capping will take place approximately 2-3 years and equates to approximately $4M. This future capital investment every 2-3 years represent long term reoccurring employment opportunities of appropriately 36 jobs.

The operation of the PRWMF will require 6 full time employees including Site Manager, Gatehouse Staff, Leading Hands and Plant Operatives. The financial modelling undertaken to date for the facility determined labour costs of approximately $500,000 per annum. Spread over the current 20 years models equates to in excess of $10M in salaries or in excess of $50M if operations continue for 100 years. Such full time employment will provide long term opportunities to the Onslow Community.

There are also a range of indirect job opportunities that the Project will bring to the region mainly focused around the operation of the facility and supporting industries. Excluding labour, the operational expenditure of the facility is in excess of $1M per annum which is made up of goods and services required to support the operation of the facility. These can range from the supply and maintenance of plant and machinery, supply of Personal Protection Equipment (PPE) to the

provision of specialist services such as greenwaste mulching or crushing and screening of building materials to generate recycled building products.

It is anticipated that the vast majority of these good and services will be provided by suppliers within Onslow or the Pilbara region presenting attractive long term contract opportunities. The Project will therefore also support employment within such support industries.

12.1.2 Supporting Growth of the Region

A key aspect of the Project that is widely recognised by the Project Work Group, is the substantial opportunity that the Project has to aid the future growth of Onslow, ANSIA, the Pilbara and surrounding regions.

In relation to the Onslow townsite, the Project will provide critical waste management services in an efficient and long term sustainable manner. Following on from the development of the ANSIA, the Onslow townsite is forecasted to undergo substantial domestic and industrial development in the coming years. Aligning with this forecasted growth, a range of domestic and industrial subdivision projects have been delivered or are currently in the planning phase to ensure that the growth potential for Onslow Townsite can be realised and delivered. The PRWMF will support this development by providing best practice waste management services and facilities locally and therefore at a reasonable price.

The ANSIA is a nationally important resource area which has been developed to support the Oil and Gas activities within the Indian Ocean. To date, there are two major Oil and Gas projects within the ANSIA including BHP's Macedon and Chevron's Wheatstone project. The PRWMF will support the continued growth of the ANSIA through the provision of both commercial and hazardous waste services locally. Currently both facilities are transporting their waste materials significant distances to either Perth or other regional centres such as Karratha or Geraldton for treatment. This is resulting in significant costs for the treatment of their waste materials. The provision of local best practice solutions will provide both projects with more efficient and cost effective waste treatment

opportunities which will aid their future growth. This is particularly relevant for the Wheatstone project which has further growth potential for 3 additional LNG trains which would double the current capacity of the facility.

The PRWMF will also support the future growth of additional resource projects within the ANSIA and also wider Onslow region such as salt mine sites including Onslow Salt and the proposed K+S Group salt project. The PRWMF is proposed to include only the second Class IV landfill within Western Australia.

The only other facility is a landfill cell at Red Hills which is currently not accepting waste due to operational issues. This has presented significant problems to the Class IV waste generators as there is currently no treatment option available to them. It is recognised that substantial volumes of Class IV materials is therefore being stockpiled at resource and mine sites across the State including the Pilbara, Kimberley and Mid-West which is presenting significant challenges to the operators of these sites.

There is also the potential that the Class IV landfill cell could potentially accept Class V waste materials through concrete encapsulation prior to disposal. Following consultation with key waste generators and private waste services providers, it is understood that appropriate treatment options for Class V waste is also a significant challenge to resource and mining companies across the State as currently there is only one such facility owned by the State Government and it is only operated on a campaign basis. However, the site has not been opened by the State Government for a number of years. Similar to the Class IV materials, there is a range of Class V waste materials stockpiled and stored across resource and mining sites across the State including the Pilbara, Kimberley and Mid-West.

The successful delivery of the PRWMF and the Class IV landfill will ensure that appropriate disposal opportunities are provide within the Pilbara for the currently problematic materials. This will ensure that long term, relatively local and cost effective treatment options are provided to these waste generators. This in turn will help support the continued operation and future growth of the resources sector across the Pilbara and further afield including the Kimberly and Mid-west.

12.1.3 Local Opportunities

The PRWMF will provide new job opportunities for the Town of Onslow as well as the wider region. New job opportunities will be generated throughout both the construction and operational stages of the PRWMF.

The construction stage will see a demand for the provision of construction works and various trades. The construction, operation and ongoing maintenance of the WMF will provide opportunities for training and knowledge creation. The Project will provide a training platform for the local workforce, providing job opportunities outside of the resource industry, which can be cyclical in nature. Direct jobs opportunities will arise from the construction and operation of the PRWMF.

