EPS

MACS REEF
WASTE TRANSFER STATION-
ENVIRONMENTAL IMPACT STATEMENT

Prepared for Palerang Council

Prepared by Environmental Property Services
In association with Quadro Australia Pty Ltd

ENVIRONMENTAL PROPERTY SERVICES
11042 Environmental Impact Statement Macs Reef
June 2012

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EXECUTIVE SUMMARY

Environmental Property Services has prepared this Environmental Impact Statement (EIS) under Part 4 of the *Environmental Planning and Assessment Act 1979* for the development of a Waste Transfer Station on Macs Reef Rd, Bywong, NSW. The proposal is classified as 'Designated Development'. Environmental Property Services (EPS) in association with Quadro Australia Pty Ltd (Quadro) act on behalf of Palerang Council in preparing a Development Application for the Waste Transfer Station. Numerous studies have been conducted in consideration of the WTS to determine whether the proposal is justified in social, cultural, economic and environmental facets.

The Proposal

The proposed development includes the construction and establishment of a Waste Transfer Station at the existing Macs Reef Rubbish Depot. The WTS will accept household waste and recycling and will be restricted to vehicle loads less than 2 tonne. The intention of the WTS is to service local residents in place of a kerbside waste collection service. The WTS is proposed to be constructed adjacent to the current landfill area of the site. Approval of this WTS will allow the successive closure and rehabilitation of the existing landfill site.

The proposal includes the upgrade of the existing unsealed road adjacent to the site, as well as the construction of a roundabout at the entrance of the WTS, to improve access and egress between the site and the main road.

Director-General's Requirements (DGRs) were issued by the Department of Planning and Infrastructure (DoPI) for the proposed Waste Transfer Station on the 23rd of September 2011. A copy of the DGRs is contained within Appendix 14. The DGR's outlined a number of issues which were to be addressed as part of the EIS, including a risk assessment of potential environmental impacts of the proposal, as well as ongoing consultation with relevant Local, State and Commonwealth government authorities, service providers and community groups. A risk assessment has been undertaken to address any environmental impacts that may be caused with regard to traffic generation, noise and vibrations, flora and fauna, erosion and sediment control, air quality, odour control, vermin, rubbish control and cultural heritage. The investigations undertaken concluded that there was to be minimal impact to the surrounding environment, and that with the implementation of appropriate management strategies and mitigation measures, the proposal will offer a more positive environmental outcome than the existing operations within the site.

The overall intention of the proposal is to:

- Provide a contemporary planning practice that is consistent with the principles of ecologically sustainable development,
- Meet the needs of current and future residents surrounding the site,
- Provide safe, efficient and manageable waste disposal; and
- Significantly improve environmental outcomes for the area and the site.

Assessment of Environmental Effects

Detailed assessments have been undertaken to address the actual and potential environmental effects that may be associated with the proposed Waste Transfer Station. The following is a short summary of the key assessments:

Waste

Potential impacts to the community as a result of waste generated during the construction of the project would be minimal. Detailed waste management procedures are outlined within the Environmental Management Plan provided by Quadro Australia. The expected volume of waste to be accepted following the construction of the proposal is outlined in the Concept Options Report, also provided by Quadro Australia. Based on these projections, it is recommended that the WTS follow management procedures aimed at ensuring efficient storage and transportation of waste materials.

Soil and Water

Particular attention has been given to the design of leachate surface water controls, erosion control, sediment discharge, and measures to minimise other pollutants during the construction and operation of the Waste Transfer Station. Specific management measures are contained within the Soil and Water Management Plan provided by Coffey Environments Australia Pty Ltd. Impacts on adjoining groundwater bores should be avoided provided that all mitigation measures are implemented, in accordance with the SWMP. Ongoing control measures for the WTS are also provided in the Environmental management Plan provided by Quadro Australia, which ensures all works are monitored and regularly reviewed to protect the environment. Adherence to the Soil and Water Management Plan should ensure that no adverse effects are caused by the proposal.

Air Quality and Odour Control

The proposal has the potential to affect the local air quality temporarily by increasing particulate matter and dust during construction works; however impacts to air quality are likely to be minimal and transitory. Preparation of an Air Quality and Odour Impact Assessment by SLR Consulting Australia Pty Ltd has confirmed that the proposal will not lead to an exceedance of particulate matter that is detrimental to the environment. A copy of this report accompanies the EIS. Testing also confirms that the proposed project will not lead to an exceedance of the odour performance goals.

Noise

A Noise and Vibration Impact Assessment was undertaken in February 2011 by SLR Consulting Australia Pty Ltd to assess the potential impacts from noise associated with the proposed WTS. The assessment is provided in full with this application. Noise modelling undertaken during the preparation of this assessment indicated that the noise emissions during the operation and construction of the development are within the specific noise criterion levels at all receiver locations. Various noise management techniques are provided within the report that will be adhered to, ensuring no adverse noise effects result from the proposal.

Traffic and Transport

A Transport and Traffic Review has been prepared for the Waste Transfer Station by Stapleton Transportation & Planning Pty Ltd which accompanies this EIS. The assessment concludes that calculations based on the 'super peak traffic generation' of the site would not exceed current traffic volumes because of the change in vehicle types and waste stream permitted into the WTS. Data also confirms that traffic flow will be lower than existing levels in both average and peak operational periods. Based on this, the proposal will not cause adverse traffic impacts or increase transport within the area, and all construction works will be consistent with the appropriate guidelines and standards.

Flora and Fauna

An Environmental Survey and Assessment of the entire Macs Reef site was provided by Good Environmental Systems. This assessment included a seven part test as required under Part 5 of the *Environmental Planning and Assessment Act 1979* and section *94(2) of the NSW Threatened Species Conservation Act*. Within this assessment, no threatened, locally rare or vulnerable native plant or animal species were located, and no significant habitats were noted. No significant impacts will result from the proposal, although all recommendations from this report will be implemented as well as a separate leachate pond to prevent leachate from the WTS entering existing drainage lines.

Landfill Closure and Rehabilitation

The NSW Office of Environment and Heritage have suggested that the closure of the existing landfill and its subsequent rehabilitation is to be included as a 'condition of consent' for the proposal. The *Environmental Guidelines: Solid Waste Landfills, EPA 1996* (Guidelines) nominate that a closure and rehabilitation plan must be prepared and submitted within 3 months of a closure of a landfill. As the closure plan requires a detailed survey of the existing landfill to allow preparation of the final landform, it is proposed that in accordance with the Guidelines a closure and rehabilitation plan be prepared within 3 months of the closure of the landfill operations and that the requirement for the closure plan be nominated as a condition of consent for the WTS proposal.

Heritage

Archaeological Heritage Surveys in conjunction with the Ngambri Local Aboriginal Land Council have provided a Cultural Heritage assessment which confirms that there is no Aboriginal or European cultural constrains within the site. If any previously undetected culturally significant site or relic is discovered during construction or operation of the project, all work at the location will cease and appropriate advice will be sought from the relevant government authorities, namely the NSW Office of Environment and Heritage and Ngambri Local Aboriginal Land Council.

Hazards and Risk

An Environmental Risk Assessment was undertaken during the preparation of the EIS which indicates that with the appropriate mitigation measures, all potential risks can be managed. A preliminary screening undertaken in accordance with the principles of *State Environmental Planning Policy No.33 – Hazardous and Offensive Development* demonstrated that a Preliminary Hazard Analysis (PHA) is unnecessary for this proposal and has therefore not been undertaken for this Development Application.

Fire and Incident Management

Bushfire risk management involves identifying the risk posed by fire to assets and life and establishing management strategies to reduce the level of risk and offer an increased level of protection. As the proposal site is within a bushfire prone land zone, appropriate fire management procedures will be implemented in accordance with Councils requirements and the objectives of the Rural Fire Service *Planning for Bush Fire Protection 2006*. Fire and incident management are addressed within the Environmental Management Plan provided by Quadro Australia Pty Ltd.

STATEMENT OF CERTIFICATION

Contact Information and Declaration		
Declaration:	Submission of Environmental Impact Statement (EIS) prepared under the Environmental Planning and Assessment Act 1979 in respect of a proposed Waste Transfer Station. The opinions and declarations in this Environmental Impact Statement are ascribed to Environmental Property Services (EPS) and are made in good faith and trust that such statements are neither false nor misleading. In preparing this EIS, EPS has considered and relied upon information obtained from the public domain, supplemented by discussions between key EPS staff, representatives from governing agencies and independents, including Quadro Australia Pty Ltd and specialist consultants.	
Applicant:	Bill Ellison Director Infrastructure Planning Palerang Council PO Box 348 Bungendore NSW 2621 Ph: (02) 6238 8111	…….. Bill Ellison
Prepared by:	Stephen McCall Bachelor of Environmental Science Principal Environmental Planner Environmental Property Services PO Box 348 NELSON BAY NSW 2315 Ph: 02 4981 1600	…….. Stephen McCall
Application subject land address:	Crown Reserve No. 88693 Mac's Reef Road, Bywong, NSW Lot: 7008 DP: 96164	

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1 INTRODUCTION

This Environmental Impact Statement (EIS) has been prepared to demonstrate the environmental, social and economic matters associated with a proposed Waste Transfer Station (WTS) at Macs Reef Rd, Bywong, NSW. The EIS examines the site location, how the proposal relates to the location and environment, as well as the planning merits of the development. The Statement provides the supportive documentation for the Development Application to seek consent for the proposed development.

Environmental Property Services (EPS) in association with Quadro Australia Pty Ltd (Quadro) act on behalf of Palerang Council in preparing this EIS and Development Application for the WTS to service the Local Government Area.

This EIS will be determined under Part 4 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*. In 2011 a Statement of Environmental Effects and Development Application was prepared by Environmental Planning Services Pty Ltd for the proposed WTS. During Council's assessment of the Development Application it was determined that the proposal triggers 'designated development' due to the location of the site within 100m of a potable groundwater bore. In accordance with section 112C of the EP&A Act, this EIS has been prepared pursuant to the requirements of the Director General of the Department of Planning and Infrastructure (DoP&I). The Director-General's Requirements (DGRs) were issued on the 23rd September 2011, a copy of which is attached in Appendix 14.

In succession to this proposal, it is intended that the existing landfill site be closed and a rehabilitation plan be prepared and submitted within 3 months of the closure. It is suggested within this report that the closure plan be required as a "condition of consent".

Additional specialist consultant assessments were required as part of the planning assessment and provide further detail with regard to the WTS and Traffic, Noise, Archaeological, Ecological, Visual Impacts and Odour Control.

1.1 Objectives of this Environmental Impact Statement

The objectives of this Environmental Impact Statement are: -

- To provide a description of the subject site and the surrounding locality;
- To provide a description of the proposed development;
- To provide a discussion of the relevant Environmental Planning Legislation and Instruments;
- To provide an assessment of the potential environmental impacts, having regard to the matters for consideration pursuant to Section 79C of the *Environmental Planning and Assessment Act 1979*;
- To provide an assessment of the potential environmental impacts, having regard to the matters for consideration pursuant to Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*; and
- To respond to the matters outlined in the Director-General's Requirements.

1.2 Compliance with Director-General's Requirements

DGR Requirement	Compliance	Section
The environmental Impact statement must include:		
An executive summary;	Yes	Page iii
A full detailed description of the proposal;	Yes	Section 3, Page 9
A Risk Assessment of the Potential Environmental Impacts;	Yes	Section 5.5, Page 62
A description of the existing environment;	Yes	Section 5.1, Page 54
A description of the mitigation measures;	Yes	Section 7, Page 94
A list of any approvals to be granted under the law;	Yes	Section 4, Page 21
A compilation of all monitoring and management measures;	Yes	Section 7, Page 94
A description of how the proposal will be managed and monitored over time;	Yes	Section 7, Page 94
A conclusion justifying the development; and	Yes	Section 9, Page 101
A signed declaration from the author of the EIS	Yes	Page vii
Key Issues:		
Waste	Yes	Section 3.1, Page 13
Soil and Water	Yes	Section 5.5.4, Page 65
Air Quality	Yes	Section 5.5.5, Page 66
Noise	Yes	Section 5.5.9, Page 73
Traffic and Transport	Yes	Section 5.5.8, Page 71
Flora and Fauna	Yes	Section 5.5.1, Page 62
Landfill Closure and Rehabilitation	Yes	Section 5.5.15, Page 90
Heritage	Yes	Section 5.5.2. Page 63
Hazards and Risk	Yes	Section 6, Page 91
Fire and Incident Management	Yes	Section 5.5.14 Page 89
Environmental Planning Instruments:		
State Environmental Planning Policy (Infrastructure) 2007;	Yes	Section 4.2.3, Page 41
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development;	Yes	Section 4.2.1, Page 39
Yarrowlumla Local Environmental Plan 2002; and	Yes	Section 4.2.4, Page 42
Relevant Development Control Plans	Yes	Section 4.4, Page 48

2 SITE DESCRIPTION

The following information outlines the property details and the proposed development.

2.1 Site Context

The following information describes the site and location context.

2.1.1 Site Location

Mac's Reef Road, Bywong, New South Wales as illustrated by Figure 2-1.

2.1.2 Property Zoning

The Property is currently zoned Rural Residential 1(d) under *Yarrowlumla Local Environment Plan (LEP) 2002.*

2.1.3 Property Details

Lot: 7008 DP: 96164
Site Area: 9.18 hectares

2.1.4 Owner(s):

The site is Crown Reserve (Crown Reserve No. 88693) managed by Palerang Council for the purpose of a Rubbish Depot.

2.1.5 Existing Site Development

The existing site has functioned as a landfill site and garbage depot since the 1970's (Quadro 2010) and has been progressively developed over time to occupy 5.4 hectares of the 9.18 hectares of the site. The facility currently services the local Wamboin/Bywong/Sutton East resident's waste disposal.

The site was gazetted as a Rubbish Depot in 1972, which forms a key factor in the strategic assessment and subsequent recommendations for the location of a future Waste Transfer Station. The landfill site has been progressively developed over the past 40 years to now occupy, in conjunction with the material storage areas and site facilities, approximately 60% of the southern portion of the site. Figure 2-3 outlines the existing features of the site.

The site comprises separate areas including an active landfill zone, stockpile areas for metals, construction and demolition materials, batteries, tyres and green waste, one leachate/sedimentation pond and associated catchment drains, and an Office and Buy Back Centre. The site access is unsealed and the current works are restricted to the southern portion of the site.

The landfill is currently being filled on a progressive lift basis to create a relatively level platform extending westwards from the natural surface on the eastern side of the landfill. The landfill batters along the north and southern slopes of the landfill area are relatively steep with a batter slope in the region of 2 horizontal to 1 vertical (2H:1V).

The site is bounded on the west by an unnamed and unsealed road and by Macs Reef Road to the north. The boundary to the east and south is contiguous with private properties, both which contain a dwelling. Additional residences in close proximity to the site are located to the north.

Figure 2-1: Location Map for the Proposed Waste Transfer Station near Canberra NSW

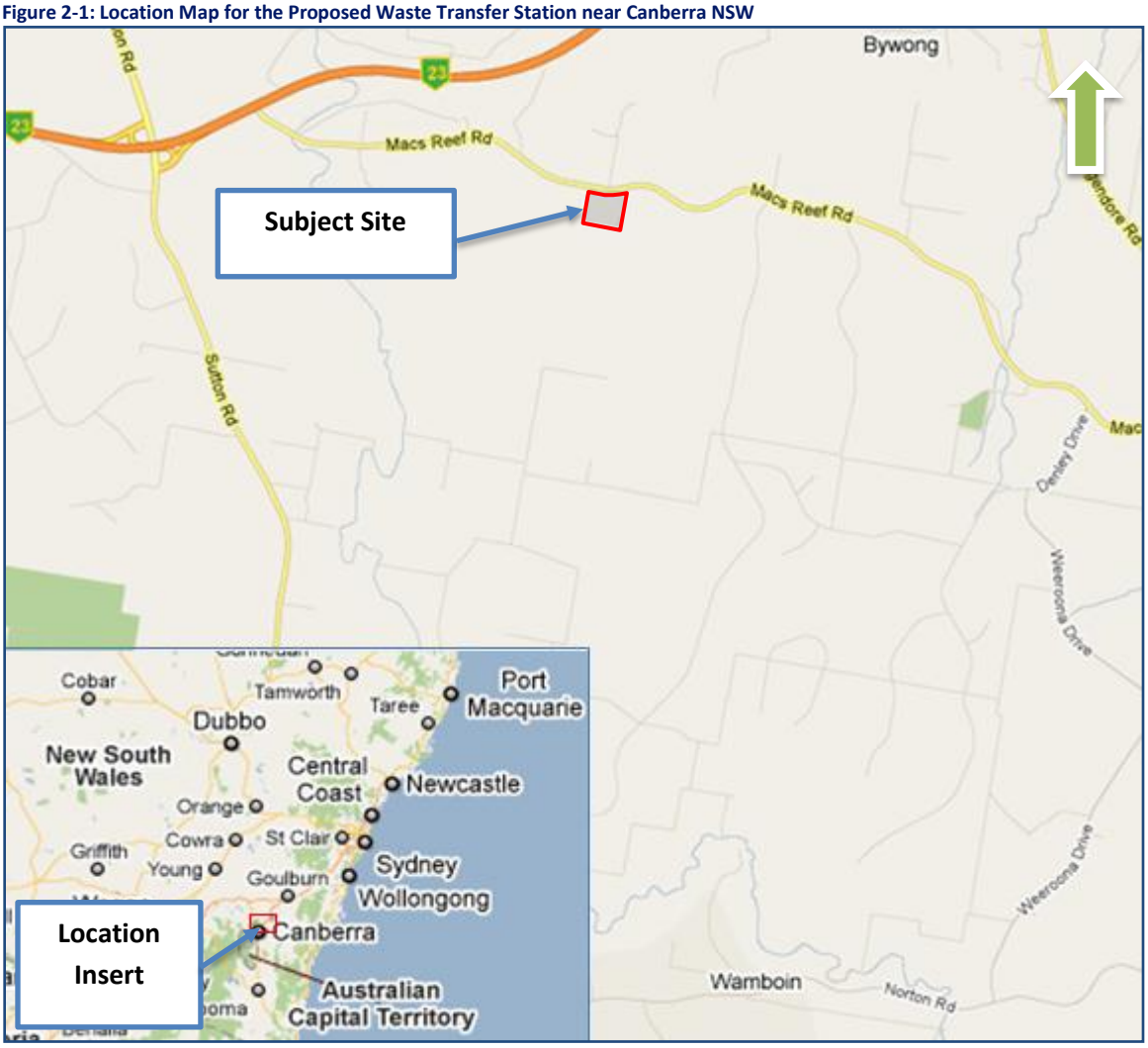


Figure 2-2: Aerial Photograph of Macs Reef Rubbish Depot

As illustrated in Figure 2-2, Macs Reef Rubbish Depot development currently occupies approximately 60% of the southern portion of the site and is surrounded by relatively sparse dry sclerophyll vegetation.

Figure 2-3: Macs Reef Existing Site Features

2.1.6 Background Information

The following information is sourced from the *Concepts Options Report - Macs Reef Waste Transfer Station* (February 2010) prepared by Quadro Australia and the *Palerang Council Waste Management Strategy 2005-2025* (2005) by URS Pty Ltd (URS).

In 2005 Palerang Council commissioned URS to prepare a 20 year Waste Management Strategy (WMS) titled '*Palerang Council Waste Management Strategy 2005-2025'* (2005) which assessed the landfill facilities waste management in Palerang's LGA. The assessment considered the ecological sustainability, financial viability and ratepayer equity of each landfill site and provided an estimated each facility's lifetime based upon annual waste generation for the Palerang LGA.

URS individually assessed each of the landfill sites including the Macs Reef Rubbish Depot. The WMS concluded the rubbish depot has an estimated remaining operational capacity of approximately 2 to 3 years. The WMS also recommended that the closure of the Macs Reef Rubbish Depot be undertaken within 2 years as it would have a lower social impact as opposed to undertaking an immediate closure. Residents within the Mac Reef Rubbish Depot waste catchment were proposed to begin using the landfill facility at Bungendore Tip upon closure of Macs Reefs Rubbish Depot.

Bungendore Tip is located approximately 8 kilometres to the south east of Macs Reef Rubbish Depot. The Bungendore Tip was also determined to have a life capacity of 3-4 years, this estimate however doesn't accommodate for additional waste streams from any closure of Macs Reef Rubbish Depot. Therefore, any option to close Mac's Reef Rubbish Depot would have ongoing implications for the effective management of waste in the north-west of Palerang LGA. Accordingly, Palerang Council has reviewed options for the ongoing management of waste for the Wamboin/Bywong/Sutton East areas as Macs Reef Rubbish Depot reaches its lifetime capacity. Council engaged Quadro Australia Pty Ltd to develop a number of concept options for the future management of waste at Macs Reef Rubbish Depot. Council also formed the Wamboin/Bywong/Sutton East Area Waste Management Working Group (Working Group), to examine waste management options.

Council in conjunction with the Working Group undertook the following:

- Conducted a survey of the local community to identify and quantify its waste management needs and preferences;
- Following the response of the survey, Council and the Working Group identified possible areas within the subject site for the development of a WTS; and
- Developed a concept design brief for the WTS.

Palerang Council initially proposed to provide residents within the Mac Reef waste catchment area with a roadside bin service. Council undertook a community survey to assess the communities' preferences and opinions of the WMS and the option of a Council supplied roadside bin service to facilitate ongoing waste management. However, the community response was in favour of a WTS to replace Macs Reef landfill facility before it reaches capacity.

The response from the local community survey is summarised as follows:

- More than one out of every two households (54.5%) in Wamboin, Bywong and Sutton East responded to the waste management survey;
- From the residents responding to the survey:
    - 75.2 % favoured replacement of Macs Reef Road Tip with a small WTS on the site;
    - only 19.7 % of respondents favoured a roadside waste and recycling wheelie bin collection by Council; and
    - 67% of respondents were against a Council-run roadside wheelie bin collection trial costing $30,000 of all Palerang ratepayers' money.

A draft Concept Options Report prepared by Quadro Australia was presented to the Working Group for comment and feedback prior to its finalisation and submission to Council for its consideration. The Concept Report provided a number of recommendations including the development and design of the WTS, the preferred location of the WTS on the site and other operational measures.

Palerang Council adopted Quadro's *Concepts Options Report - Macs Reef Waste Transfer Station* (February 2010) at its meeting on the 4th March 2010 with the recommendation of developing Option 3 from the concept Report. This Statement has been prepared in accordance with Council's resolution to accept Option 3 and adopt the Concept Report.

Copies of the *Concepts Options Report - Macs Reef Waste Transfer Station* (February 2010) prepared by Quadro Australia and the *Macs Reef Waste Management Working Group – Report to Council* – 4th March 2004 are in Appendix 1 and Appendix 2 respectively.

3 THE PROPOSAL

The proposed development includes the construction and establishment of a WTS at the Mac's Reef Garbage Depot adjacent to the landfill area of the site. The following description of the proposal provides an overview of the associated elements of the WTS. The WTS Concept Plans prepared by Quadro Australia are contained in Appendix 3 and should be reviewed in conjunction with this description. Additionally, a more detailed description of the elements is provided in the Environmental Management Plan - Macs Reef Waste Transfer Station (Quadro Australia 2011) (EMP). A copy of the EMP is contained in Appendix 4. The Operational Procedures for Macs Reef WTS (Quadro Australia 2011) provide specific detail on how the WTS will operate and how the operation will be managed. A copy of the Operating Procedures is contained in the EMP.

The proposed development for the WTS will include the establishment of;

- A Site office;
- A Buy Back Centre in a shed or demountable building;
- Site Amenities and Site Water Supply (e.g. Water Tanks for potable water and fire fighting purposes);
- Waste disposal areas, including waste drop off for vehicles and bunded bin pads and bin manoeuvring and storage area (4 x 30m^3 Putrescible Waste Bins and 1 x 30m^3 Co-mingled Recyclables Bin);
- Retaining walls to provide level changes between the waste drop off area and bin storage area;
- Awnings over the oil/e-waste & battery storage area, with an option to later add awnings over the waste drop-off and bin storage areas.
- Oil storage & e-waste & battery storage;
- Car parking space (6 spaces – 1 disabled and 5 car parks; for Employees and Visitors);
- Security gates and black chain wire fence;
- 1 x Leachate/Stormwater Management Pond (Capacity 696m^3 excluding 0.5m freeboard) and leachate drainage system;
- Site internal access road;
- Construction and upgrade of the Macs Reef Intersection and Access Road into the WTS which consists of a deceleration lane and bypass lane on Macs Reef Road and the sealing of the unnamed public road that accesses the proposed WTS;
- Construction of a roundabout at the entry to the WTS on the unnamed road; and
- Landscaping of WTS site.

The proposal includes an awning over the waste drop-off and bin storage areas and also over the oil storage and e waste/battery storage area. Council has indicated that the awnings over the waste drop-off and bin storage areas will not be constructed immediately. The development application has been prepared with the inclusion of these awnings to ensure that assessment of the visual impact of the proposal addresses the highest possible impact. Should the consent authority determine to impose a condition rejecting the construction of awnings over the waste drop-off and bin storage areas, the utility of the WTS will not be greatly affected. The oil storage area will site the landfill operation's current oil receptacle, which is a self-contained, self bunded, enclosed receptacle. The e-waste and battery storage will be located in a bunded area with a steel grate floor over a pit.

The intersection design for the unnamed road and Macs Reef Road is subject to final survey data and will be finalised as part of the detailed design drawings for the WTS. However, it should be noted that intersection design may result in the need to undertake a site boundary adjustment for the subject site. Council may need to undertake the boundary adjustment following confirmation of the detailed design.

Upon operational commencement of the WTS, works will be undertaken for the closure, capping and rehabilitation of the existing garbage depot site. The closure works for the existing garbage depot does not form part of this Development Application, although clarification of the future of the landfill is an important element of the justification for the WTS proposal.

The WTS will provide facilities for the acceptance, aggregation and transfer of a range of materials including:

- Domestic Waste;
- Batteries;
- Oil (utilising the existing moveable disposal facility at the site);
- E-waste;
- Small cut-up metal pieces;
- Small swappable items; and
- Other small valuable items.

Materials that will not be accepted are specifically listed in the EMP and summarised as follows:

- Green waste, unless the minor part of a domestic mixed waste load;
- Commercial and industrial waste, unless the minor part of a domestic mixed waste load;
- Construction and demolition waste, unless the minor part of a domestic mixed waste load;
- Clean fill or VENM;

- Tyres;
- Mattresses;
- White goods and large scrap metal;
- Large items including furniture;
- Asbestos;
- Chemicals; and
- Dead animals.

The WTS will be limited to vehicles less than 2 tonne, such as cars, utilities and these vehicles with trailers. Vehicles larger than 2 tonnes or vehicles with materials listed above as not accepted will need to travel to the Bungendore Tip.

The waste bins are proposed to be emptied weekly at a suitable off-site destination that is licensed to accept the appropriately classified waste. The recycling is anticipated to be acceptable for HUME MRF and the putrescible waste would be transferred to either Bungendore Tip or Woodlawn Bio-reactor.

Macs Reef Road Tip is currently open between 7.30am and 5.00pm Friday to Monday with the Saturday and Sunday hours extended to 7.00pm during daylight saving. However, with the closure of the landfill operations and the change in accepted waste, the hours of operation are proposed to be amended. The reduction in hours was also necessary to reduce the costs of operation to ensure the proposal remained financially feasible. The proposed operating hours of the WTS are:

- 2.00pm to 5.00pm Fridays
- 8.00am to 4.00pm Saturdays and Sundays
- 7.00am to 11.00am Mondays

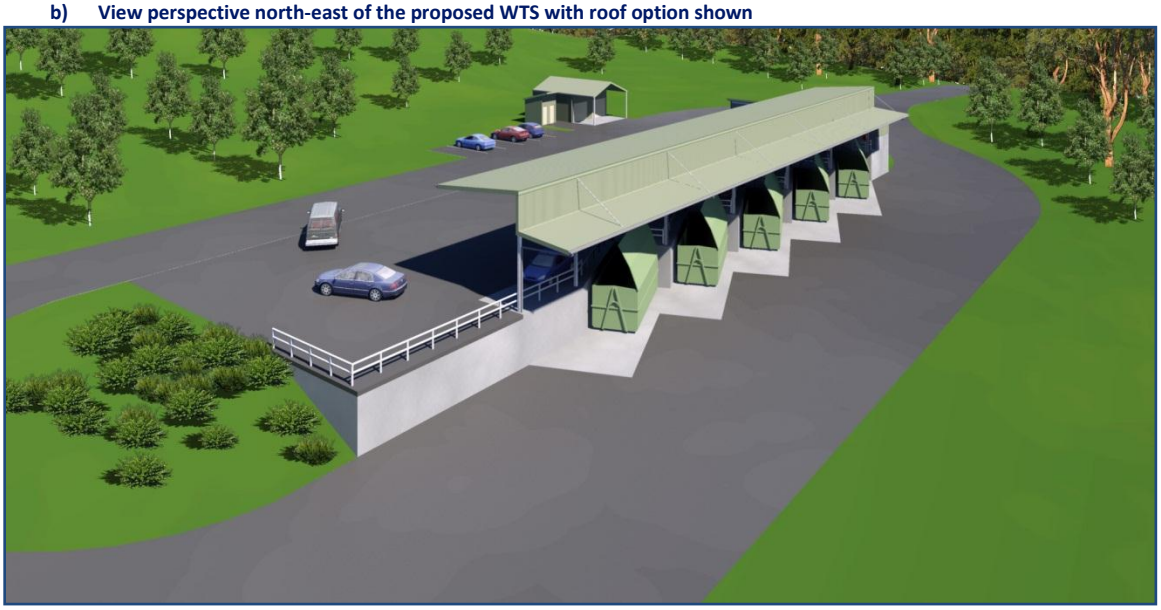
The size and operational aspects of the WTS have been developed by Quadro Australia on behalf of Palerang Council. The EMP and *Concept Options Report* details the loading calculations used to determine the number and size of the onsite bins and outlines the waste transfer rates/schedules for emptying of the bins and site materials.

Figure 3-1 below provides a 3D image produced using a range of computer modelling programs, including AutoCAD and *3D Studio Max* to produce an indicative 3D image of the WTS situated in its proposed location. The image details the actual sites topography and elevations that will result at completion of the WTS's construction.

Figure 3-1: Proposed WTS Indicative 3D Images

a) View perspective west of the proposed WTS with roof option shown

b) View perspective north-east of the proposed WTS with roof option shown



The following sections of this Statement provide further information in relation to the design, operation and management of the WTS in relation to the matters listed in Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.

3.1 Waste Volumes

Quadro Australia has established the annual waste disposal volumes for the WTS. The *Concepts Options Report* provides details of methodology used to derive the waste disposal volumes. The current volumes and predicted volumes for 20 years from now for the proposed WTS are:

- Current annual waste stream for disposal: 944 tonnes
- Current annual waste stream for recycling: 74 tonnes
- 20yr annual waste stream for disposal: 1151 tonnes
- 20yr annual waste stream for recycling: 93 tonnes

The proposal has been designed to accommodate waste for a four day period without the need to empty the bins. This covers the opening hours from Friday to Monday, allowing the bins to be removed for emptying each week. The current and 20 year forecast WTS four day peak waste storage volumes are:

- 4 day waste stream for disposal: 37 tonnes
- 4 day waste stream for recycling: 2.9 tonnes
- 20 year - 4 day waste stream for disposal: 45 tonnes
- 20 year - 4 day waste stream for recycling: 3.6 tonnes

3.2 Objectives of the Proposal

The objectives of the Proposed WTS are to provide;

- For an identified community need (Palerang Council Survey accounted for 75% of the community respondents who prefer a WTS over Roadside Bin Collection Service);
- Adequate and convenient waste disposal management for predicted future demand;
- Safe, efficient and manageable waste disposal;
- Cost effective waste transport disposal; and
- Significantly improved environmental outcomes for the area and site.

3.3 Assessment of Alternative Development Options

In 2009 URS and Palerang Council (URS 2009) estimated the Bungendore Landfill site to have approximately 3 to 4 years of life remaining (based on only Bungendore's Waste Catchment), upon which other alternative waste options will need to be explored to cater for the waste demand of the region. Additionally, the review estimated Macs Reef Rubbish Depot has an estimated remaining operational capacity of approximately 2 to 3 years. The region therefore

required an extensive review of the alternatives for local resident's waste management. This process has been undertaken through Council's Waste Management Strategy 2005-2025 (URS 2005) and the *Concepts Options Report.* Both reports provided a range of development options for Macs Reef Rubbish Depot, with the WTS being determined as the best option to meet the communities and Council's needs. A summary of the alternate options examined is provided below:

Development Options for the site included:

1. To immediately close the Macs Reef Landfill site and begin the sites rehabilitation.
2. To continue the landfill operations until it meets its capacity (with environmental improvements) followed by its closure and rehabilitation with no upgrade or expansion works carried out.
3. To continue the landfill operations until it meets its capacity and provide a kerb side collection or construct a small WTS to manage local resident's waste disposal.
4. To continue the landfill operations until it meets its capacity followed by the sites closure and rehabilitation with no upgrade or expansion works carried out then the locating, purchasing, design and construction of another local landfill site.

Development options 1 and 2 would have potential negative social impacts on rural residents within and surrounding the Wamboin, Bywong and Bungendore regions due to the closure of their local waste disposal site. Upon closure of the Macs Reef landfill, residents would need to drive approximately 8km west to Bungendore Tip in order to dispose of their waste as no alternate onsite option is provided. These two options are not considered to be in the best interests of the local community.

For development options 3 and 4, option 3 is considered to be in the best interests of the local community and the environment. Option 4 to construct a new putrescible waste landfill site in the area would significantly increase the capital costs for purchase, design, construction and maintenance of a new waste landfill. Landfill facilities are also associated with a number of key environmental issues such as;

- the long term liabilities associated with operating landfill;
- not meeting the principles of the Waste Avoidance and Resource Recovery (WARR) Strategy to reduce waste going to landfill; and
- direct environmental impacts.

Option 3 was therefore considered the best overall option meeting the requirements of the community and Council, as it:

- will have a reduced capital cost in comparison to a new landfill site;
- will adequately replace the landfill site with a safe, convenient and improved environmental alternative for waste disposal for the residents within the waste catchment;
- reduces the risk of illegal dumping of waste;
- will significantly reduce the environmental impacts on the area compared to the existing landfill operations;
- WTS have been demonstrated to be a cost effective option for rural and urban communities; and
- provides the opportunity to screen waste and sort recyclables prior to disposal.

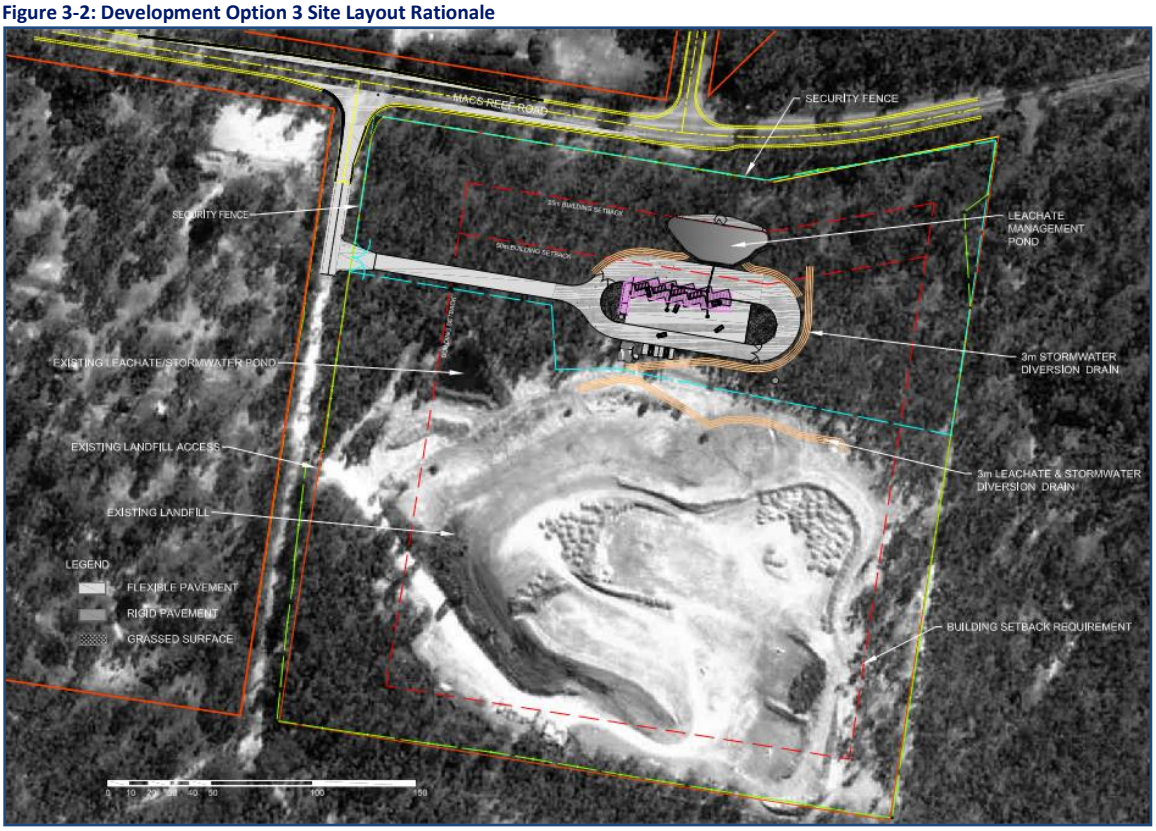
3.4 Site Layout Rationale

The proposed site layout has been designed taking into account the following matters:

- physical characteristics of the site as well as access requirements;
- capacity requirements;
- servicing requirements;
- operational requirements;
- the need to construct the WTS while the landfill is operational;
- the operational needs of the landfill closure process; and
- the distance of the WTS from surrounding residences.

The site is associated with a number of existing constraints due to the existing landfill facility. As outlined in the previous section, a number of locations within the site were assessed by Quadro in their Concept Options Report 2009 and based on the matters listed above, Option 3 was selected as the preferred option.

Figure 3-2: Development Option 3 Site Layout Rationale



As shown in Figure 3-2, above the proposed development includes the construction and establishment of a WTS at the Macs Reef Rubbish Depot site adjacent to the landfill area of the site. This proposed site layout was formulated based on a number of parameters of the site such as environmental, operational, servicing etc. An A3 scale version of this figure is contained in Appendix 3.

3.5 Suitability of the site

The site location and surrounding development is graphically illustrated in Figure 2-1, Figure 2-2, and Figure 2-3. The aerial image shows the site and the rural properties and the current layout of the subject site. The following information provides further detail on the site suitability in relation to the development of the proposal and reiterates some of the assessment detailed in other sections of this Statement.

3.5.1 Location

The subject site is located on Mac's Reef Road approximately 3.5km from the Federal Highway. The existing site has functioned as a landfill site and garbage depot since the 1970's servicing the local Wamboin/Bywong/Sutton East residents waste disposal needs.

The proposed WTS is pertinent to the context of the sites existing land use and the pending closure and rehabilitation of the landfill operations. The site is already classified as contaminated and the proposed WTS is considered suitable development for the site in its current state. With the closure of the landfill operations, the local residents will still require waste services and the WTS has been proposed as the most appropriate response. To relocate the WTS to a new site would have significant social, economic and environmental consequences that are avoided through the use of the current site.

3.5.2 Site Access

The site currently has access from an unsealed unnamed public road that intersects with Macs Reef Road. The proposed WTS will involve the reconstruction and upgrade works of the Macs Reef Road intersection which will include also a deceleration lane and the upgrade and sealing of the existing gravel road leading into the WTS Site. The access to the site should be significantly improved with the proposal.

3.5.3 Impact on surrounding neighbourhood

The amenity of the neighbourhood has been examined in the detailed assessments undertaken for the proposal. The relevant assessments considered the topography and local meteorological conditions, and modelling of these matters was undertaken to demonstrate the potential level of impact that may result from the development of the proposal.

As demonstrated throughout this Statement, the proposed WTS, with regard to topography and local meteorological conditions is not considered likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.

It is further considered that following the planned closure and rehabilitation of the existing landfill site that many current negative environmental impacts on the surrounding area will decrease.

3.5.4 The Public Interest

The proposed development of the WTS is considered to be in the interests of the general public for the following reasons:

- It meets an identified demand for waste services with the pending closure of the landfill operations;

- The reuse of an existing contaminated site for the WTS is considered preferable than developing the WTS on a new and potentially un-contaminated site;
- The community survey demonstrated strong local community support for the development of the WTS;
- The community consultation outcomes listed in the Community Consultation Program and Findings Report (contained in Appendix 13) demonstrates the level of public interest in the proposal and consultation undertaken to seek community feedback.
- The proposed development provides social and economic benefits for the community and region; and
- The proposal is consistent with the principles of ESD.

3.6 Development Stages

The WTS is to be developed in a single stage. However, the closure of the landfill operations will be undertaken after the WTS is operational and matters associated with the closure of the landfill will be addressed as required by relevant legislation and regulations.