There will also be jobs created indirectly associated with the PRWMF through existing and, potentially, future businesses. Skills and services required will include civil contracting, environmental monitoring and rehabilitation, materials handling, administration, accounting, equipment and earthworks suppliers and operators.

New and existing suppliers in the Onslow area will have the opportunity to tender for contracts to assist with the construction as well the operation and maintenance aspects of the PRWMF. This requirement will be ongoing through the construction of new landfill cells and capping of old landfill cells throughout the 20 year lifespan.

The delivery of the PRWMF will provide work opportunities for skilled and non-skilled workers providing a diversity of employment opportunities, training and knowledge creation. It is the provision of unskilled jobs that addresses disadvantage for many, and once employed, this will open up the opportunity for training and support. For skilled staff, the project will provide opportunities for some of the resident workers who no longer have employment in the resource industry due to the economic downturn. The project directly addresses disadvantage in the area by providing real, long-term sustainable jobs.

12.1.4 Improved Services

The Class IV Facility will be designed and constructed to Best Practice Standards as per the EPAs Best Practice Management Guidelines. The PRWMF will improve the waste management infrastructure for the Town of Onslow as well as the wider Pilbara Region. The only other WMF constructed to the same standard is located in Perth. The establishment of this facility will fill a vital gap in the current waste infrastructure identified by the Shire, legislative policies and strategies, JTSI and significant waste generators within the region.

The provision of a Class IV facility will allow for the acceptance of Class III and Class IV waste and the capacity to potentially also accept Class V wastes. The facility will be able to accept the hazardous wastes generated through from major projects such as Wheatstone and Macedon and expansion of these projects. The provision of the Class IV facility located within the Shire will allow for the local management of waste and therefore reducing costs associated with the transportation of waste. The PRWMF will provide waste management services and security to businesses and the community for the foreseeable future.

The PRWMF will include a Greenwaste Facility, C&D Waste Recycling Facility, Liquid Waste Facility, and Tyres and Rubber Monocell. The Project will increase environmental awareness and encourage recycling initiatives and more sustainable practices for the treatment of these materials.

The Western Australian Government is due to introduce a Container Deposit Scheme in 2020. The Project may be able to provide a collection depot for the Scheme. The Scheme will provide further opportunities for community involvement and facilitate local involvement in shaping their local area into a more attractive place to live. In this regard, the Project aligns with the WA Waste Strategy, showing the importance of effective partnerships between the community and government including regional local governments, State Government and, industry.

12.1.5 Indigenous Opportunities

The PRWMF will provide a range of Indigenous opportunities including:

- Employment and training;
- Construction Contracts; and
- Goods and Service Contracts

A range of employment opportunities will arise from the successful delivery of the project including during the construction and operational phases. The operational phase will require 6 operational staff including both skilled and unskilled position. A key component of the waste handling activities is machinery and plant operations which are similar to large earthmoving plant. There are number of successful examples where waste management and landfill facilities have provided training opportunities to employees for machinery and plant qualifications.

There will also be contracting opportunities for Indigenous organisations to provide services to the Shire during the construction and operational phase of the project. As outlined previously, the PRWMF will represent a $33 million capital investment within the region over a period of 20 years. Initially there will be a $13 million contract for the construction of the facility and then every 2-3 years were will be further capital construction contracts in the order of $4 million for the development of new cells and the capping of previous cells. These ongoing contracts present a significant opportunity to local contractors as well as indigenous corporations. Furthermore, it is anticipated that there will be approximately $1 million worth of goods and services that will be required for the operation of the site which will also present an opportunity to local indigenous corporations.

12.1.6 Benefits beyond the Construction Phase

The Project Working Group recognises there are numerous economic benefits of the PRWMF well beyond the initial construction phase. As outlined through this Business Case, the Project will provide Onslow, the Pilbara and the wider north Western Australia region with access and security in relation to long term best practice waste management services and infrastructure. This will be a significant improvement in relation to hazardous waste generators within the region that need that either have to transport such materials significant distances for treatment or else no such treatment options are viable and these materials are stockpiled on site. The provision of best practice

hazardous waste treatment service will ensure the continued growth of this nationally importance resource region.

Another key long term economic benefit of the Project is the long term employment opportunities. The operation of the facility will directly employ six full time positions which provide ongoing local employment. In addition, there will be large capital works required every 2-3 years valued at approximately $4 million which again will provide long term employment opportunities. In addition, the Shire will require the services from a number of additional suppliers throughout the life of the Project, which will provide further business opportunities within the Onslow townsite and the broader Pilbara region. As outlined above the PRWMF has significant long term economic benefits well beyond the initial construction phase.