3.7 Ecological Sustainable Development

Sustainability incorporates the ability to use resources in a way, which caters for the present without compromising the ability of future generations to use resources. Sustainable development is development which 'can be continued, or sustained, for the foreseeable future'. The Triple Bottom Line of Sustainability is the balance of ecological, economic and social sustainability.

The principles of Ecological Sustainable Development (ESD) essentially reflect the themes of risk minimisation, efficiency, equity and environmental integrity. As such they are particularly relevant when considering new development proposals to prevent environmental degradation from inappropriate practices. The ESD principles include:

- The precautionary principle;
- Inter-generational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing incentive mechanisms that include environmental factors in the valuation of assets and services.

These principles have been considered in relation to the proposed WTS as outlined below.

3.7.1 The Precautionary Principle

Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

The Concept Options Report and detailed assessments of the proposal have been undertaken to inform the proponent of the existing environment and other relevant matters to ensure careful evaluation of the site is undertaken to avoid serious or irreversible damage to the environment and examine the consequences of various options. No threats of serious or irreversible environmental damage were identified through the assessment process.

3.7.2 Inter-generational Equity

The present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations (that is, a partnership among all of the generations that may use or expect to benefit from the nation's resources).

The WTS siting and design decisions were guided to ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. The use of an existing contaminated site for associated waste storage and transfer provides a good reuse of an area already impacted for future generations. The rehabilitation of the landfill operations will also contribute to the health, diversity and productivity of the environment and enhance the site to the benefit of future generations.

3.7.3 Conservation of Biological Diversity and Ecological Integrity

Conservation of biological diversity and ecological integrity should be a fundamental consideration.

A flora and fauna assessment was undertaken to examine the biological diversity and ecological of the site. The assessment concluded:

- No significant habitat will be destroyed or impacted by the WTS or rehabilitation works.
- No threatened, locally rare or vulnerable native plant species were located and no significant vegetation habitats noted.
- No significant impacts will therefore accrue from the restoration of the tip or the construction of the waste transfer station.

Accordingly, the biological diversity and ecological integrity has been fundamentally considered and the proposal deemed acceptable for the site.

3.7.4 Improved Valuation and Pricing Incentive Mechanisms that include Environmental Factors in the Valuation of Assets and Services

Environmental factors should be included in the valuation of assets and services:

(a) polluter pays (that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement), and

(b) the users of goods and services should pay prices based on the full cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes, and

(c) environmental goals having been established should be pursued in the most cost effective way by establishing incentive structures, including market mechanisms which enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

The proposed WTS includes mechanisms for payments for depositing waste in accordance with the polluter pays principle. The full cost of the WTS and rehabilitation of the landfill operations has been examined to ensure that no disproportionate burden is placed on Council or the community for the proposed developments and improvements to the local environment are costed into the proposal.

4 STATUTORY AND STRATEGIC PLANNING

4.1 Provisions of Relevant Acts and Regulations

The following planning Acts and Regulations are considered relevant to the proposed WTS and rehabilitation works.

4.1.1 Environmental Planning and Assessment Act 1979

Section 79C - Evaluation of the *Environmental Planning and Assessment Act 1979* (EP&A Act 1979) states that;

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

(a) the provisions of:

(i) any environmental planning instrument, and

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Director-General has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),

that apply to the land to which the development application relates,

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

Planning Response:

Section 3 details the relevant Environmental Planning Instruments in accordance with Section 79C as outlined above. The appropriate consent authority for this proposal is Palerang Council.

4.1.2 Protection of the Environment Operations Act 1997

Schedule 1 of the Protection of the Environment Operations Act 1997 (PEO Act) states:
Any activity that is declared by this Part to be a scheduled activity is taken to be an activity for which a licence is required for the premises at which it is carried out (the activity is premises-based).

Clause 42 of Schedule 1 lists the triggers for a scheduled activity in relation to Waste Storage:
Waste storage

(1) This clause applies to **waste storage**, meaning the receiving from off site and storing (including storage for transfer) of waste.

(2) However, this clause does not apply to any of the following:

(a) the storage of stormwater,

(b) the storage of up to 60 tonnes at any time of grease trap waste, waste lead acid batteries or waste oil collected for recovery (but not when accompanied by any other kind of waste),

(c) the storage of sewage within a sewage treatment system,

(d) the storage and transfer of liquid waste that is generated and treated on site prior to sewer discharge, or lawful discharge to waters.

(3) The activity to which this clause applies is declared to be a scheduled activity if:

(a) more than 5 tonnes of hazardous waste, restricted solid waste, liquid waste, clinical or related waste or asbestos waste is stored on the premises at any time, or

(b) more than 50 tonnes of waste tyres or 5,000 waste tyres is stored on the premises at any time, or

(c) more than 2,500 tonnes or 2,500 cubic metres, whichever is the lesser, of waste (other than waste referred to in paragraph (a) or (b)) is stored on the premises at any time, or

(d) more than 30,000 tonnes of waste (other than waste referred to in paragraph (a) or (b)) is received per year from off site.

(4) For the purposes of this clause, 1 litre of waste is taken to weigh 1 kilogram.

Planning Response:

In accordance with the triggers listed above and the estimated waste volumes outlined by Quadro Australia, the proposal is not classified as a scheduled activity and therefore will not require a Licence for the proposed works. The correspondence received from OEH (reference DOC 11/40013) to the Department of Planning and Infrastructure advises that OEH considers that the WTS does not constitute a scheduled activity under Section 34 of the PEO Act.
Clause 6 of the PEO Act states:

(2) Local councils and other local authorities

A local authority is the appropriate regulatory authority for non-scheduled activities in its area, except in relation to:

(a) the exercise of functions under Chapter 3 (Environment protection licences), or

(b) premises defined in an environment protection licence as the premises to which the licence applies, and all activities carried on at those premises, or

(c) activities carried on by the State or a public authority, whether at premises occupied by the State or a public authority or otherwise, or

(d) a matter for which a public authority (other than the local authority) is declared under subsection (3) to be the appropriate regulatory authority.

Planning Response:

The correspondence received from OEH (reference DOC 11/40013) to the Department of Planning and Infrastructure advises that the Environmental Protection Authority (EPA), which is part of OEH, is the appropriate regulatory authority for the existing landfill and the proposed WTS.

4.1.3 Water Management Act 2000

Under the *Water Management Act* a controlled activity approval is required for works on waterfront land (Section 91) with waterfront land being defined as:

(a) The bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the coastal waters, where the prescribed distance is 40metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

and river as:

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

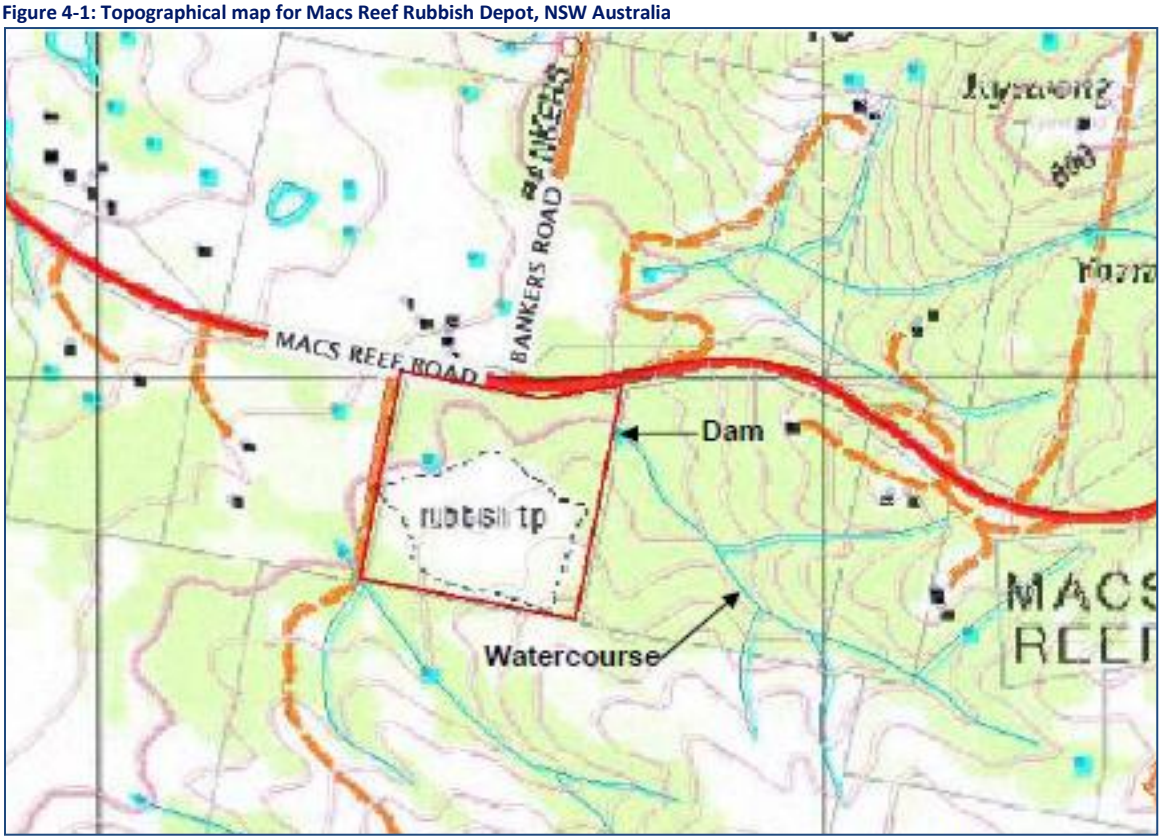
(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river, whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

Planning Response:

Examination of the topographic maps available from the NSW Department of Lands shows a watercourse leading towards the north eastern corner of the site but terminating at a dam structure within the lot adjacent to the eastern boundary (refer to Figure 4-1 below).

Figure 4-1: Topographical map for Macs Reef Rubbish Depot, NSW Australia



Quadro Australia has discussed the proposed construction and rehabilitation works with representatives of the OEH who have advised that:

a) With regards to the watercourse in the NE corner of the site:

- The watercourse is one that would be covered by the *Water Management Act*.
- Under the *Water Management Act* any works within 40m of the watercourse will require the approval of the OEH.
- Councils are exempt from the requirement to seek approval for works within 40m of the watercourse.
- Provided adequate bunding and water diversion systems are in place to protect the watercourse the OEH should have no concerns over the proposed development.

b) With regards to the flow path below the sedimentation pond:

- As the flow path is not marked on the topographic maps with the watercourse symbol (blue line) it would not generally be considered to be a watercourse under the *Water Management Act*.
- The fact that the landfill has been constructed over the catchment which originally fed this flow path also mitigates against it being determined as a watercourse.

- On the basis of the above information the flow path from the sediment pond would not be considered to be a watercourse under the *Water Management Act*. (Quadro Australia, 2010)

Even though Council is exempt from the requirement to seek approval for works within 40m of a watercourse, a precautionary approach has been undertaken to ensure that all works for the WTS are located greater than 40m from the flow path downstream from the sediment pond. Sufficient bunding has been included in the design and the soil and water management plan to ensure that all possible contaminated surface water from the WTS drains to a leachate/stormwater management pond. Additionally two 3m Stormwater/Leachate diversion drains have been installed to the east of the WTS and to the north of the Landfill to prevent any other possible contaminated water from entering surrounding watercourses. More detail on the stormwater/leachate management is contained in the concept drawings and section 4 of this Statement. Accordingly, adequate design measures have been applied to the WTS to ensure compliance with this Act, even though the flow path downstream from the sediment pond is not identified as a watercourse in accordance with the Act.

4.1.4 Native Vegetation Act 2003

Clause 11 Meaning of routine agricultural management activities states:

(1) For the purposes of this Act, routine agricultural management activities mean any of the following activities on land carried out by or on behalf of the landholder:

(h) the maintenance of public utilities (such as those associated with the transmission of electricity, the supply of water, the supply of gas and electronic communication),

Clause 18A Infrastructure works by councils of the Native Vegetation Regulation 2005 states:

(1) The activities that comprise routine agricultural management activities for the purposes of section 11 of the Act are extended to include the construction, operation or maintenance of any of the following (referred to in this clause as **infrastructure works**) by a council:

(a) sewerage treatment works,
(b) waste disposal landfill operations,
(c) waste management facilities,
(d) water supply works,
(e) gravel pits,
(f) cemeteries,
(g) outdoor playgrounds, playing fields, netball courts, tennis courts, volleyball courts, basketball courts, swimming pools, skateboard ramps or similar outdoor recreation areas or facilities, that are normally open to the public, including any buildings that are ancillary to any such area or facility.

(2) This clause authorises the clearing of native vegetation only if:

(a) the clearing is, in each case, limited to a single area of land of no more than 2 hectares, and

(b) the native vegetation does not comprise (or is not likely to comprise):

(i) a threatened species, or a component of a threatened population or threatened ecological community, under the Threatened Species Conservation Act 1995, or

(ii) habitat of threatened species, populations or ecological communities of fish under the Fisheries Management Act 1994, and

(c) the native vegetation does not comprise an overcleared vegetation type as determined in accordance with the Assessment Methodology, and

(d) the catchment management authority (CMA) for the area of operations in which the relevant areas are situated is satisfied that arrangements are in place to ensure that the native vegetation on the managed area set aside by the council in connection with the routine agricultural management activity will be protected in perpetuity.

(3) Before any clearing that is authorised by this clause is carried out, the council must:

(a) provide detailed information to the CMA of:

(i) the alternative areas of land on which the infrastructure works could be constructed, operated or maintained, and

(ii) the proposed managed area (including the means by which it will be protected), and

(b) consult with the CMA as to the following:

(i) the location of the relevant areas,

(ii) the presence of any overcleared vegetation types in the relevant areas,

(iii) the presence of any threatened species, populations or ecological communities (including in relation to fish) in the relevant areas, and

(c) provide to the CMA the Global Positioning System (GPS) coordinates, and a statement of the location and size (expressed in hectares), of the relevant areas, and

(d) provide evidence to the CMA that all approvals or licences required under relevant legislation for the construction, operation or maintenance of the infrastructure works have been obtained, and

(e) obtain from the CMA a statement in writing to the effect that the managed area proposed is appropriate and that it is satisfied as to the arrangements referred to in subclause (2) (d).

(4) The Minister is to make publicly available on the Internet the following information as to the clearing authorised under this clause:

(a) the name of the council involved,

(b) the type of infrastructure works involved,

(c) the Global Positioning System (GPS) coordinates, and a statement of the location and size (expressed in hectares), of the relevant areas,

(d) the means by which the relevant managed area set aside by the council is to be protected.

(5) Subclauses (2) (b) and (c) and (3) (a) (i) and (b) do not apply if:

(a) the area of land on which the infrastructure works are to be constructed, operated or maintained was owned by the council on or before 31 August 2006, and

(b) that area was identified, on or before 31 August 2006, by the council as the area of land on which the infrastructure works are to be constructed, operated or maintained, and

(c) the council provides evidence to the CMA of any such ownership and identification.

(6) In this clause, the relevant areas means:

(a) the area of land on which the infrastructure works are to be constructed, operated or maintained, and

(b) the area of land that is to be cleared, and

(c) the area of land comprising the managed area.

Planning Response:

Palerang Council can undertake the clearing of the vegetation on the site pursuant to clause 11 of the EPA Act and Clause 18A of the *Native Vegetation Regulation 2005* as long as the clearing is undertaken in accordance with the matters listed in the Regulation.

4.1.5 Environmental Planning and Assessment Regulation 2000

Part 1 Schedule 3 Clause 32 (b-d) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation 2000) lists the triggers for designated development in relation to Waste Management Facilities or Works. The trigger for designated development for Waste Management Facilities or Works development is defined as a facility:

(b) that sort, consolidate or temporarily store waste at transfer stations or materials recycling facilities for transfer to another site for final disposal, permanent storage, reprocessing, recycling, use or reuse and:

(i) that handle substances classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or

(ii) that have an intended handling capacity of more than 10,000 tonnes per year of waste containing food or livestock, agricultural or food processing industries waste or similar substances, or

(iii) that have an intended handling capacity of more than 30,000 tonnes per year of waste such as glass, plastic, paper, wood, metal, rubber or building demolition material, or

(c) that purify, recover, reprocess or process more than 5,000 tonnes per year of solid or liquid organic materials, or

(d) that are located:

(i) in or within 100 metres of a natural waterbody, wetland, coastal dune field or environmentally sensitive area, or

(ii) in an area of high watertable, highly permeable soils, acid sulphate, sodic or saline soils, or

(iii) within a drinking water catchment, or

(iv) within a catchment of an estuary where the entrance to the sea is intermittently open, or

(v) on a floodplain, or

(vi) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.

Planning Response:

Clause 32 (d – iii) is the relevant clause in relation to the WTS and this Development Application. The definition of a drinking water catchment pursuant to the EP&A Regulation 2000 means:

(a) land within a restricted area prescribed by a controlling water authority, including:

(i) an inner or outer catchment area declared under the Sydney Water Catchment Management Act 1998, and

(ii) a catchment district proclaimed under section 128 of the Local Government Act 1993, or

(b) land within 100 metres of a potable groundwater supply bore.

Prior to this application, a Statement of Environmental Effects was prepared for the proposal suggesting that the WTS not trigger designated development. Upon receipt of the Development Application, Council became aware of a water source located within 50m of the subject site. The location of this groundwater bore is graphically illustrated in

Figure 4-2 .

Figure 4-3 shows the distance from the site boundary to surrounding bores.

The bore licence is 40BL132817 and the bore was constructed in 1st June 1985, a substantial time after the commencement of the landfill operations. The works request summary of the bore indicates the bore extends to a depth of 61m and has a 161mm welded case for the initial 11m from the surface. The water bearing zones are listed as follows:

- From 21m – 22m (Fractured Rock)
- From 26m – 38m (Fractured Rock)
- From 45m – 47m (Fractured Rock)

The drillers log describes the geo-material en-counted as follows:

- 0m – 3m (Clay)
- 3m – 5m (Sandstone)
- 5m – 61m (Dacite Water Supply)

The bore is designated for 'domestic' use. Enquiries with the NSW Office of Water advised that they do not define whether bores are potable. The 'domestic' definition listed in the Groundwater Works Summary from the NSW Office of Water website states the following in regards to domestic water rights:

Water taken under a domestic and stock right may be used for normal household purposes around the house and garden and/or for drinking water for stock. It cannot be used for irrigating fodder crops for stock, washing down in a dairy or machinery shed, intensive livestock operations (such as feedlots, piggeries or battery chickens), aquaculture or for commercial purposes (including caravan parks or large-scale bed and breakfast accommodation) other than for the personal use of the proprietors.

The owners of the bore advised Council that the water was not used for drinking due to high iron levels. Accordingly, to determine whether this water source was a potable groundwater supply bore, thus satisfying the designated development trigger of Clause 32 (d – iii) being 'located within a drinking water catchment', water quality testing undertaken in 2009 was examined. A copy of this analysis is contained within Appendix 16.

The bore water analysis undertaken by Sonic Health Care Food and Water Testing concluded that the iron levels contained within the water made it 'safe' from a health perspective, despite having iron levels higher than the 'taste threshold' recommended by the National Health and Medical Research Council. Council received legal advice on this matter which advised that based

on the analysis, the bore is considered suitable for consumption and consequently is denoted as 'potable' and meets the trigger for designated development.

The Soil and Water Management Plan identifies the activities which could potentially lead to adverse impacts on the groundwater bore. The Management Plan states:

> The following potential aspects of construction may create impacts to groundwater:
> - Uncontrolled activities with spills occurring to an extent that contaminants enter the aquifer;
> - Disturbance to the aquifer from uncontrolled sewage, resulting in degraded groundwater quality.
>
> The following potential aspects of ongoing operations may create impacts on groundwater:
> - Uncontrolled activities with spills occurring tan an extent that contaminants enter the aquifer.

The prospect of such uncontrolled activities occurring within the site is low to negligible. Strict management procedures, as detailed within the Environmental Management plan, will be put into place and monitored throughout the construction phase and into the ongoing operational phases of the proposed Waste Transfer Station. It is noted that the Soil and Water Management Plan does not identify any additional impacts triggered by the WTS, and confirms that adverse impacts on groundwater should be avoided if all activities are controlled and monitored.
It is suggested that while the proposal 'triggers' designated development, the likelihood of the WTS having a negative impact on the landowners, surrounding community, or environment are negligible as:

- The proposal should not impact on groundwater as all leachate and contaminates are proposed to be contained and the leachate pond lined.
- The proposed WTS is downstream from the surface of the bore and surface flows are away from the bore. Groundwater movements are unknown.
- The landfill will be capped to prevent further infiltration of water and reduce flows through contaminated areas and potentially into groundwater for the area.