12.2 Social Benefits

The social benefits that the Project will deliver to the region during and beyond the construction phase are:

- Addressing Disadvantage; and
- Indirect Health Benefits.

Each of these social benefits is discussed in the following sub sections.

12.2.1 Addressing Disadvantage

The Project will help to address disadvantage by providing job opportunities within the local community. Defining disadvantage in the Pilbara is particularly complex as, statistically, the region is considered well off due to the high pay of workers in the resources sector. However, there is a high reliance on jobs in the resources sector, which can significantly impact resource-reliant towns in the Shire when projects move from construction to operation phase as generally a smaller workforce is needed during operation. However, there have also been significant job losses due to the downturn in the recent global commodity prices. The Shire is well aware that this disadvantage

is not unique to the region however, the Pilbara's particular disadvantage is its isolation with so many workers in this remote area having been made redundant.

Both the construction and operational roles would require skilled and unskilled workers providing a diversity of employment opportunities, training and knowledge creation. It is the provision of unskilled jobs that addresses disadvantage for many, and once employed, this will open up the opportunity for training and support.

For skilled staff, the project will provide opportunities for some of the resident workers who no longer have employment in the resource industry due to the economic downturn. The way this project directly addresses the disadvantage is by providing real, long-term sustainable jobs. Jobs and employment from a $37.4 million total investment is good for the region and good for addressing disadvantage.

12.2.2 Health Benefits

Population health profiling and needs assessment carried out by the Kimberley-Pilbara Medicare Local provides a more accurate summary of the 'real' disadvantage of the region. It found that the Kimberley-Pilbara population has poor health status and this, in part, reflects the very low socio-economic status (SES) of the region, the presence of lifestyle risk factors for, and high incidence of, chronic disease and lower life expectancy when compared with other areas of Australia. These health challenges are compounded by the remoteness of the northern parts of Western Australia and extreme disadvantage of some communities within the region. Data indicates that access to services is challenging. The PRWMF may assist to indirectly improve health through increased community involvement, volunteering opportunities and the strengthening of community institutions. A key health benefit that the PRWMF will provide is a the provision of Best Practice Waste treatment and disposal service which will mitigate the potential for health issues arising from poor waste management practices which luckily are a thing of the past within Australia.

12.3 Value for Money

The Shire engaged the Centre for International Economics (CIE) to undertake a detailed Business Case and Benefit Cost Analysis in 2015. CIE's study analysed the total benefits of the project assessed over an operating life of 20 years from the start of the project. The report concluded that using a real discount rate of 7%, the total project generates a Net Present Value from a Net Cash Flow of approximately $177 million with a benefit cost ratio of 4.27, indicating that the substantial investment in the project would return greater overall benefits. (Source: CIE calculations). This is a 'win-win' in every sense.

The partnerships with this Project are wide and far reaching. The principal financial partner for the Project is the Federal Government through the BBRF, along with the Shire, and Chevron. There are many other future partners who will be the users of the facility. The project began as a partnership between the Waste Authority and the Pilbara Development Commission (PDC) who worked together to assist with the advancement of waste management systems within the Pilbara. The Waste Authority commissioned Talis to undertake a Waste Data Study with the objective of gathering data on all key waste streams to assist with infrastructure planning and facilitate the advancement of waste management systems in the region.

In preparing the Waste Data Study, Talis worked with BHP Billiton, Chevron Fortescue Metals Group, Rio Tinto and Woodside. The partnership continued with the Shire deciding to solve the economic problem of transporting Category IV waste and recycling to Perth and establish a facility in the Pilbara.

The Project provides value for money through:

- Leveraging additional partnerships, including the Federal Government through the BBRF, JTSI and Chevron; and
- Securing co-funding from one of the project partners, Chevron, with a $2 million capped contribution as part of the existing Ashburton North State Development Agreement on the proviso that the Project includes a Class IV secure waste facility.

As the Shire is leading the delivery of the PRWMF , all procurement that will be required for the Project will be subject to Local Government procurement rules as specified within the *Local Government Act 1995*, thus ensuring that all significant procurement undertaken by Local Governments is undertaken through a competitive process ensuring that value for money is obtained. This is reflected within the Shire's Procurement Policy which specifies the internal processes that govern procurement. A key principle of this Policy is obtaining Value for Money. In addition, the Shire's Buy Local-Regional Price Preference Policy assists with direct investment with the Onslow and Pilbara region.

12.4 Project Delivery

The key factors to be assessed in relation to the Project Delivery criteria include:

- Approvals Readiness;
- Track Record in Delivering Similar Projects;
- Access to people with right Skills and Experience;
- Access to Technical Resources; and
- Operate and maintain the infrastructure.