Figure 4-2: Location of Groundwater Bores in Proximity to the Subject Site

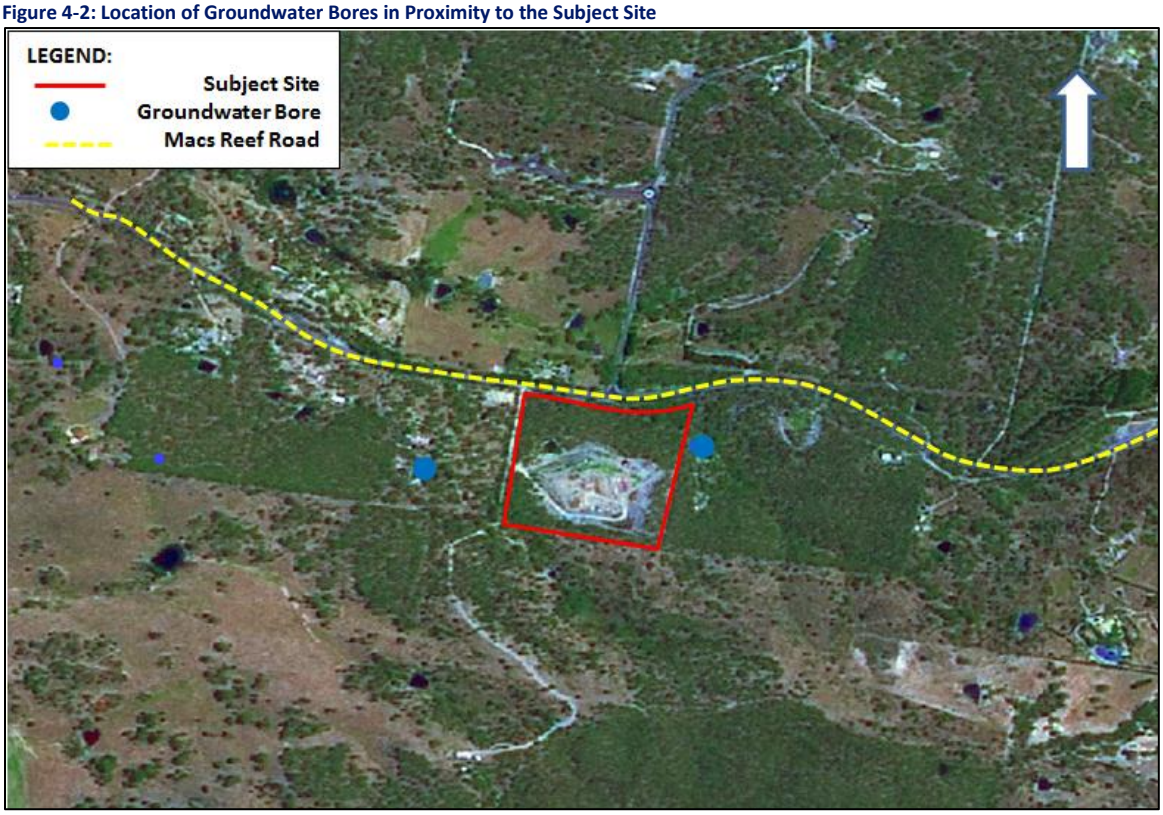


Figure 4-3: Distance Between Site Boundary and Groundwater Bores

4.1.6 Protection of the Environment Operations (Waste) Regulation 2005

The Protection of the Environment Operations (Waste) Regulation 2005, defines waste into six different main categories.

General Solid (non-putrescible) waste is defined as;
Any waste (other than special waste, hazardous waste, restricted solid waste, general solid waste (putrescible) or liquid waste) that includes any of the following:

(a) glass, plastic, rubber, plasterboard, ceramics, bricks, concrete or metal,
(b) paper or cardboard,
(c) household waste from municipal clean-up that does not contain food waste,
(d) waste collected by or on behalf of local councils from street sweeping,
(e) grit, sediment, litter and gross pollutants collected in, and removed from, stormwater treatment devices or stormwater management systems, that has been dewatered so that it does not contain free liquids,
(f) grit and screenings from potable water and water reticulation plants that has been dewatered so that it does not contain free liquids,
(g) garden waste,

(h) wood waste,

(i) waste contaminated with lead (including lead paint waste) from residential premises or educational or child care institutions,

(j) containers, having previously contained dangerous goods, from which residues have been removed by washing or vacuuming,

(k) drained oil filters (mechanically crushed), rags and oil absorbent materials that only contain non-volatile petroleum hydrocarbons and do not contain free liquids,

(l) drained motor oil containers that do not contain free liquids,

(m) non-putrescible vegetative waste from agriculture, silviculture or horticulture,

(n) building cavity dust waste removed from residential premises, or educational or child care institutions, being waste that is packaged securely to prevent dust emissions and direct contact,

(o) synthetic fibre waste (from materials such as fibreglass, polyesters and other plastics) being waste that is packaged securely to prevent dust emissions, but excluding asbestos waste,

(p) virgin excavated natural material,

(q) building and demolition waste,

(r) asphalt waste (including asphalt resulting from road construction and waterproofing works),

(s) biosolids categorised as unrestricted use, or as restricted use 1, 2 or 3, in accordance with the criteria set out in the Biosolids Guidelines,

(t) cured concrete waste from a batch plant,

(u) fully cured and set thermosetting polymers and fibre reinforcing resins,

(v) fully cured and dried residues of resins, glues, paints, coatings and inks,

(w) anything that is classified as general solid waste (non-putrescible) pursuant to an EPA Gazettal notice,

(x) anything that is general solid waste (non-putrescible) within the meaning of the Waste Classification Guidelines,

(y) any mixture of anything referred to in paragraphs (a)–(x).

General solid waste (putrescible) is defined as;

waste (other than special waste, hazardous waste, restricted solid waste or liquid waste) that includes any of the following:

(a) household waste containing putrescible organics,

(b) waste from litter bins collected by or on behalf of local councils,

(c) manure and nightsoil,

(d) disposable nappies, incontinence pads or sanitary napkins,

(e) food waste,

(f) animal waste,

(g) grit or screenings from sewage treatment systems that have been dewatered so that the grit or screenings do not contain free liquids,

(h) anything that is classified as general solid waste (putrescible) pursuant to an EPA Gazettal notice,

(i) anything that is general solid waste (putrescible) within the meaning of the Waste Classification Guidelines,

(j) a mixture of anything referred to in paragraphs (a)–(i).

Schedule 1, Part 1 and 2 of the *Protection of the Environment Operations (Waste) Regulation 2005* outlines Waste to which waste tracking requirements apply.

Planning Response:

The proposed WTS and rehabilitation works has limited the accepting of waste to include domestic putrescible and non-putrescible wastes as well as only accepting;

- Batteries
- Oil (utilising the existing moveable disposal facility at the site)
- E-waste
- Small cut-up metal pieces
- Small swappable items
- Other small valuable items

The proposed WTS acceptable wastes do not meet the triggers that require the tracking of wastes for transportation to the WTS.

4.2 Provisions of Relevant Environmental Planning Instruments

The following planning instruments are considered relevant to this development.

4.2.1 State Environmental Planning Policy No 33 – Hazardous and Offensive Development

State Environmental Planning Policy No 33 – Hazardous and Offensive Development seeks to regulate the safety measures and pollution control performance of potentially hazardous or offensive development. SEPP 33 applies to any proposal which falls under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'. These definitions are provided under Section 3 of the SEPP as follows:

potentially hazardous industry *means a development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example,*

isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

(a) to human health, life or property, or

(b) to the biophysical environment,

and includes a hazardous industry and a hazardous storage establishment.

***potentially offensive industry** means a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment.*

Planning Response:

The WTS has been designed to accommodate the acceptance, aggregation and transfer of the following materials:

- Domestic waste
- Batteries
- Oil (utilising the existing moveable disposable facility at the site)
- E-waste
- Small cut-up metal pieces
- Small swappable items; and
- Other small valuable items

By applying the guidelines provided within Section 7 of the *Applying SEPP 33* report (Department of Planning (&Industry) 2011), in conjunction with the definitions provided within the Environmental Planning Instrument, it is determined that the proposed Waste Transfer Station does not fall within the scope of SEPP 33. Hence, SEPP 33 does not apply to the proposal and accordingly a Preliminary Hazard Analysis (PHA) is not required to be submitted with this Development Application.

4.2.2 State Environmental Planning Policy No 55 – Remediation of Land

State Environmental Planning Policy No 55—Remediation of Land (SEPP 55) applies to the proposed site as approximately 33% of the site has been used as landfill since the 1970's for mixed putrescible wastes.

Clause 7 of SEPP 55 requires Palerang Council to consider when determining a development application the following matters:

> a) The land is contaminated, and
> b) If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be after remediation) for the purpose for which the development is proposed to be carried out, and
> c) If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

Planning Response:

A representative of Council's Planning Department has advised Quadro Australia that:

- The Site is considered to be contaminated due to the landfilling activities that have been undertaken; and
- Council may require the remediation of the contaminated area (landfill) as part of the WTS development;
- Closure of the landfill in accordance with the requirements of the Office of Environment and Heritage (OEH), as laid down in the Environmental Guidelines: Solid Waste Landfills would satisfy the requirements of SEPP 55.

As outlined previously, the landfill area of the site will be decommissioned and rehabilitated following the commissioning of the WTS. All remediation works for the closure of the landfill will be carried out in accordance with OEH's Environmental Guidelines: Solid Waste Landfills to ensure the environmental and human health risks associated with waste disposal are managed appropriately and in accordance with the *Protection of the Environment Operations Act 1997* (the POEO Act) and its associated regulations. The closure and rehabilitation of the landfill operations does not form part of this development application, although Council has committed to this process as the landfill will reach capacity within several years. The development of the WTS will be undertaken during the remaining capacity period of the landfill to ensure the WTS is operational once the landfill reaches capacity and is closed.

In accordance with clause 7 of SEPP 55, the land is considered suitable for the proposed WTS as the footprint of the WTS does not impact on areas of existing landfill operations. Accordingly, the development of the WTS would not compromise the current or future integrity of the landfill operations, closure and rehabilitation. The proportion of the site considered contaminated (i.e. the landfill operations area) will be rehabilitated in accordance with the requirements of clause 7. Therefore, it is considered that the site is suitable in its current contaminated state for the purpose of the WTS and that the contaminated area does not require remediation prior to the development of the WTS to make the site suitable for the WTS.

4.2.3 State Environmental Planning Policy (Infrastructure) 2007

Division 3 Clause 120 of the *SEPP (Infrastructure) 2007* (ISEPP) the proposal is defined as:
waste or resource transfer station means a facility for the collection and transfer of waste material or resources, including the receipt, sorting, compacting, temporary storage and distribution of waste or resources and the loading or unloading of waste or resources onto or from road or rail transport.

Clause 120 also states:
prescribed zone means any of the following land use zones or a land use zone that is equivalent to any of those zones:

(a) RU1 Primary Production,
(b) RU2 Rural Landscape,
(c) IN1 General Industrial,
(d) IN3 Heavy Industrial,
(e) SP1 Special Activities,
(f) SP2 Infrastructure.

The relevant part of Clause 121 states:

(2) Development for the purposes of a waste or resource transfer station may be carried out by any person with consent on:

(a) land in a prescribed zone,

Planning Response:

The proposed development is permissible pursuant to the ISEPP with development consent if the prescribed zone equivalent is RU2 or SP1. If the proposed prescribed zone equivalent for the area is not intended to be RU2 or SP1, then the application of the ISEPP would not apply.

4.2.4 Yarrowlumla Local Environmental Plan 2002

The following aspects of the Yarrowlumla Local Environmental Plan 2002 (LEP) are considered relevant to the proposed development.

Zone and permissibility of proposed development
Land Zoning: 1(d) Rural Residential Zone
Is the proposal permissible in the zone pursuant to the LEP? Yes – WTS are not specifically listed as permitted with or without consent or prohibited. Landfill is permitted with consent in the zone.

Quadro Australia in the concept Option Report states:

Discussions have been held with a representative of Council's Planning Department and advice has been received that the proposed WTS is permissible with consent on the basis of existing use rights and its consistency with the objectives of the zone.

Relevant Clauses

Part 1 Clause 3 – Aims and Objectives of the Plan

(1) The aim of this plan is to introduce planning controls that will encourage ecologically sustainable development, being development which satisfies the principles of ecological (environmental, economic and social) sustainability set out in Schedule 1, taking into account the ACT and Sub Region Planning Strategy September 1998 and Murrumbidgee Catchment Management Plan copies of which are available from the office of the Council.

(2) The objectives of this plan are as follows:

(a) for rural land:

(i) to ensure that rural land is developed in accordance with the principles of ecologically sustainable development, and

(ii) to encourage the management, development and conservation of productive agricultural and horticultural land, and

(iii) to encourage the proper management and development of natural resources, and

(iv) to encourage the siting and management of development to avoid, as far as practicable, conflict between adjoining and nearby land uses, both within and between zones and with regard to likely future land uses, and

(v) to protect and conserve places of natural, historic and cultural significance, and

(vi) to enable provision of essential roads, transport and utilities infrastructure,

(b) for urban land:

(i) to ensure that urban land is developed in accordance with the principles of ecologically sustainable development, and

(ii) to encourage commercial, retail and professional services in established urban locations, and

(iii) to provide flexibility in residential living styles and increased urban amenity for residents, and

(iv) to protect and conserve places for natural, historic and cultural significance, and

(v) to protect and enhance the social welfare of residents, and

(vi) to enable provision of essential roads, transport and utilities infrastructure.

Planning Response:

It is considered that this proposal is consistent with the relevant aims and objectives of this LEP as the proposed WTS and rehabilitation works will satisfy the principles of ecological (environmental, economic and social) sustainability for the rural lands area. This Statement outlines the methodology and mitigation measures proposed to ensure the WTS is sited and managed to mitigate conflict between adjoining and nearby land uses as well as future land uses.

Part 2 Clause 10 – 1(d) Rural Residential Zonings
Objectives of 1 (d) (Rural Residential Zone) are as follows:

(a) to provide the opportunity for development of integrated rural residential communities,

(b) to promote an innovative and flexible approach to rural residential development,

(c) to ensure that development is compatible with the environmental capabilities of the land and to encourage the conservation and enhancement of natural resources by means of appropriate land management techniques,

(d) to assist in meeting the demand for rural residential development where it is consistent with the conservation of rural, agricultural, heritage and natural landscape qualities,

(e) to ensure that attractive views from main roads and other vantage points are protected and enhanced,

(f) to ensure that adequate provision has been made for water supply and disposal of effluent,

(g) to ensure that development does not create unreasonable demands, now or in the future, for the provision or extension of public amenities or services,

(h) to ensure that traffic-generating development is suitably located so as not to adversely affect the safety and efficiency of roads,

(i) to ensure that development will not lead to excessive soil erosion or run-off,

(j) to ensure that the form, siting and colours of buildings, building materials and landscaping complement the natural scenic quality of land within this zone,

(k) to ensure that any effect development will have on threatened plant and animal species or regionally significant grassland and grassy woodland communities is taken into account,

(l) to ensure that sites of Aboriginal archaeological significance in the zone are identified and protected.

Planning Response:

The proposed development is consistent with the objectives of the Rural Residential Zoning as it is *compatible with the existing environmental 'capabilities of the land'* and it will involve *the*

'conservation and enhancement of the land' through the proposed rehabilitation works which are proposed to be required as a condition of consent. The proposal incorporates the following elements and concepts in accordance with the objectives of the zone:

- Landscaping and existing vegetation will ameliorate any visual impacts of the proposed development from Macs Reef Road;
- The WTS is designed to meet future demands for waste disposal for the surrounding area and utilises an existing landfill site for the proposal, rather than an alternative/new site;
- Provision is made for water supply and effluent disposal;
- Traffic generation and movements will be improved through upgraded roads and intersections as well as reduced truck movements;
- Appropriate erosion and sediment controls are proposed for the WTS;
- The siting, building form and colours have been designed taking into account the surrounding environment to minimise potential impacts. Landscaping will be undertaken to preserve the natural scenic quality of the land;
- The WTS will not impact on threatened plant and animal species or regionally significant grassland and grassy woodland communities; and
- No matters or items of Aboriginal archaeological cultural significance where identified on the site.

The proposed WTS is considered consistent with the overall aims and objectives of the zone and will not impact of the area in terms of noise, visual impacts, air pollution (importantly odour, and dust), feral animals and most importantly the general environmental health of the area.
Part 4, Division 5, Clause 52 - Controls that Apply to Soil, Water and Effluent Management
Controls that apply to the proposed development in Zone 1(d) Rural Residential are;

> (1) A person must not carry out development that relates to the habitation of land by humans unless and until arrangements satisfactory to the Council have been made by the applicant (and, if the applicant is not the owner, the owner also) for the provision of a water supply, for facilities for the removal of sewage, and for the drainage of stormwater and other surface water from the land and for the treatment and disposal of effluent and solid domestic waste.
> (2) In deciding whether arrangements for drainage of stormwater and other surface water and the treatment and disposal of effluent and solid domestic waste are satisfactory, the Council must take into account whether the proposed systems can be accomplished in a manner which meets the following objectives:
>
> (a) economic feasibility and practicality in terms of design, installation and maintenance,
> (b) protection of public health,

(c) protection of surface water,

(d) protection of ground water,

(e) encouragement of the utilisation of waste water as a resource rather than a waste for disposal, and

(f) protection of community amenity.

(3) Despite any other provision of this plan, taking into account the objectives of the zone in which development the subject of this clause is proposed, consent may be granted to the construction of devices which, in the opinion of the consent authority, are to be used principally for the purpose of soil and water management or water pollution control.

Planning Response:

The proposed WTS and rehabilitation works is considered consistent with the overall objectives of this clause as it;

- will have social, economic and environmental feasibility in terms of design, installation, maintenance and operation;
- will have a reduced capital cost in comparison to a new landfill site upon closure of the current landfill facility which is approaching it operating capacity in the next 2 years;
- will adequately replace the landfill site with a safe, convenient and better environmental alternative for waste disposal for the residents within this waste catchment;
- not significantly impact on surface or groundwater; and
- has been designed taking into account measures to protect the community amenity;

The proposal includes stormwater diversion channels and leachate collection and control measures that are principally for the purpose of soil and water management and water pollution control.

Division 5, Part 5– Miscellaneous, Clause 56

56 What are the restrictions on development fronting main roads?

(1) Before granting consent to development of land which:

(a) fronts a main road, or

(b) relies solely on a main road for its access, or

(c) has access to a road which intersects with a main road, where the point of access is within 90 metres of the intersection of the road and the main road,

the consent authority must consider:

(d) whether the traffic likely to be generated by the development will cause a traffic hazard or reduce the capacity of the main road, and

(e) whether it is important for the development to be located near the main road, and

(f) the access points and on-site arrangements for vehicle movements and parking, and

(g) the effect the development will have on future improvements or realignment of the main road.

(2) Consent must not be granted to the carrying out of development described in Schedule 8 on or with respect to land within Zone No 1 (a), 1 (d), 1 (g) or 7 (e) if the granting of that consent will result in persons using the land having direct access to a main road.

Planning Response:

The proposed WTS fronts Macs Reef Road. Access to the existing landfill operations and proposed WTS is gained from an unnamed and unsealed road that intersects Macs Reef Road adjacent to the western boundary of the site. A traffic assessment has been prepared for the proposal and road intersection measures including a de-acceleration lane and roundabout are proposed to ameliorate any traffic impacts. The project concept design illustrates the access points and on-site arrangements for vehicles. The de-acceleration lane is designed in accordance with RTA standards and the development should not have any negative impacts on future improvements or realignments of Macs Reef Road.

Schedule 4 Clause 3

3 Boundary adjustments

An adjustment to the boundary of an allotment that:

(a) will not result in any building contravening the deemed-to-satisfy provisions of the Building Code of Australia, and

(b) will not create any additional allotments, and

(c) will not result in any allotment being within more than one zone, and

(d) will not change the area of any allotment by more than 10%.

Planning Response:

In accordance with Schedule 4, Clause 3, should a boundary adjustment be required for the subject site due to the design requirements for the intersection upgrade on Macs Reef Road, Council can undertake the boundary adjustment as exempted development.

4.3 Provisions of Relevant Draft Environmental Planning Instruments

The Draft Standard Instrument Palerang Local Environmental Plan is not anticipated to be ready for release for public consultation during the DA and CC process of the Proposed WTS.

4.4 Provisions of Relevant Development Control Plans

Yarrowlumla Development Control Plan Rural Zones 2008 is the plan applicable to this proposal. The relevant sections of the Yarrowlumla DCP are addressed below.

Clause 11.1 - Introduction

Sealing of gravel roads where extra traffic will cause the need to address dust impacts to adjacent properties (Clause 11.1)

Planning Response:

The unnamed and unsealed road and site entry to the WTS will be sealed as part of the proposal.

Clause 11.11 – Erosion and Sediment Control

Roads are the single largest source of sediment movement from rural subdivisions, both during the construction phase and in the longer term. The following guidelines aim to minimise sediment movement:

- *Unsealed roads should have a maximum grade of 15 per cent when erosion resistant gravels are used and 7 per cent where more erodible gravels such as sandy decomposed granites are used. In some circumstances where roads are sealed the grade can be increased to 20 per cent – see notes on Table 2.*
- *Roads should be located along ridgelines or just off the contour.*
- *Avoid waterlogged areas.*
- *Road drainage could include culverts, table drains, mitre drains, rollover banks and level spreaders.*
- *Culvert invert levels should be placed into the stream bed so as to mimic natural invert levels of the stream bed.*
- *Culvert inlets and outlets should be adequately stabilised.*
- *Cut and fill batter slopes should be designed to suit the soil stability.*
- *Roads should be crowned or have cross fall drainage.*
- *All disturbed areas should be topsoiled and revegetated.*

- *Temporary erosion and sediment controls such as sediment fences must be installed before work commences and maintained during construction and through the defects liability period.*
- *Council as a condition of approval, will require the submission of a soil and water control plan to indicate measures to mitigate against erosion and wash of silt at road construction sites.*

Planning Response:

The proposed road access has been designed taking into account the controls of this clause.

Clause 11.12 - Engineering Specifications

All engineering work should be undertaken to the following specifications:

- AUS-SPEC #1 Development Specification Series **Design** as amended by Yarrowlumla Council Amendment Record and as otherwise amended by Council from time to time.
- AUS-SPEC #1 Development Specification Series **Construction** as amended by Yarrowlumla Council Amendment Record and as otherwise amended by Council from time to time.

Planning Response:

The proposed road engineering specifications will be designed taking into account the controls of this clause.

Clause 11.13 – Entrances

Entrances shall be limited to one (1) per lot unless otherwise approved by Council (Clause 11.13)

Planning Response:

The WTS proposal requires a second access location off the existing unnamed road adjacent to the western boundary of the site, in addition to the site access to the landfill operations from the same road. Council consent is required for the second access.

Clause 11.14. Relocation or Improvement of Existing Entrances

An existing entrance that an owner desires to relocate or improve will require an application being made to Council and shall be constructed in accordance with Council's Standards including bitumen sealing if the entrance fronts a bitumen road.

Unless approved otherwise the relocation of an entrance shall necessitate the complete removal of the existing entrance.

Planning Response:

The WTS proposal requires a second access which would become the sites principle access once the landfill operations have been closed and rehabilitated. The access way will be upgraded from the current unsealed road and will be sealed. Council consent is required for the relocated and improved access and to maintain the existing access to the landfill operations area.

Clause 16.2 – Effluent Disposal.

Where reticulated sewerage is not available an on-site waste management system must be provided.

Planning Response:

The proposed WTS will have an on-site effluent management system installed that will comply with the NSW Health Department guidelines.

Clause 18 – Setback.

Taking into account the requirement for building envelopes, building setbacks from the front boundary shall be a minimum distance of 50 metres.

A minimum distance of 25 metres for lots 4-80 hectares shall be the required setback from side and rear boundaries

Planning Response:

The WTS complies with the required setbacks.

Clause 19 –Height

No building shall exceed a maximum height of nine (9) metres measured from the lowest natural ground level at the wall of the building (excluding chimneys, antennae and plumbing stackwork) provided that at all times a line drawn vertically through the building at any point does not intersect more than two (2) floors.

Planning Response:

The WTS complies as no building or structure exceeds the maxim height of 9m, measured from the lowest natural ground level.

Clause 20 – Materials and Appearance

Requirement for the facility to be designed to be compatible with the rural character and landscape.

Planning Response:

The WTS has been designed to maintain the rural character of the area and has been located to ensure the landscape amenity of the area is protected. The use of low reflective materials and natural tone colours for structures will assist with mitigating any landscape amenity impacts.

Clause 22 - Erosion and Sediment Control on Building Sites.

Sediment control must be undertaken on every construction site and controls shall be installed before the site is disturbed. Particular attention should be given to:

- *slopes greater than 10 per cent. Runoff from slopes should be intercepted and diverted around all land likely to be disturbed; and*
- *areas of concentrated water flows.*

Planning Response:

Top soil removal will be limited to the construction site for the WTS facility only. All runoff during building construction period will be management by an appropriate erosion and sediment control plan.

Clause 23.2 –Potable Water.

A minimum potable water supply storage of 90,000 litres shall be provided on-site for each dwelling erected on an allotment.

Note 1: This requirement may be waived or reduced if Council is satisfied that an additional supply of potable water meeting all relevant Department of Health guidelines is available from a permanent watercourse or bore.

Aboveground water tanks shall be sited, coloured, and suitably landscaped so as to minimise their visual impact.

Planning Response:

The WTS includes a 4,500Lt rain water tank for the provision of potable water for employees and visitors. The justification of the water tank sizing is contained in the Concept Options Report prepared by Quadro Australia.

Part 3 Clause 23.3 –Fire Fighting Resources.

With regard to fire fighting reserves a minimum water supply of 20,000 litres should be maintained with an accessible location to fire vehicles. This can be in the form of:

(a) above or underground tanks;

(b) permanent dam;

(c) permanent creek/river; and/or
(d) swimming pool.

Planning Response:

A 20 000 Litre Water above ground tank will be situated with easy access in south-east corner of the WTS to function as a fire fighting water resource. The tank shall provide for the refilling of fire fighting tankers with a refill access hole of at least 200 mm diameter.

Part 3 Clause 24 – Internal Driveways.

Internal driveways shall be constructed in accordance with the Type 1a Road specification in Table 2 and 3. A maximum grade of 1 in 10 (10 per cent) applies from the intersection with the access road to the lot boundary.

Planning Response:

The WTS complies as the internal driveways being constructed will be in accordance with Type 1a Road Specification with a maximum grade of 10%.

Clause 30.1 – Landscaping

In establishing trees on a rural lot the Greening Australia publication "Growing Trees and Shrubs on the Southern Tablelands" is a useful reference. Copies can be obtained from Greening Australia (ACT), PO Box 538, JAMIESON ACT 2600 or telephone (02) 6253 3035. Contact your local Landcare group as there may be publications specific to your area.

To allow for the regeneration of native vegetation including grasses, shrubs and trees and in turn the enhancement of the amenity of the area, land owners are encouraged to restrict the planting of exotic species for landscaping to areas within building precincts. The planting of the indigenous and regional species listed in Appendix 4 is supported.

Planning Response:

The WTS will include landscaping measures that will be consistent with this clause. A detailed landscape plan will be prepared as part of the detailed development design works following consent of the proposal.

Clause 30.2 – Vegetation Protection.

Under the provisions of the YLEP 2002 (clause 36) development consent is required before a person takes, or allows any action to be taken, which ringbarks, cuts down, tops, lops, removes, injures, poisons or wilfully destroys:

(a) any area of native vegetation, or

(b) any live tree having an overall height of 3 metres or more above ground, or a branch span at any height in excess of 3 metres, or

(c) any dead tree having an overall height of 6 metres or more above ground, unless one of the exemptions listed in clause 37 of the YLEP 2002 applies.

Planning Response:

The Development will require the clearing of a proportion of the sites disturbed remnant vegetation for the development. Additionally following the closure of the landfill area rehabilitation works will be under taken to that will allow the planning and regeneration of native vegetation including grasses and shrubs in a long term effort to enhance the amenity of the area.

4.5 Provision of any Planning Agreement

No Planning Agreement has been entered into under section 93F and no draft planning agreement has been offered to enter into under section 93F of the *EPA Act*.

5 ASSESSMENT OF ENVIRONMENTAL EFFECTS

The Director-General's Requirements require that an assessment of the actual or potential effects of the proposed Waste Transfer Station on the environment be prepared. A number of specialist consultants were engaged to undertake an assessment of the WTS proposal to address the potential effects resulting from the development of the project.

The following sections of this chapter describe the existing environmental constraints, outline the potential effects of the WTS and incorporate the findings of the relevant assessments.

5.1 Existing Site Description

The following sections provide a description of the existing site. In August 2009 and December 2011 an Environmental Assessment and Survey (GES 2012) was undertaken for the Macs Reef Rubbish Depot by Good Environmental Systems (GES). The relevant information from this assessment and from the EPS site inspection have been used to assist with the existing site description.

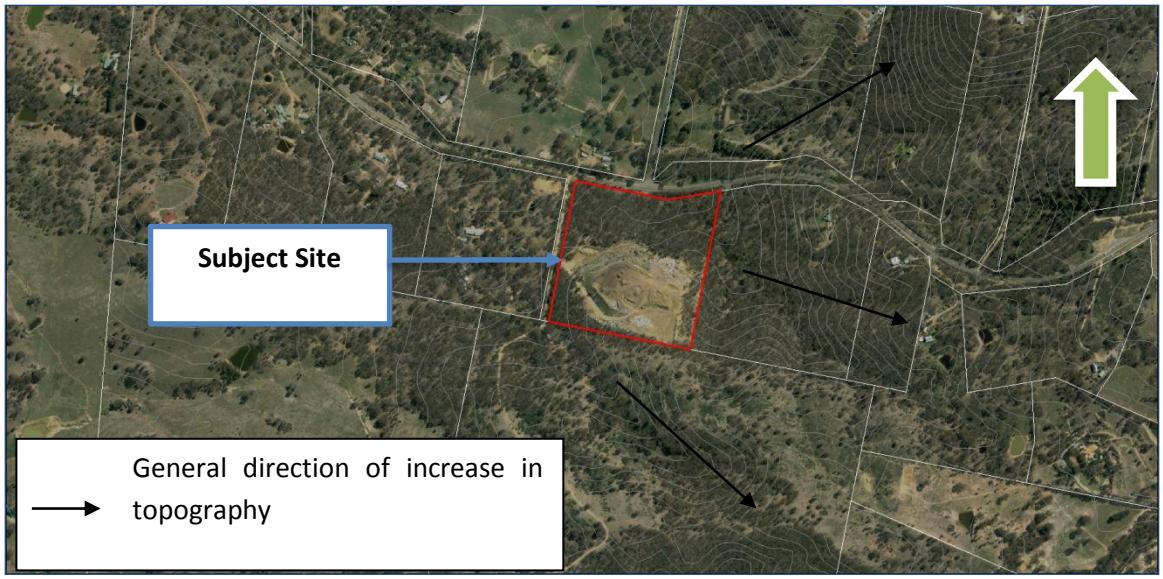
5.1.1 Vegetation

Macs Reef Rubbish Depot's existing vegetation covers approximately 40% of the entire site with the majority of vegetation located in the northern section (as shown in Figure 2-2). The vegetation consists of sparse undisturbed dry sclerophyll woodland with the overstorey trees being dominated by a mix of eucalypt species, and the understory consisting of native shrubs and grasses. The woodland is representative of the vegetated areas within the general area. The site vegetation is generally in good condition, however, it is widely fragmented throughout the general region. As with most landfill sites, the vegetation understorey is littered with windblown rubbish.

5.1.2 Topography

The site is located at the bottom of the Macs Reef Hill and ranges in elevation from approximately 700m in the north-west corner to 740m in the south-east corner. The general area topography rises from the north-west up towards the north-east and south-east as illustrated below in
Figure 5-1. The slope across the extremities of the site is generally representative of the topography within the immediate area; however, the landfill operations have altered the central topography of the site. The landfill slope batters are steeper than the surrounding topography.

Figure 5-1: General topography of the local area



5.1.3 Site access

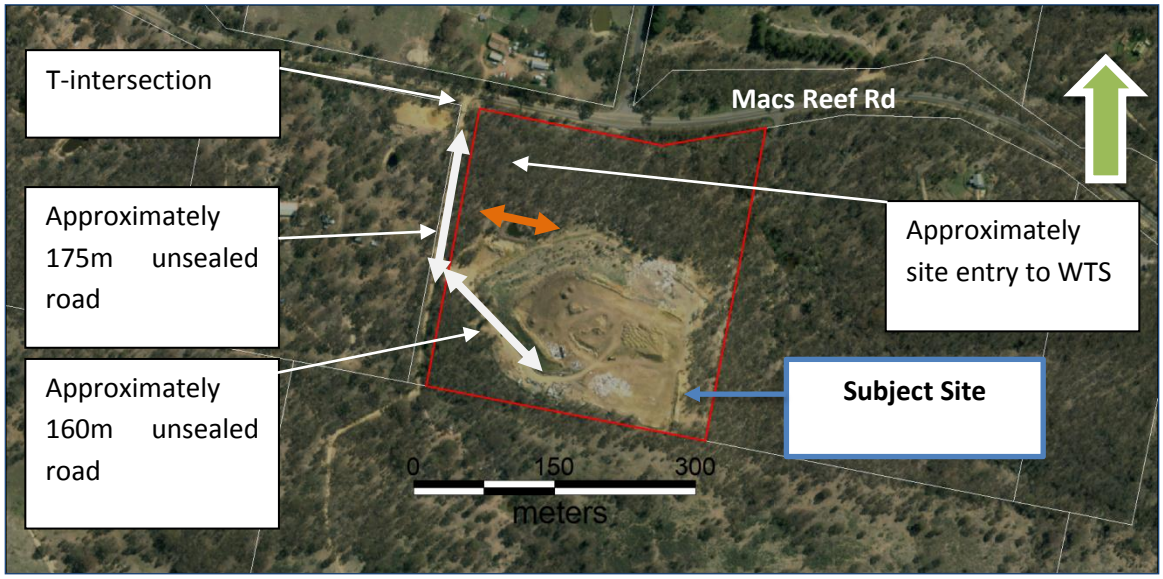
Access to the existing landfill operations is via an unnamed and unsealed road, off a T-intersection with Macs Reef Road. This unnamed public road also provides access to a property to the south of the Rubbish Depot. The actual landfill operations are accessed from the unnamed road into the Rubbish Depot. The unsealed sections of road result in dust generation from truck and vehicle movements to and from the site, as illustrated in Figure 5-2.

The unsealed portion of the unnamed road is 175m from Macs Reef Rd to the entry of the landfill operations gate. The portion of the unsealed access from the entry gate to the landfill operators shed is approximately 160m. The location of these portions of road is illustrated in Figure 5-3.

The proposed entry to the WTS is approximately 100m along the unnamed road from the T-intersection with Macs Reef Road. A roundabout is proposed on the unnamed road at the entry location to the WTS to allow vehicles to safely turn around if the WTS is closed.

Figure 5-2: Unnamed and unsealed road entry to Mac Reef landfill operations (view looking north towards Macs Reef road along unnamed public road from entry point into Rubbish Depot)

Figure 5-3: Site access



5.2 Site Capability Analysis

An integral part of the design process has been the analysis of the ability to accommodate the development with careful regard to the surrounding area's development and the existing operation of the landfill facility.

A site analysis plan is illustrated in Figure 5-4, showing the area surrounding the site and relevant matters for the assessment of the site within its local environment. An A3 size copy of the site analysis plan is contained in Appendix 3. The predominant wind is from the north-west. The higher elevations in reference to the subject site are located to the north-east/south-east. The main views from the local area are towards the west and north-west. Existing residences are located within 1km of the site and three residences (R1, R2 & R3) are located within 250m of the site.

The elements listed above have been considered in the assessment of the site and are further addressed in the assessments undertaken for this project, including:

- Air and Odour
- Noise and Vibration
- Visual Impact
- Traffic
- Environmental Planning Legislation
- Site layout & design

5.2.1 Stormwater

Stormwater is currently captured on site via a series of swales that direct overland flows to a leachate pond located to the north-west of the landfill operations area. The leachate pond location is illustrated in Figure 2-3. Although not part of this development application, Council is currently examining an option to increase the capacity of the existing leachate pond.

The area of the site proposed for the WTS is currently vegetated and stormwater flows north towards Macs Reef Road and northeast towards an existing ephemeral drainage line, as illustrated in Figure 5-4. Consideration has been given to the location of the ephemeral drainage line to ensure that the proposal is not located within 40m of this feature.

5.2.2 Site Contamination

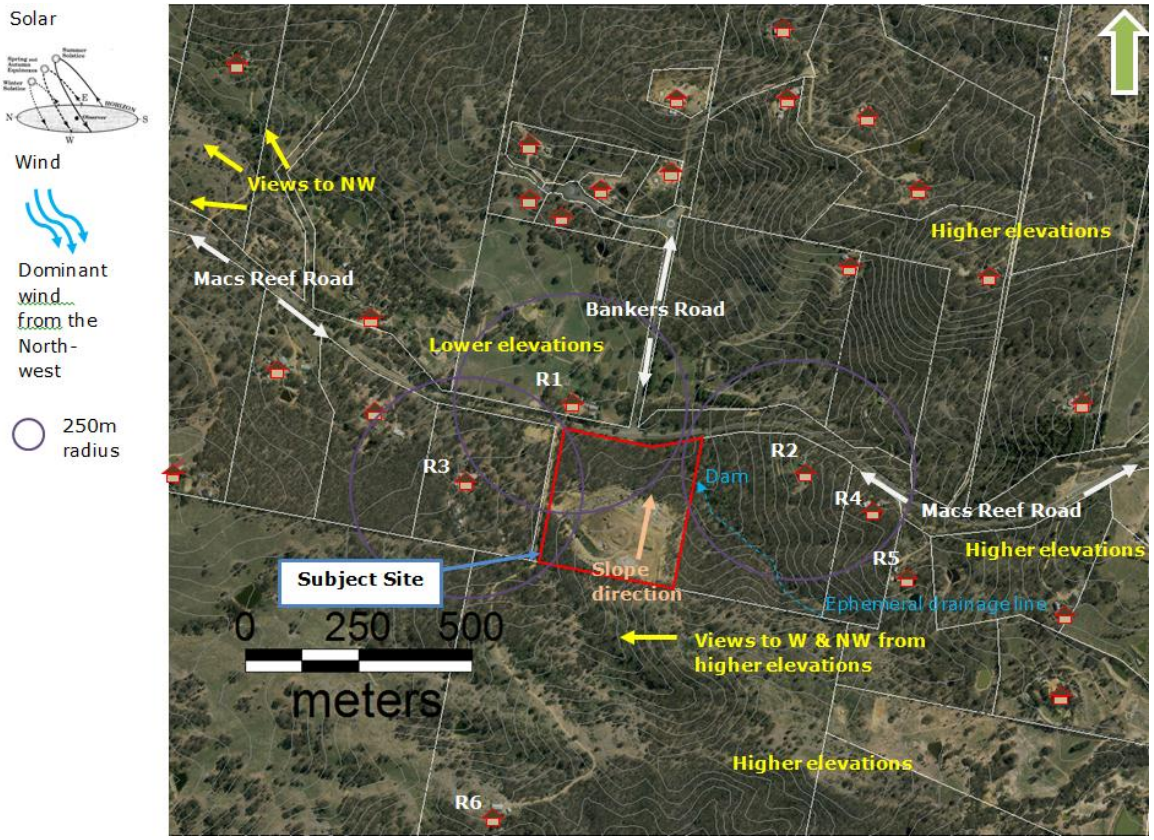
The site is considered to be contaminated land, pursuant to the *State Environmental Planning Policy No 55 – Remediation of Lands*. The site is currently used as a landfill facility for mixed

putrescible waste and is approaching its operational limits. The classification of the site as contaminated will not affect the proposed development. The existing landfill facility is proposed to be closed and rehabilitated following the commissioning of the WTS. Closure and rehabilitation of the landfill operations will be pursuant to the Environmental Guideline requirements of the Office of Environment and Heritage.

5.2.3 Effluent Disposal

The existing development is not connected to a reticulated sewerage system. Consideration has been given to effluent disposal options for the WTS and a certified septic tank and absorption system to cater for employees and visitors is proposed. A copy of the on-site effluent disposal assessment report is contained in Appendix 8.

Figure 5-4: Site Analysis Plan



5.3 Utility Services

The site is currently has no reticulated utility services. Underground telephone lines are located along Macs Reef Rd adjacent to the sites northern boundary and overhead electrical lines extend into the western property approximately 100m away from the sites western boundary. The proposal does not include the connection to these existing utility services.

Mobile phones will provide on-site telecommunications for emergency support or general communication requirements.