12.4.1 Approvals Readiness

Within the current project Timeline, a conservative allocation of one year has been set aside for the approvals phase.

The key approvals are the Environmental Approvals including EPA Referral and the subsequent Environmental Impact Assessment process. In addition, a Works Approval and Licence will be required from the WA Department of Water and Environmental Regulation (DWER). Talis and the Shire have already undertaken preliminary consultation with the DWER in relation to the environmental approval required. In addition, based on the current understanding of the environmental and social values on and surrounding the Preferred Sites, as well as their remote

location, it is not anticipated that any significant delays will be experienced in obtaining these approvals.

Main Roads WA approval for access to the Selected Site is required. As these works will be completed at an early stage of the project, it is proposed that this approval commence in the early stages of the approval process to ensure no delays.

As the Shire will utilise a Public Works Exemption for the PRWMF, there are no foreseeable issues with planning approvals.

12.4.2 Track Record

The Shire has successfully delivered two significant waste management projects at Onslow within the last 3 years, both of which are integrally linked. With the significant development recently undertaken within Onslow including the Onslow Ring Road and the Barrada Subdivision, land use conflict were experienced with the former Onslow Landfill which required the Shire to close and rehabilitate this facility. The Shire delivered the approvals, design, procurement and construction of this $4.9 million project within 18 months.

To ensure that appropriate waste management services could be provided to the Onslow residential and industrial communities, a $3.4 million Waste Transfer Station was installed prior to the closure of the former landfill. This significant project was delivered within 14 months from siting through to construction and commencement of operations. The key tasks involved in the project included Site Selection, Site Investigations, Approvals, Design, Procurement and Construction.

Both these projects, which are extremely similar to that of the PRWMF, illustrate the track record of the Shire for delivering waste management infrastructure projects within Onslow and also within condensed timeframes. The Shire has also delivered a number of other significant projects including the $42 million Onslow airport expansion, which was successfully project managed by the Shire and also involved a partnership with Chevron Australia and the State Government.

Significant works included a large new runway and a new terminal building comprising passenger and baggage screening facilities. Further upgrades and additions include a new taxi way, an aircraft parking apron, new and upgraded runway and apron lighting, new radio and navigational aids, refuelling and firefighting facilities and fencing (to CASA requirements). The project has accumulated close to 20,000 hours without any lost time injuries.

The Onslow Airport was awarded 'Non-RPT Certified Airport of the Year' by the Australian Airports Association in 2014. The Airport project is a current example of how the Shire has managed external funding and delivered on budget and on time including managing all risks associated with project delivery and ongoing management.

The Shire has a strong history in managing grant funding, including state and federal funding such as Regional Road Group, Royalties for Regions and Roads to Recovery.

The Shire will manage the entire PRWMF project, with works carried out by Shire staff, specialist contractors, consultants, and local suppliers. The Shire is in a strong financial position with sufficient funds to meet its obligations as a partner in the project, fund any cost overruns and maintain the project in the long term.

12.4.3 Access to People with the Right Skills and Experience

Similar to the other capital works projects delivered by the Shire within Onslow, the Project Working Group recognised the requirement to partner with the right organisation to help deliver the correct outcome. The Shire will undertake a competitive Public Tender process to obtain the services of Civil Contractors to deliver the project.

12.4.4 Access to Technical Resources

The Shire will ensure all project partners, including consultancy support or Civil Contractors, have the required resources to delivery their elements of the project through the competitive procurement processes.

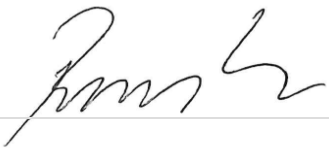
12.4.5 Operate and Maintain Infrastructure

The facility will be maintained in the medium to long term i.e. the 20 plus year life of the Waste Management Facility. This Business Case gives confidence that the project will be delivered on time, on budget and to the required quality standard. The detailed financial model undertaken for the project assisted the Shire to determine the feasibility of the project.

Utilising the total costs projected over the 20 years modelled for the facility, gate fee modelling was undertaken to determine the average costs per tonne for waste accepted at the facility. These gate fees will ensure that sufficient revenue is received from the waste accepted into the facility to cover the capital and operational costs of the facility. In financial modelling, the BRRF grant significantly reduced the average gate fee modelling per tonne, making the project significantly more financially viable.

13. Signing Of Business Case

I confirm that the information contained in this Business Case is true and correct.

Signed	
Approved by	Rob Paull
Position	Chief Executive Officer
Date	19 March 2019

This page has been intentionally left blank.