Rain Water tanks will be installed to supply the amenities and site office with water. Quadro Australia has determined that a 4,500 litre rain water tank will be required to service the onsite water requirements for the proposal. This will provide an operating allowance of 150 litres per day, with a capacity of up to one month storage before recharge would be required. During any prolonged dry periods, an alternate water recharge option is to have the tank filled by a mobile water tanker.

Electricity for the amenities system, site shed and lighting will be supplied through solar panels and storage batteries.

5.3.1 Views

The higher elevations within the local area have extensive views with a north-west aspect, although views from the lower elevations are limited to the immediate surrounding bushland area. Further consideration to the visual amenity and visual impact of the proposal is provided in the Visual Impact Assessment.

5.4 Identification and Prioritisation of Issues

In accordance with the potential risks identified within the Environmental Risk Analysis, the key issues have been prioritised into 'moderate' to 'high' groups that require more in depth analysis; and associated 'low' impact issues that do not require such in depth analysis. These 'low' impacts are still addressed within the Statement, and appropriate mitigation measures are identified. Table 5-1 lists the issues identified and their order of prioritisation.

Table 5-1: Prioritisation of Issues

Environmental Issue	Prioritisation
Waste	High
Soil and Water	High
Air Quality and Odour Control	High
Noise and Vibrations	Moderate
Traffic and Transport	Moderate
Flora and fauna	Low
Cultural Heritage	Moderate
Landfill Closure and Rehabilitation	High
Socio-Economic	Moderate
Visual	Moderate
Cumulative	Moderate
Fire and incident Management	Low
Safety	Low
Hazards and Risk	Moderate

5.5 Potential Impact of the Development

The following sections describe the potential impacts of the development, including environmental impacts on both the natural and built environments, plus the social and economic impacts in the locality.

5.5.1 Flora and Fauna

Macs Reef Rubbish Depot's existing vegetation covers approximately 40% of the entire site with the majority of vegetation located in the northern section (as shown in Figure 2-2). An Environmental Survey and Assessment of the entire site was undertaken by Good Environmental Systems (GES) in September 2009 and revised to refer to the specific WTS site in February 2011. A further survey was undertaken for cryptic orchid species in December 2011 and the assessment updated in January 2012. A copy of the Environmental Survey and Orchid Assessment are contained in Appendix 5.

The vegetation consists of sparse undisturbed dry sclerophyll woodland representative of the area. The vegetation is generally in good condition, however it is widely fragmented throughout the general region and provides limited habitat for native fauna species. The understorey is littered with windblown rubbish from the landfill operations. The dry sclerophyll woodland with its sparse groundstorey of native shrubs and herbs provides very limited habitat for native fauna. Few weed or exotic plants exist in the undisturbed parts of the site but are extensive in the disturbed areas.

The summary of the GES assessment concludes the following results:

The undisturbed area of the Macs Reef tip site supports a fair representative sample of the Tableland dry sclerophyll woodland. The woodland of the site contributes to the significant east-west vegetation and wildlife corridor that exists along Macs Reef Road. The woodland vegetation community, while fragmented is still widespread in the region. As such that within the tip site provides no specific or significant habitat for any native animals.

Sugar Gliders are known to occur in the vicinity of the tip site but none have actually been observed at the site itself, no doubt due to the continual noise and dust conditions at the tip when it is open. Rosenberg's Goanna has been observed in the area but as no significant habitat for this animal exists, any animal observed in the area would only be a transient visitor to the tip site where they may scavenge when the tip is not open to the public.

No significant habitat would be destroyed or impacted by the planned tip restoration and redevelopment works. The waste transfer station development is planned to be located within

an area of woodland, only lightly disturbed by the current tip activities. The development of the waste transfer station will require the removal of a number of Brittle Gums and a few understorey shrubs. The removal of these trees and shrubs will not have a significant impact on the status of the dry sclerophyll woodland within the site and that of the woodland across the region.

The construction of the waste transfer station vehicle access road and the pavement around the transfer facility should be carried out such that all drainage from the transfer station area is directed into the existing seepage pond. The small seepage pond is colonised by aquatic plants and provides good habitat for frogs and other reptiles. This pond should not be back-filled but retained as part of the redevelopment. It could be easily enlarged and be a functional sediment control and settling pond, as well as a landscape and native animal habitat feature of the area.
The tip site slopes from east to west and is bordered by two shallow depressions on the northern side and one on the southern side of the site. These ephemeral flowlines should be protected from any seepage discharge during and following restoration and revegetation of the site, to ensure no polluted waters enter the Yass River.

The summary of the GES Orchid Assessment concludes the following results:

An intensive search for native orchids on the proposed Waste Transfer Station over a two month period (December 2011-January 2012) failed to locate any orchids. It was found that the ground litter accumulation and cover is poor providing little potential habitat for terrestrial orchds that grow in and have some dependence on decomposing litter (organic matter).

No threatened, locally rare or vulnerable native plant species were located and no significant vegetation habitats noted. The operation of the Waste Transfer Station will result in numerous vehicle movements and subsequent noise and dust pollution, but these impacts should be less than currently exist within the operation of the landfill tip.

No significant impacts will therefore accrue from the restoration of the tip or the construction of the waste transfer station. As a listed threatened native animal has been recorded for the local area near to the tip site the Seven Part Test has been applied to this 'development' in accordance with Section 5 of the *Environmental Planning and Assessment Act* and Section 94(2) of the *NSW Threatened Species Conservation Act*.

The recommendations of the assessment have been noted and a separate leachate pond will be provided to prevent leachate from the WTS entering any existing drainage lines.

5.5.2 Cultural Heritage

A Cultural Heritage Assessment was undertaken in August 2009 by Archaeological Heritage Surveys (AHS) and a copy of the assessment is contained in Appendix 6.

The cultural heritage assessment comprised documentary research, an archaeological survey and participation by Ngambri Local Aboriginal Land Council. The survey involved an examination of the ground surface for the presence of Aboriginal stone artefacts and an inspection of old growth eucalypts for evidence of traditional Aboriginal bark removal.

No previously recorded Aboriginal or historic (European) archaeological sites occur at the tip and no archaeological sites or areas of Aboriginal archaeological potential were located during the survey. While undetected Aboriginal stone artefacts may be present in the study area, they are likely to occur at low to very low density. Taking account of all relevant factors, including the survey results, the low archaeological potential of the study area and the low impact of the current proposal on the relatively undisturbed forested areas around the periphery the existing tip, the probability that undetected Aboriginal artefacts would be impacted by the proposed rehabilitation of the tip is low.

Recommended Mitigation Management:

To minimise any potential impacts on Aboriginal archaeology or non-indigenous heritage the following recommendations are suggested for all contractors and staff involved in the construction of the WTS or rehabilitation works:

- Undertake site inductions so workers and staff are aware of and competent in identifying Aboriginal artefacts.
- If any previously undetected Aboriginal site or relic is uncovered or unearthed during rehabilitation works at the tip, all work at that location must cease immediately and advice on appropriate action be obtained from the South Branch of the Environment Protection and Regulation Division of the NSW Office of Environment and Heritage (OEH).
- In the event that skeletal remains are uncovered, work must cease immediately in that area and the area fenced. The proponent should then contact the NSW Police and follow the advised procedure. If the skeletal remains are determined to be Aboriginal, the proponent should also contact OEH and relevant Aboriginal Community Stakeholders in order to determine an action plan for the management of the skeletal remains prior to works commencing.
- Pursuant to Section 146 of the *Heritage Act* 1977, if any collection of historical objects more than 50 years old are identified during the proposed works that may be impacted,

the works will cease and Palerang Council's heritage officer and the State Heritage Council will be immediately notified.

5.5.3 Geotechnical

The site already has an operating landfill facility that involves the land being filled on a progressive lift basis to create a relatively level platform extending westwards from the natural surface.

A Soil and Water Management Plan has been prepared for the site and is located within Appendix 12. Review of this Plan indicates that the site is situated on soils of Vestigial Landscapes common in the Bywong area. Due to the shallow soil coverage on the site, surface soils is highly susceptible to erosion, while the subsoils are dispersible and hard-setting with salinity noted as a hazard associated with run-off water.

Recommended Mitigation Management:

It is recommended that a Geotechnical Assessment is undertaken to confirm the site conditions so the appropriate engineering can be incorporated into the detailed construction plans for the proposed WTS. Additional management recommendations are detailed within the Soil and Water Management Plan and the Environmental Management Plan.

5.5.4 Erosion and Sediment Control

Appropriate standard erosion and sediment control mitigation measures are to be implemented during the construction and operating phases. During construction, the site will be protected from erosion and sedimentation by the installation and maintenance of standard erosion and sediment control measures, such as sedimentation fences and swales. These control measures are to be designed and constructed in accordance with Managing Urban Stormwater: Soils and Construction 4th Edition – Vol 1 (the "Blue Book") Landcom, 2004, Managing Urban Stormwater: Source Control (EPA 1998) and Managing Urban Stormwater: Treatment Options (EPA, 1998). If required during certain stages in the construction process, controls such as silt fences or hay bales may need to be removed to allow access or work. These should be replaced as soon as possible.

An erosion and sediment control plan for the construction of the WTS has been prepared with the concept design drawings for the proposal and a copy is contained in Appendix 3.

Recommended Mitigation Management:

Standard erosion and sediment control measures should follow the philosophy of adaptive management, which will ensure all works are monitored and regularly reviewed assessed and adapted to protect the environment.

Ongoing operational erosion and sediment control measures for the WTS are provided in the EMP prepared by Quadro Australia.

5.5.5 Air Quality & Odour Control

SLR Consulting undertook an Air Quality and Odour Impact Assessment for the proposed WTS. A copy of the assessment is contained in Appendix 7. A quantitative air quality (TSP, PM10 and dust deposition1) and odour impact assessment has been undertaken for the Project, with predicted air pollutant and odour concentrations compared against criteria published by OEH. Specific attention was paid to air pollutant and odour concentrations predicted at various potentially sensitive receptor sites which predominantly comprises neighbouring residential properties.

A qualitative assessment of air pollutants generated during the proposed construction phase of the Project Site has also been undertaken.

The assessment included the identification of six adjacent residences which were assessed as sensitive receivers for air and odour impacts from the proposed WTS. The assessment also included three dimensional modelling of the local topography and local meteorological conditions to be used in consideration by the consent authority.

To adequately characterise the dispersion meteorology of the WTS information regarding the prevailing wind regime, atmospheric stability, mixing depth and other meteorological parameters was characterised based on:

- Climate statistics obtained from the nearest Bureau of Meteorology (BoM) Automatic Weather Station (AWS) at Canberra Airport (Station Number 070014); and,
- Hourly meteorological data from the BoM AWS at Canberra Airport.

Monitoring data from this station was used to characterise the local meteorology in the region of the WTS. It is considered that in the absence of site specific meteorological observations for the Project Site, the use of data from the BoM Canberra Airport AWS is appropriately representative of meteorological conditions likely to be experienced at the WTS site and has been used to compare with modelled meteorological conditions.

The modelling scenario developed for the assessment was formulated to reflect predicted worst case operations at the WTS:

- All waste storage bins (putrescibles and recyclables) have been assumed to be at full capacity.
- The leachate and stormwater management ponds have been assumed to be at full capacity and contain stormwater.

The summary of the assessment is as follows:

All odour sources at the Project Site have been identified and odour emission rates, based on previous assessments of waste transfer stations and landfills, have been applied. Atmospheric dispersion modelling of odour has indicated that at all surrounding residences, odour is predicted to be at concentrations less than 0.6 OU as a 99th percentile, 1 second average, for the Waste Transfer Station alone. The Project specific odour performance goal was assumed to be 4 OU. Examination of the potential cumulative impact associated with the operation of the adjacent landfill has shown higher odour concentrations, although all are still predicted to be below the Project odour criterion with maximum predicted concentrations of 2.1 OU as a 99th percentile, 1 second average.

Based upon the results of this modelling assessment, it is not considered that the proposed Project will lead to an exceedance of the odour performance goal.

Particulate matter emissions associated with the operation of the proposed Project are not predicted to result in exceedances of the adopted criteria for the Project. Dust deposition levels are significantly below the adopted background level and are predicted to result in incremental increases of less than 0.1 g/m2/month at all receptors. PM10 concentrations are predicted to be less than 1.7 Bg/m3 as a 24-hour maximum and 0.1 Bg/m3 as an annual average at all receptors. Total suspended particulate concentrations are predicted to be less than 0.1 Bg/m3 as an annual average at all modelled receptors.

Based upon the results of this modelling assessment, it is not considered that the proposed Project will lead to an exceedance of the particulate performance goals.

As demonstrated in the Air Quality and Odour Impact Assessment, the impacts on air quality are not considered likely to significantly affect the amenity of the neighbourhood by reason of air pollution (including odour, smoke, fumes or dust) as a consequence of the development. No fires or materials resulting in fumes are proposed for the WTS.

Recommended Mitigation Management:

The following management measures are recommended to reduce the chance of dust and odour issues during the course of the construction, operation and rehabilitation works on-site. These include;

- Minimizing the surface area that is disturbed at any one time;
- Minimize the amount of area that needs to be cleared where possible;
- Confine vehicle and machinery movement to access roads or hard stand areas where possible;
- The use of a water cart to eliminate windblown dust when possible;
- Use of sprays or sprinklers on stockpiles or loads to lightly condition the material;
- Use of tarpaulin or tack-coat emulsion or sprays to prevent dust blow from stockpiles or from vehicle loads;
- Covering stockpiles or loads with polythene or geotextile membranes;
- Ceasing works during periods of inclement weather such as severe storms; and
- In the event that remedial measures are found to be ineffective for the control of dust (i.e. prevailing strong winds), work may be suspended as a precautionary measure until conditions are suitable for recommencement.

5.5.6 Effluent Disposal

Reticulated sewerage is not available for the subject site. Accordingly, the WTS will include provision of a certified septic tank and absorption system to cater for employees and visitors to the site. The system will comply with the NSW Health Department guidelines.

An on-site sewerage assessment has been prepared by Soil and Land Conservation Consulting and a copy is contained in Appendix 8. The assessment provides the relevant information to demonstrate the site capability with regard to on-site septic options.

5.5.7 Visual impacts

A detailed Landscape and Visual Assessment report was undertaken by EPS to examine the existing landscape of the study area and the potential impact of the WTS on the surrounding landscape. The potential visual impact on neighbouring residences was also examined. A copy of the assessment is contained in Appendix 9.

The methodology for investigating the visual impact of WTS involves consideration of the scenic quality of the area, the landscape values, the visual sensitivity and the potential visual effect of the proposed development. The evaluation of the existing landscape and visual resources in the vicinity of the proposed WTS included:

- Landscape measurement – an inventory of what exists in the landscape.
- Landscape value – an investigation and measurement of value judgements or preferences in the visual landscape.
- Landscape evaluation – an assessment of the quality of the objective visual landscape in terms of individual or societal preferences for different landscape types.

3D images and photomontages were prepared to assist with visualisation of the proposal and also to illustrate the visual prominence of the WTS in the landscape. An accurate model of the WTS was created from the approved concept plans. The positions of the actual photographs were located in a digital terrain model of the site using the aerial photography, cadastre information of the surrounding terrain and the photograph location/orientation data provided.
The photomontage set includes a before and after construction illustration plus an additional image showing how the proposal model fits in the landscape terrain as the photomontage images demonstrate that the WTS is not clearly visible. This additional image is to allow the view to see where the proposal sits in the landscape if all existing screening of the proposal was removed.

Visual Impact Conclusion:

The existing landscape and scenic quality of the WTS site and surrounding area has been described and evaluated and it is considered that the site is appropriate for a WTS for the following reasons:

- There will be no significant change to existing landscape with the development of the WTS and the proposed development is considered suitable to the site.
- The rural residential landscape has capacity to include the WTS as it is a functional landscape with many examples of anthropogenic and utilitarian elements in the landscape.
- WTS visibility is screened adequately by existing topography, landscape and vegetation during all times and seasons.
- WTS would contribute to the needs of society for a clean, organised, cost effective waste disposal.
- The impacts on adjacent residences are considered to be within reason and are not considered to likely affect the visual amenity of the neighbourhood.

The WTS will cause minimal to negligible visual impacts on the scenic quality of the area, though the perception of the impact can vary according to each individual's perception of the WTS and their attitude towards the development. The landscape cultural values, including the social, indigenous and environmental values have been reviewed to provide a more balanced appraisal of the existing landscape value.

It should be noted that a visual impact does not necessarily equate with a reduction or degradation in scenic quality. The construction and operation of the proposed development will effectively not significantly alter the sites current visual or landscape attributes and additionally in the long term will actively ameliorate and improve these attributes through the rehabilitation of the site.

The visual and landscape assessment report has been assessed as a "worst case" scenario. It is likely that landscape and visual impacts inflicted as a consequence of the development may be considerably less than detailed in this report, should the future option to construct awnings over the waste drop-off and bin storage areas not be exercised.

Overall, the proposed WTS is considered suitable for the site with regard to landscape and visual impact and the potential impacts are deemed as reasonable.

Recommended Mitigation Management:

It is recommended that to enhance the screening of the proposal from Macs Reef Road, that the understorey of the vegetated area between the WTS and Macs Reef Road be landscaped with understorey plant species consistent with the requirements of the Rural DCP. Enhancement of

this setback area will assist in ameliorating the view of the WTS from Macs Reef Road. This in-turn would mitigate any visual impacts from Macs Reef Road for local residents and other potential viewers utilising this road.

Vegetation screening increases the depth of view to any affected receptor. Generally, mitigation planting offsite in this circumstance is considered to not be required. Should a visual impact issue be raised by an adjacent resident, potential off-site landscaping may assist in ameliorating any impacts. This outcome should only follow a further assessment of any claimed impact. Off-site landscaping should be undertaken to suit the type of view received, the orientation of the property and existing intervening topographical patterns.

Additional visual mitigation measures include:

- minimising the need for clearing;
- implementing appropriate erosion and sediment controls;
- use black chain wire for fencing to reduce visual prominence;
- appropriate colour and material selection in accordance with the current design considerations; and
- cleaning up the site, removing construction waste and revegetating / landscaping areas following construction.

5.5.8 Traffic impacts

A Transport Review was undertaken by Stapleton Transportation and Planning Pty Ltd (STAP) to examine the traffic related matters for the WTS. A copy of the Review is contained in Appendix 10. The review assessed the following matters:

- The determination/calculation of existing and future traffic flows based on potential site capacity;
- The determination/calculation of an appropriate average annual growth factor in traffic flows;
- The assignment of trips to the local network and to the key intersection of Macs Reef Road and the site access road;
- The determination/calculation of general on-site access and parking demands; and
- Reference to the appropriate Guidelines/Standards in providing transport recommendations.

STAP estimated that due to the future WTS's lower waste stream capacity and the acceptance of smaller carrying capacity vehicles, the number of vehicles expected to access the site will increase proportionally, as more trips will be required for disposal of the domestic waste stream.

Based on all available information it is the opinion of STAP that:

- The average daily and peak hour generation of the site would be lower than the existing generation of the site.
- The super peak daily and peak hour generation of the site would be lower than the existing generation of the site.
- The average daily and peak hour generation of the site would not reach existing levels until approximately 20 years into operations.
- The super peak daily and peak hour generation of the site would not reach existing levels until approximately 20 years into operations.

Additionally:

- For design purposes, it is not in STAP's opinion appropriate to base the design of any required intersections etc. on forecasts beyond 20 years.
- The site would generate only a very minor heavy vehicle traffic , and specifically a small number of truck (or truck and dog) trips per week to take the proposed waste bins to another Council waste facility.

Therefore it is considered that traffic volumes that will frequent the site will not drastically or immediately increase relative to the current traffic volumes. It is proposed that, in order to adequately and safely accommodate future expected vehicle volumes, the intersection of Macs Reef Road and the existing gravel road be reconstructed as part of the development of the WTS. The upgrade may require additional detailed analysis in regard to maximum safety returns for construction expense; however, there is no evidence that delays, levels of service or general capacity is a significant issue in providing the design.

The Palerang Council Local Traffic Committee at its December 2010 meeting stipulated that a deceleration lane be included in the intersection design for the intersection of Macs Reef Road and the unnamed public road from which the WTS is accessed. Council has advised Quadro Australia to incorporate the intersection upgrade into the overall design plans for the WTS.

Recommended Mitigation Management:

The intersection has been designed in accordance with:

- Section 4, Intersections at Grade, of the Roads and Traffic Authority of NSW *Road Design Guide*;
- Average Daily Traffic volumes recorded by Council;
- Macs Reef Road travel speed (90km/hr);
- Nominal lane width (3.50m);

- Intersection angle with minor road (90°);
- Intersection type (two lane two way road with T junction); and
- Assumed Macs Reef Road traffic growth, 3%pa (Council's advice).

This construction will be consistent with all relevant objectives and clauses of the *Roads Act 1993* and the stipulations as set out by the Local Traffic Committee. Concept plans of the proposed intersection and site access road are contained within the WTS Concept Plans contained in Appendix 3.

Additional comments

Further to the completion of the Transport Review as detailed above, additional data was provided to STAP that raised questions in regard to some of the forecast estimates provided in the Concept Options Report, and therefore the conclusions and recommendations provided in the Concept Options Report.

This should not in STAP's opinion be seen as a criticism of the Concept Options Report; as detailed in the Traffic Review, it is the opinion of STAP that the Concept Options Report provides an appropriate assessment methodology and hence conclusions/recommendations based on the data available for that assessment, data primarily provided by Council.

Notwithstanding, the new data provided by Council suggested to STAP that a revised assessment of the site is required. The most significant issue relates to the potential traffic generation growth at the site, which based on traffic surveys at the site provided by Council has grown at a significant rate over the 4 years of available data; indeed, the surveys show that traffic has almost tripled at the site over that period. To summarise, the data provided by Council shows:

- 2007/8 approximately 9,500 vehicles per year
- 2008/9 approximately 12,000 vehicles per year
- 2009/10 approximately 19,000 vehicles per year
- 2010/11 approximately 26,000 vehicles per year

This level of growth may (or may not) continue for some time into the future; the factors behind this level of growth need, in STAP's opinion, further assessment. Further to STAP raising this issue, Council provided a response (Transport Review (Stapleton Transportation & Planning) for proposed Macs Reef Waste Transfer Station, 14th December 2010) which indicates the appropriateness of the previously recommended intersection upgrade of Macs Reef Road and the Site Access Road (this response is also included in Appendix 10).

STAP agree that for the foreseeable future the proposed intersection upgrade would suffice, but again STAP note that the potential for this surveyed growth to continue (into the future) must be taken into account, as such growth over a further 5 years would potentially require a different type of intersection upgrade. It is recommended that annual survey data continue to be collected and the future traffic levels monitored over the next 5 years. The results of this data review would guide any additional upgrade requirements of the WTS and the intersection with Macs Reef Road.

5.5.9 Noise and Vibration

SLR Consulting has conducted a Noise and Vibration Impact Assessment for the WTS. A copy of the assessment is contained in Appendix 11.

Ambient noise surveys were conducted to characterise and quantify the existing acoustical environment in the area surrounding the Macs Reef landfill site. A background monitoring survey was undertaken at two residential locations on Macs Reef Road, considered representative of the nearest potentially-affected noise-sensitive receivers to the landfill.

These measurements were used to develop noise goals for operation of the WTS in accordance with the OEH *NSW Industrial Noise Policy* (INP) and *NSW Environmental Noise Control Manual* (ENCM). Traffic generated by the operation was assessed with reference to the *Environmental Criteria for Road Traffic Noise*.

Weather data from an automatic weather station at Canberra Airport was used to determine prevailing weather conditions for the site. Weather data was analysed in accordance with procedures outlined in the INP. Seasonal wind records indicate that wind from 0.5 m/s to 3 m/s did not exceed the 30% threshold during the daytime period.

ENM noise modelling computer software was used to assess potential construction and operational noise. A three-dimensional digital terrain map providing relevant topographic information was used in the modelling process. The model incorporated the digital terrain map, together with noise source data, ground cover, shielding by barriers and/or adjacent buildings and atmospheric information to predict specific noise levels at the nearest potentially affected receivers.

The vibration assessment considered a number of parameters including:

- all major vibration generating activities and equipment associated with the proposal;
- review of the German Standard DIN 4150-3 1999 *"Structural Vibration Part 3: Effects of Vibration on Structures"* which provides guideline criteria for evaluating the short and long-term effects of vibration on structures; and

- review of OEH's interim guideline *"Assessing Vibration: A Technical Guideline"* dated February 2006, which provides guideline building vibration levels associated with a low probability of annoyance from occupants.

These parameters were assessed and considered in order to determine acceptable vibration levels at all receiver locations associated with the proposal.

The following potential environmental noise and vibration impacts are considered associated with the proposed WTS:

- Noise impact of construction and operation of the WTS at surrounding residential receivers.
- Vibration impact of construction and operation of the WTS at surrounding residential receivers.
- Cumulative impact of noise from any surrounding industrial sources.
- Traffic noise impact of transportation from the WTS.

Figure 5-5 illustrates the main sensitive receptors which consist of habitable residential dwellings (blue indications). The closest habitable receptor is R1 located approximately 60m from the site boundary and approximately 120m from the proposed WTS (Yellow indication). The two noise logger survey locations are indicated in orange.

Figure 5-5: Closest Sensitive Receivers & noise logger locations

Table 5-2 below outlines the location and elevations of nearest sensitive receptors (residences).

Table 5-2: Nearest Sensitive Receptors

Receptor ID	Location	Location (m, MGA56)		Distance (Km) from site	Elevation (m,AHD)
		Easting	Northing		
R1	704 Macs Reed Rd, Bywong	709490	6104042	0.06	695
R2	649 Macs Reed Rd, Bywong	709959	6103921	0.25	742
R3	733 Macs Reed Rd, Bywong	709218	6103900	0.17	695
R4	625 Macs Reed Rd, Bywong	710101	6103832	0.41	761
R5	625 Macs Reed Rd, Bywong	710167	6103674	0.52	764
R6	707 Macs Reed Rd, Bywong	709300	6103160	0.54	737

(Extracted from SLR 2011)

Ambient noise surveys were conducted, at R3 and near R1 residences, to characterise and quantify the existing acoustical environment in the area surrounding the Macs Reef Landfill site. These locations are considered representative of the nearest potentially-affected noise-sensitive receivers to the landfill and were examined during times when the Macs Reef Landfill was open for operation and during the periods when it was closed.

The results of ambient noise surveys were conducted to establish a noise emission design criteria, specific to the proposal within its location setting of "rural" receivers. These criteria established an operational and construction specific noise criterion for the project and have been used to determine acceptable and unacceptable noise levels so as to ensure that both intrusive noise levels are limited and noise amenity of the area is protected.

Noise modelling has indicated that the noise emissions from the operation and construction of the development are predicted to be within the project specific noise levels at all assessed receiver locations

The major vibration generating activities will occur during the earth works phase of the construction of the facility and from heavy vehicles servicing the bin collection/drop off during operation. Vibration Modelling has indicated that construction vibration levels are predicted to be considerably below the recommended damage and annoyance vibration criteria at all

receiver locations. The operational vibration levels also predicted to be negligible due to residences distances from the site and minimal heavy machinery/truck movements.

Traffic noise generated by the proposed WTS is predicted to be within the *Environmental Criteria for Road Traffic Noise* criteria.

Recommended Mitigation Management:

Various noise management techniques are recommended to reduce the impact of noise and vibration due to construction and operation of the proposed WTS on nearby residential receivers:

- An important aspect of the mitigation of noise impacts during all construction phases will be adherence to the standard daytime construction hours.
- Noisy plant operating simultaneously to be avoided wherever possible.
- Maintenance work on all construction plant will be carried out away from noise sensitive areas and confined to standard daytime construction hours, where practicable.
- Locate noisy equipment behind structures that act as barriers or at the greatest distance from the noise-sensitive area or orient the equipment so that noise emissions are directed away from any sensitive areas.
- Keep equipment well maintained.
- Employ "quiet" practices when operating equipment (e.g. positioning and unloading of trucks in appropriate areas).
- Implementation of an effective complaints handling system.
- Limit compression and exhaust braking along access roads.
- Switch off machinery when not in use for great periods.

With regard to potentially offensive noise events associated with construction activities AS 2436-1981 *"Guide to noise control on construction, maintenance and demolition sites"* provides the following:

If noisy operations must be carried out, then a responsible person should maintain liaison between the neighbouring community and the contractor. This person should inform the public at what time to expect noisy operations and also inform the contractor of any special needs of the public.

Consultation and cooperation between the contractor and their neighbours and the removal of uncertainty and rumour can help to reduce the adverse reaction to noise.

Vibration management measures are considered to be not required as all vibration levels from operation of the development are predicted to be negligible at all receiver locations.

5.5.10 Socio-Economic impacts

Social Impacts

The proposed WTS is considered to provide a number of positive social measures. The proposal will provide employment during both the construction and operation of the WTS. Additionally, strong community support for the proposal is demonstrated by the response rate and results of the recent residential survey of all residents within the Macs Reef Waste Catchment area, undertaken by the Wamboin/Bywong/Sutton East Area Waste Management Working Group. The survey response rate was 55% and strong support for the WTS was shown with 75% of the respondents preferring the WTS over a kerb side bin collection service.

Another positive social impact for local residents is the ongoing efficient waste disposal for the catchment area in accordance with the local community desire for both current and future residents of the area.

The Wamboin/Bywong/Sutton East Area Waste Management Working Group has also sought the opinions, comments and concerns of the neighbouring property owners regarding the proposed WTS. The Macs Reef Waste Management Working Group Report to Council (4 March 2010) outlines the input received from neighbouring property owners. A copy of the Report (without any attachments) is contained in Appendix 2. The main responses are summarised as follows:

- windblown rubbish;
- a properly designed and safe turning system for traffic from Macs Reef Road travelling into the tip road entrance, e.g. safe passing lanes;
- an adequate drainage system to cater for flood water and any overflow from the leachate dam;
- a fence system of sufficient height and construction design to prevent rubbish, e.g. plastic bags, being blown onto their property;
- minor concerns related to the possibility of dust and screening, e.g. trees;
- the dumping of waste, e.g. cars, on their road preventing access to their property;
- an efficient gate management system to minimise opportunities for dumping out of hours;
- a turning circle on the road outside the entrance to the tip to enable vehicles towing trailers to turn without having to back;
- a safe transition zone on Macs Reef Road for entry to the transfer station road entrance;

- the siting of the transfer station so that only minimal existing tree canopy is disturbed and the transfer station is camouflaged from their driveway and at the entrance to their property;
- the height of the shedding is not excessive and it is camouflaged, e.g. green colourbond cladding and roofing;
- sufficient screening of all buildings with trees and shrubs;
- sealed roads throughout the transfer station to minimise blown dust;
- fencing to contain all windblown material, e.g. plastic bags, paper and cardboard; and
- slip lanes on Macs Reef Road at the entrance to the transfer station road sufficient to cater for the speeding hill traffic.

One resident indicated they were totally opposed to the proposal to establish a transfer station at the Macs Reef Road landfill site but in the event of it proceeding said that "*the following must be applied:*"

- no increase in rates to the local ratepayers;
- no trees are cut down; and
- there is a turning lane on Macs Reef Road and not on the tip road.

The Working Group will continue to liaise with local residents and many of the issues raised have been incorporated into the WTS design. Council has forwarded draft copies of the noise, air & odour and traffic assessments to residents adjacent to the site, prior to meeting with them on the 24th January 2011 to discuss the proposal and any concerns they may have.
The community consultation undertaken for the proposal is further outlined in Section7 of this report and the Community Consultation Program and Findings Report contained in Appendix 13.

Recommended Mitigation Management:

Ongoing liaison with local residents and the wider community is recommended to keep them informed of the outcomes of the development assessment and if approved, the construction program and details.

Economic Impacts

The construction of the proposed WTS will result in economic benefits which are measured through the application of economic multipliers. Economic multipliers refer to the level of additional economic activity generated by a source industry. Economic multipliers describe average effects, not marginal effects, and thus do not take account of economies of scale, unused capacity or technological change.

The construction industry is a significant component of the economy accounting for 7% of GDP in 2007-2008. The industry has strong linkages with other sectors, so its impacts on the economy go further than the direct contribution of construction.

The benefits attributable to the WTS can be direct, indirect or induced. Direct benefits are those derived from the supply of goods and services by the construction industry during the construction of the subdivision. Indirect benefits are those derived from industries that support the construction industry. Induced effects are the benefits arising from the redistribution of wealth, through wages into other sectors of the economy.

Recommended Mitigation Management:

The source of the multipliers adopted in this report is ABS and Australian National Accounts: Input-Output Tables 1996-97 (ABS Catalogue 5209.0 & 5246.0). The output multiplier for an industry is defined as the total value of production by all industries of the economy required to satisfy one extra dollar's worth of final demand for that industry's output.

The initial requirement for an extra dollar's worth of output of a given industry is called the initial output effect. By definition it is equal to one in total for all industries since an additional dollar's worth of output from any industry will require the initial one dollar's worth of output from that industry plus any induced extra output.

The first round effect is the amount of output required from all industries of the economy to produce the initial output effect. For example, the output of the construction industry is increased by one dollar, then inputs from other industries such as manufacturing and mining will be required as well as inputs from the construction industry itself.

Similarly, the extra output from manufacturing and mining industries from creating extra output from a one dollar increase in the construction industry will induce extra output (production induced effects) from all other industries of the economy and, in turn, these will induce extra output, and so on.

The combined results of the initial effect plus all of the production induced rounds of extra output are called the simple multipliers.

For example, the initial effects of one dollar of additional output in the construction industry will create the need for the economy's output to increase in order to provide inputs into the construction industry (first round effects). The economy's output will also need to increase to provide inputs to the suppliers of the construction industry (industrial support effect). The combined result of the first round effects and industrial support effect is referred to as the production induced effect.

The household sector receives wages and salaries for work done in the production process and spends some or all of this on goods and services. This expenditure can be regarded as generating the production of goods and services by the industries of the economy. This induced production of extra goods and services is referred to as consumption induced effects.

A new set of multipliers can be calculated taking into account the initial effects, the production induced effects and the consumption induced effects. These are called the total multipliers. Employment multipliers are calculated by dividing the number of employed persons in a given industry by the level of production generated by that industry.

There are other types of output multipliers which are referred to as Type 1A, Type 1B, Type 2A and Type 2B. These output multipliers are shown in Table 5-3 below:

Table 5-3: Additional Output Multipliers

Multiplier	Details
Type 1A	Equals the Initial Output Effect + First Round Effect
Type 1B	Equals the Initial Output Effect + Production Induced Effect
Type 2A	Equals the Total Multiplier
Type 2B	Equals the Production Induced Effect + Consumption Induced Effect

The ABS (1994) notes that in regards to economic output, as already discussed above, these four types of multipliers add very little to the findings obtained. They have advantages for assessments relating to income and employment multipliers; however, in regards to economic output these multipliers will not be used.

The ABS also notes that care is needed in interpreting multiplier effects; their theoretical basis produces estimates which somewhat overstate the actual impacts in terms of output and

employment. Multiplier effects are nationwide results and not necessarily representative of simply local benefits. Nevertheless, the estimates illustrate the high flow-on effects of construction industry to the rest of the economy.

Economic Impact of the construction of proposal

The Input-Output Tables referenced are sourced from the ABS Australian National Accounts: Input-Output Tables 1996-1997 (ABS Pub: 5209.0). The Input-Output Tables shows 9 construction industry jobs directly created for every $1 million of construction output. This equates to 1 employee for every $111,111 of construction. To convert this amount to the equivalent of today's costs, the figure was adjusted using the Reserve Bank of Australia Consumer Price Index (CPI) Calculator (http://www.rba.gov.au/calculator/annualDecimal.html) which provides CPI calculations up to 2010. The CPI adjusted difference between 1996 and 2010 equates to 1 employee for every $160,081 of construction. The total change in cost between 1996 and 2010 is 44.1% over 14 years at an annual inflation rate of 2.6%. The Reserve Bank of Australia Consumer Price Index (CPI) Calculator provides a guide only and is considered suitable for this assessment. Using this figure and an estimated construction cost of $750,000, the Employment and Construction multipliers were calculated as illustrated in Table 4-3. The Macs Reef Waste working Group has indicated that the anticipated construction cost for the proposal is approximately $750,000. The construction estimates prepared by Quadro range from $750,000 - $1.24 Million. The higher estimate includes a 25% contingency. The lower construction estimate has been used in this analysis to illustrate the minimum anticipated economic benefits of the proposal.

Table 5-4: Economic multipliers for construction of the WTS

	Direct Effects	Production Induced Effects		Consumption Induced Effects	Total
		First Round Effects	Industrial Support Effects		
Employment Multipliers	1	0.33	0.45	2.33	4.11
Employment No. per $million	6.24	2.06	2.81	14.53	25.64
Total job years created	4.68	1.55	2.11	10.90	19.24
Output multipliers	1	0.466	0.438	0.962	2.87
Output ($million)	$0.75	$0.35	$0.33	$0.72	$2.15

Source: ABS Australian National Accounts: Input-Output Tables 1996-1997 (ABS Pub: 5209.0).

Therefore, based on a construction cost of $750,000, during development and construction of the proposed WTS development as a whole will generate 19.24 job years in the economy.

Furthermore, a construction cost of $750,000 will generate $680,000 of activity in production induced effects and $720,000 in consumption induced effects. Total estimated minimum economic activity generated by the construction of the proposed development is therefore approximately $2.15 million.

Post construction development

Following construction of the WTS, the operational costs of the facility have been estimated by Quadro Australia as follows:

- Staffing and operational costs $92,000
- Waste material transfer costs $119,600
- Total operating costs estimate per annum **$211,600**

The development of the WTS is considered to provide economic benefits to the local area and wider region from the construction of the facility. The construction and ongoing operation of the WTS has an economic burden for Palerang Council although it is anticipated that this cost

will be recovered from the fees generated by use of the facility. Overall, the proposal is considered to provide a positive socio-economic benefit.

The Working Group Report to Council (4th March 2010) states:

> *The funding of the capital cost would need to be from loans with the repayment for these to come from the general waste charge (GWC). The operational costs would need to be covered by a combination of the general waste charge and gate fees at the WTS. However, there will theoretically be no increase in revenue from gate fees as gate fees for this waste from Wamboin/Bywong/Sutton East are already accounted in expected receipts at the Bungendore WTS.*
>
> *Already proposed in the draft 2010/11 Management Plan Budget is an increase in the GWC of $18 to cover the costs of already approved waste projects under Council's adopted 20 year Waste Strategy, including the construction of the Bungendore WTS and programmed re-instatement of Bungendore and Macs Reef landfills for which new loans will need to be serviced and gate fees will need to be paid at the new waste disposal destination.*

5.5.11 Vermin and Rubbish Control

The landfill operations currently result in exposed areas of waste within the site that are subject to vermin and also result in rubbish movement by wind and water. The proposed WTS incorporates a number of waste bins to collect rubbish deposited at the site. The provision of the bins segregates the waste from exposure to the vermin and environmental elements. The bins provide a solid encasement structure with a lid that when closed should be impervious to vermin and prevent rubbish movement through the site by wind and water. During operational hours the bin lids will be open. When the WTS is closed or during periods of high winds and/or storms/rain the lids should be closed. This simple management measure will mitigate the potential impacts of wind/water blown rubbish on the surrounding area and also ameliorate the encouragement of vermin activity and use of the site.

The closure and rehabilitation of the landfill operations will also significantly reduce windblown rubbish impacts on the surrounding area and opportunities for vermin activity.

5.5.12 Cumulative Impacts

The WTS development on the existing landfill site for Macs Reef Rubbish Depot will initially result in an increase in the development area of the site, although with the closure and rehabilitation of the landfill operations, the intensity of the site development area will reduce

significantly. The cumulative impacts of the development of the WTS have been examined and are addressed below.

Flora and Fauna

The clearing of native vegetation is required for the WTS. The woodland community within the region is considered fragmented and the site forms part of an east-west wildlife corridor. The clearing of the site is considered to not significantly impact on flora and fauna, including threatened species and communities or fauna habitat. The clearing of vegetation will contribute to the existing fragmentation of the woodland community, although the percentage of the impact on the regional community is considered to be extremely low. Additionally, the rehabilitation of the landfill operation area, which represents nearly 60% of the site, will assist in restoring some of the wildlife corridor values of the site. The cumulative impact of WTS on flora and fauna is considered to be low.

Cultural Heritage

The cultural heritage inspection and assessment outlined that the impact of the development on matters of Aboriginal cultural heritage is considered low due to the topography and location of the site with reference to past Aboriginal occupation and use of the landscape. Should any items or matters of Aboriginal cultural heritage be found, an assessment of the matter will be undertaken by an archaeologist, representatives of the Ngambri Local Aboriginal Land Council and OEH. Any impact on Aboriginal cultural heritage is considered significant as items of cultural heritage are finite and if destroyed are lost forever. The cumulative impact on cultural heritage can only be assessed by the Aboriginal people and their advice will be sought should any matters of culturally significance be located on site.

Erosion & Sediment Control

The site currently is influenced by the landfill operations which incorporate erosion and sediment controls measures. However, due to the scale of the landfill operations, localised erosion and sedimentation occurs within the site. The proposal includes an erosion and sediment control plan to ameliorate these matters and the sealing of the unnamed access road and internal site access to the WTS. Combined with the rehabilitation of the landfill operations, the cumulative impact of erosion and sediment impacts for the site is considered to be positive with a significant reduction in unsealed and exposed soil areas of the site.

Air & Odour

The reduction in waste volumes entering the site, storage of waste in enclosed bins, the closure and rehabilitation of the landfill area and the sealing of the access roads should result in the

reduction of the overall dust and odour emissions from the site. The cumulative impact of these actions is considered positive.

Visual Impact

The proposal has been sighted in the lower part of the site and is screened from Macs Reef Road by existing vegetation. The inclusion of green roofing materials will assist in reducing any visual dominance in the landscape. The WTS is considered to have a low cumulative impact on the rural and visual landscape of the area which will be further mitigated through the closure and rehabilitation of the landfill operations.

Noise and Vibration

The noise assessment has examined the cumulative impact of the proposal with regards to noise and vibration. Potential cumulative noise impacts from existing and successive developments with existing industrial noise sources have been assessed in the determination of the project specific noise criteria at each receiver location. The assessment concludes that the WTS will not result in any significant cumulative impacts.

Socio-Economic

The development of the WTS on the existing Rubbish Depot site reduces the requirement to find an alternate site, which also negates the introduction of a WTS impacts on additional residences in the area. The sealing of access roads, upgrading of the Macs Reef intersection for safety purposes and reduced operating hours should result in positive outcomes for the adjacent residences in comparison to the current landfill operations. The closure and rehabilitation of the landfill operations combined with the development of the WTS is considered positive as jobs are maintained, economic multiplier factors will benefit the community/region and noise, dust and odour impacts should ameliorate.

Cumulative Impact Conclusion

Based on the detailed assessment outcomes for the WTS, the proposal is not considered to result in any significant cumulative impact for environmental, social or economic matters.

5.5.13 Safety

As with many isolated areas, crime and public safety can be a concern and have a potentially adverse impact. Consideration has been given to safety of visitors and the public and the proposal has incorporated safer by design principles into the design.

The Safer by Design program commenced in NSW in the early 1990's. The program is a co-operative initiative involving the NSW Police, local councils, government departments and key private sector organisations. The aim of the program is to ensure that development application proposals are routinely assessed for crime risk, and that preventable risk is reduced before the development is approved. This analysis has been undertaken to ensure safety measures are incorporated into the design.

Community ownership of private and public space sends positive signals to the community. Places that feel owned and cared for are likely to be used, enjoyed and revisited. People who have guardianship or ownership of areas are more likely to provide effective supervision and to intervene in crime than passing strangers and criminals rarely commit crime in areas where the risk of detection and challenge are high. Effective guardians are often staff and clients of establishments or ordinary people who are spatially 'connected' to a place and feel an association with, or responsibility for it. The staff and users of the facility provide a level of guardianship for the area. The following measures outline relevant safety by design measures that have been taken into consideration for the proposal.

Territorial Re-enforcement

Territorial Re-enforcement uses actual and symbolic boundary markers, spatial legibility and environmental cues to 'connect' people with space, to encourage communal responsibility for public areas and facilities, and to communicate to people where they should/not be and what activities are appropriate. The boundaries of the WTS are defined by fencing and represent clear spatial legibility of the areas accessible for general public waste drop off. Internally, gates separate where the general public can drop off waste and where service vehicles access the bins. The WTS will not be predominantly visible from the public domain of Macs Reef Road. This reduces casual surveillance opportunities of the site and security fencing is proposed to account for out of hour's security.

The proposal defines the actual and symbolic boundary markers internally using gates to separate operational areas from public areas as outlined above. This provides a clear differentiation of where people should and should not be with respects to the facility and the movement of people/vehicles.

Surveillance

People feel safe in open areas when they can see and interact with others, particularly people connected with that space, such as staff or other patrons of the facility. The site office has been designed to overlook the waste drop off and car park area through the use of a roller door at the front and glass windows along the side façade of the building. Criminals are often deterred from

committing crime in places that are well supervised and these measures will assist with the passive surveillance of the WTS.

No direct surveillance at night is provided and lighting is not proposed for the WTS as reticulated power is not connected to the site. Lighting of the WTS at night would also impact on the rural amenity of the rural area.

Natural surveillance is achieved when normal space users can see and be seen by others. This highlights the importance of site office orientation and location, the strategic use of fencing to separate areas of use and the open design of the drop off area. Accordingly, natural surveillance of the site during operating hours is a by-product of a well-planned, well-designed and well-used space. These elements were important components incorporated during the design phase of the proposal.

Technical/mechanical surveillance is achieved through mechanical/electronic measures such as CCTV, help points and mirrored building panels. It is commonly used as a 'patch' to supervise isolated, high risk locations. The proposal does not intend to install CCTV or other mechanical/electrical measures at this stage due to the lack of reticulated power to the site and additional cost versus risk associated with such measures. Consideration of CCTV may be undertaken in the future should illegal out of hours dumping of rubbish at the front entry become a concern.

Formal (or Organised) surveillance is achieved through the tactical positioning of guardians. An example is the use of on-site supervisors, e.g. security guards at higher risk locations. This application of formal surveillance is not considered necessary in this circumstance.

Access Control

Access control treatments restrict, channel and encourage people and vehicles into, out of and around the development. Way-finding, desire-lines and formal/informal routes are important crime prevention considerations. Effective access control can be achieved by using physical and symbolic barriers that channel and group people into areas, therefore increasing the time and effort required for criminals to commit crime. Access control measures are directly implemented through the design of the WTS to maintain the public use of the site to the single level of the drop off area. Access control to other areas (i.e. bin storage areas) is restricted by security gates within the WTS, which prevent accidental or intentional access to the lower bin storage areas.

Natural access control includes the tactical use of landforms and built form features, design measures including building configuration; formal and informal pathways, landscaping, fencing and gardens. The waste drop off area and buy-back centre have been configured to use natural

access control to delineate the facility boundary and move people through the site in a safe and efficient manner. Railings are proposed at the edge of the bin bays to provide a physical barrier to prevent people and vehicles falling over the edge into the bins.

The drop off area will have vehicles reversing and manoeuvring to access and use the facility. It is recommended that advisory signs be erected at the WTS indicating that children should not be allowed out of vehicles whilst at the WTS. This reduces the risk of children and vehicle conflict. Many large vehicles such as 4WD have limited visual clearance for drivers when reversing. Many rural landowners operate such vehicles and the measure to prevent children movements through the WTS will assist in reducing the risk of children and vehicle conflicts.
Formal (or Organised) and Technical/Mechanical access control includes the employment of security hardware and on-site guardians such as employed security officers. The provision of staff overseeing the activities at the WTS is a formal direct access control measure.

Space/Activity Management

Space/Activity Management strategies are an important way to develop and maintain natural community control. Space management involves the formal supervision, control and care of the development, which will be provided by the staff of the WTS. All space, even well planned and well-designed areas need to be effectively used and maintained to maximise community safety. Security fencing will control access to the facility during periods out of operational hours.

5.5.14 Fire Management

Fire management is one of the most important tasks in managing rural areas within NSW. Fire is a natural and reoccurring factor that influences the environment. The potential for fires to cause significant harm to human life, property and other values including biodiversity, cultural heritage and the onset of climate change makes the implementation of risk management procedures essential for developments, especially those occurring within rural and bushfire prone areas. The primary objectives of fire management are to:

- Protect life, property and community assets from the adverse impacts of fire;
- Develop and implement cooperative and coordinated fire management arrangements with fire authorities, neighbours and the community; and
- Protect aboriginal sites and places, historic places and culturally significant features known to exist.

The proposal site is within a bushfire prone land zone. A 20,000 litre water tank will be established on site for fire fighting and the refilling of fire fighting tankers with a refill access hole of at least 200 mm diameter. The potential for fires will be minimised by the following actions:

- Access gates being locked at all times outside opening hours.
- Maintenance of boundary fences and associated fire breaks.
- Maintenance of lockable gates.
- Accepting only permitted wastes.
- Regularly removing waste and recyclables from the WTS area.
- Conducting regular litter patrols.
- Maintaining machinery in good working order to minimise the risk of sparks.
- Maintenance of fire fighting equipment.
- Consultation with the Rural Fire Service.

Detailed fire management procedures are further outlined within the Environmental Management Plan provided by Quadro Australia Pty Ltd.

5.5.15 Landfill Closure and Rehabilitation

Correspondence from OEH has advised that the conditions of consent for the WTS proposal should require that a closure plan be developed and implemented for the existing landfill. The Environmental Guidelines for Solid Waste Landfills nominate that a closure and rehabilitation plan must be prepared and submitted within 3 months of a closure of a landfill. As the closure plan requires detailed survey of the final land form post closure, it is propose that in accordance with the advice from OEH that a closure and rehabilitation plan be undertaken following the closure of the landfill operations and this be nominated as a condition of consent for the WTS.
The cap of the landfill will be designed and constructed to utilize the best available technology, with the aim of ensuring total containment of the waste and leachate to the maximum extent available. Monitoring of this process will be of the utmost importance, specifically to ensure that leakage of contaminants is limited.

Specific details will be provided within a Landfill Closure and Rehabilitation Plan as required by the Environmental Guidelines for Solid Waste Landfills and include the matters outlined in the correspondence received from OEH (reference DOC 11/40013) to the Department of Planning and Infrastructure, regarding the WTS.

6 ENVIRONMENTAL RISK ANALYSIS

An environmental risk analysis is an assessment of the risks imposed on the environment for a particular project and involves the estimation of the effects of a proposed change and the importance of those effects (Thomas 2001). The primary objectives of the environmental risk analysis include:

- Identification of potential hazard/impact;
- Determination of the consequence of the hazard/impact occurring;
- Determination of the likelihood of an event occurring;
- Assessment of the risk by determining the probability (likelihood) and consequence (effect) of each hazard/impact;
- Identification of the measures/safe guards to mitigate the hazard/impact; and
- Reassessment of the risk by determining the probability (likelihood) and consequence (effect) of each hazard/impact with the implementation of mitigation measures.

The identification of potential hazards/impacts was undertaken via consideration of the issues raised during the consultation period and environmental assessments. The consequence and likelihood were calculated using a simple matrix format equation:

Risk = Likelihood x Consequence

The calculator has been adapted from Australian/New Zealand Standard 4360:2004 Risk Management and compares the consequence (severity) of the impacts against the likelihood of occurrence and provides a weight (score) related to the risk associated with the environmental issue. Table 6-3 provides the risk assessment for each impact without the implementation of mitigation measures and with the implementation of mitigation measures.

Table 6-1: Risk Assessment Calculator

Consequence				LIKELIHOOD				
Level	Assets	Environment	People	E – Rare May occur only in exceptional circumstances (million to 1)	D – Unlikely Could occur at some time (10,000 to 1)	C – Possible Might occur at some time (100 to 1)	B – Likely Will probably occur in most circumstances (even money)	A – Almost certain Is expected to occur in most circumstances (odds-on)
1 - Insignificant	Slight damage <$5,000	Environmental nuisance	Slight injury	L	L	L	M	M
2, Minor	Minor damage <$50,000	Material environmental harm	Minor injury / occ illness	L	L	M	H	H
3 - Moderate	Localised damage <$500,000	Serious environmental harm	Significant injury / occ illness	M	M	H	H	E
4 - Major	Major damage <$5,000,000	Major environmental harm	Single fatality / permanent /total disability	M	H	E	E	E
5 - Catastrophic	Extensive damage >$5,000,000	Extreme environmental harm	Catastrophic multiple fatality	H	E	E	E	E

Table 6-2: Environmental Risk Score and Assessment Table used in conjunction with Table 4-1.

Score	Risk assessment and action
E	Extreme risk, consider discontinuing activity until hazard eliminated or appropriate controls are implemented
H	High risk, corrective action required to reduce risk
M	Moderate risk, need for attention indicated - if possible
L	Low risk, risk perhaps acceptable, manage by routine procedures, monitor as appropriate

Table 6-3: Environmental Risk Assessment for BLWF using the Risk Assessment Calculator in Table 6-1.

Impact	Environmental Risk Score without implementation of mitigation measures			Environmental Risk Score with implementation of mitigation measures		
	Consequence	Likelihood	Score	Consequence	Likelihood	Score
Greenhouse emissions from construction machinery	1, Insignificant	B, Likely	M	1, Insignificant	B, Likely	M
Water Contamination from waste	3, Moderate	B,Likely	H	3, Moderate	D, Unlikely	M
Visual impact from construction and on-going operation of WTS	2, Minor	B, Likely	H	1, Insignificant	C, Possible	L
Noise emissions from construction machinery	1, Insignificant	B, Likely	M	1, Insignificant	C, Possible	L
Noise emissions from WTS	1, Insignificant	B, Likely	M	1, Insignificant	C, Possible	L
Exhaust emissions from machinery	1, Insignificant	B, Likely	M	1, Insignificant	C, Possible	L
Dust from construction activities	1, Insignificant	B, Likely	M	1, Insignificant	C, Possible	L
On-site erosion from construction operations	2, Minor	B, Likely	H	1, Insignificant	C, Possible	L
Vegetation removal & spread of weeds	2, Minor	A, Almost Certain	H	1, Insignificant	B, Likely	M
Potential for impact on unidentified items of Aboriginal cultural heritage	2, Minor	C, Possible	M	2, Minor	D, Unlikely	L
Generation of waste products	1, Insignificant	B, Likely	M	1, Insignificant	D, Unlikely	L
Start a bushfire or contribute to bushfire threats	2, Minor	C, Possible	M	2, Minor	D, Unlikely	L
Polarisation of community views regarding the WTS	2, Minor	C, Possible	M	1, Insignificant	D, Unlikely	L
Potential for land values to be impacted by the development of the WTS	1, Insignificant	D, Unlikely	L	1, Insignificant	D, Unlikely	L
Cumulative impacts	2, Minor	C, Possible	M	1, Insignificant	D, Unlikely	L

7 SUMMARY OF RECOMMENDED MITIGATION AND MANAGEMENT MEASURES

The following points listed in Table 6-1 are a summary of the recommendations made during the detailed assessment of the WTS. All practicable controls will be put in place to ensure there is no adverse impact to the existing environment as a consequence to the proposed works.

Table 7-1: Recommended Mitigation and Management Measures

Flora and Fauna	• The tip site slopes from east to west and is bordered by two shallow depressions on the northern side and one on the southern side of the site. These ephemeral flowlines should be protected from any seepage discharge during and following restoration and revegetation of the site, to ensure no polluted waters enter the Yass River.
Soil and Water Management	• The management of water quality during any construction activity is to be undertaken in accordance with the recommendations outlined in "Landcom (2004) Managing Urban Stormwater – Soils and Construction (The Blue Book)". • Water management measures are to include: clean water diversion drains on the high side of the disturbed areas, sediment fencing, sediment basins, staked bales, stockpile erosion protection and stabilised road crossings. • Erosion and Sedimentation control across the proposed disturbance areas are to be consistent with Figures 4 and 5 of the Soil and Water Management Plan as contained in Appendix 12. • Topsoil should be stripped in slightly moist conditions to minimise dust generation • Stockpiles shall be located to avoid natural or developed surface drainage paths • Sampling and reporting of leachate waters, sediments, and on-site water during the construction phase should be daily – monthly and drop back to quarterly – annually during the operational stage
Cultural Heritage	• All contractors and staff involved in the construction of the WTS or rehabilitation works undertake site inductions so workers and staff are aware of and competent in identifying Aboriginal artefacts. • If any previously undetected Aboriginal site or relic is uncovered or unearthed during rehabilitation works at the tip, all work at that location must cease immediately and advice on appropriate action be obtained from the South Branch of the Environment Protection and Regulation Division of the NSW Office of Environment and Heritage (OEH). • In the event that skeletal remains are uncovered, work must cease immediately in that area and the area fenced. The proponent should then contact the NSW Police and follow the advised procedure. If the skeletal remains are determined to be Aboriginal, the proponent should then contact the OEH and relevant Aboriginal Community Stakeholders in order to determine an action plan for the management of the skeletal remains

	prior to works commencing. • Pursuant to Section 146 of the *Heritage Act* 1977, if any collection of historical objects more than 50 years old are identified during the proposed works that may be impacted, the works will cease and Palerang Council's heritage officer and the State Heritage Council will be immediately notified.
Geotechnical	• It is recommended that a Geotechnical Assessment is undertaken to confirm the site conditions so the appropriate engineering can be incorporated into the detailed construction plans for the proposed WTS.
Erosion and Sediment Control	• Standard erosion and sediment control measures should follow the philosophy of adaptive management, which will ensure all works are monitored and regularly reviewed assessed and adapted to protect the environment. • Ongoing operational erosion and sediment control measures for the WTS are provided in the EMP prepared by Quadro Australia.
Air Quality and Odour Control	• The following management measures are recommended to reduce the chance of dust and odour issues during the course of the construction, operation and rehabilitation works on-site. These include; ○ Minimizing the surface area that is disturbed at any one time; ○ Minimize the amount of area that needs to be cleared where possible; ○ Confine vehicle and machinery movement to access roads or hard stand areas where possible; ○ The use of a water cart to eliminate windblown dust when possible; ○ Use of sprays or sprinklers on stockpiles or loads to lightly condition the material; ○ Use of tarpaulin or tack-coat emulsion or sprays to prevent dust blow from stockpiles or from vehicle loads; ○ Covering stockpiles or loads with polythene or geotextile membranes; ○ Ceasing works during periods of inclement weather such as severe storms; and ○ In the event that remedial measures are found to be ineffective for the control of dust (i.e. prevailing strong winds), work may be suspended as a precautionary measure until conditions are suitable for recommence.
Visual Impacts	• It is recommended that the understorey of the vegetated area between the WTS and Macs Reef Road be landscaped with understorey plant species consistent with the requirements of the Rural DCP to enhance the screening of the proposal from Macs Reef Road. Enhancement of this setback area will assist in ameliorating the view of the WTS from Macs Reef Road. This in-turn would mitigate any visual impacts from Macs Reef Road for local residents and other potential viewers utilising this road. • Vegetation screening increases the depth of view to any affected receptor. Generally, mitigation planting off-site in this circumstance is considered to not be required. Should a visual impact issue be raised by an adjacent resident, potential off-site landscaping may assist in ameliorating any impacts. This outcome should only follow a further assessment of any claimed impact. Off-site landscaping should be undertaken to suit the type of view received, the orientation of the property and existing intervening

	topographical patterns.
	• Additional visual mitigation measures include:
	  ○ minimising the need for clearing;
	  ○ implementing appropriate erosion and sediment controls;
	  ○ use black chain wire for fencing to reduce visual prominence;
	  ○ appropriate colour and material selection in accordance with the current design considerations; and
	  ○ cleaning up the site, removing construction waste and revegetating / landscaping areas following construction.

Traffic	• The intersection has been designed in accordance with:
	  ○ Section 4, Intersections at Grade, of the Roads and Traffic Authority of NSW *Road Design Guide*;
	  ○ Average Daily Traffic volumes recorded by Council;
	  ○ Macs Reef Road travel speed (90km/hr);
	  ○ Nominal lane width (3.50m);
	  ○ Intersection angle with minor road (90°);
	  ○ Intersection type (two lane two way road with T junction); and
	  ○ Assumed Macs Reef Road traffic growth, 3%pa (Council's advice).
	• This construction will be consistent with all relevant objectives and clauses of the Roads Act 1993 and the stipulations as set out by the Local Traffic Committee. Concept plans of the proposed intersection and site access road are contained within the WTS Concept Plans contained in Appendix 3.
	• STAP would agree that for the foreseeable future the proposed intersection upgrade would suffice, but again STAP note that the potential for this surveyed growth to continue (into the future) must be taken into account, as such growth over a further 5 years would potentially require a different type of intersection upgrade. It is recommended that annual survey data be continue to be collected and the future traffic levels monitored over the next 5 years. The results of this monitoring would guide any additional upgrade requirements of the WTS and the intersection with Macs Reef Road.

Noise and Vibration	• Various noise management techniques are recommended to reduce the impact of noise and vibration due to construction and operation of the proposed WTS on nearby residential receivers. • An important aspect of the mitigation of noise impacts during all construction phases will be adherence to the standard daytime construction hours. • Noisy plant operating simultaneously to be avoided wherever possible. • Maintenance work on all construction plant will be carried out away from noise sensitive areas and confined to standard daytime construction hours, where practicable. • Locate noisy equipment behind structures that act as barriers or at the greatest distance from the noise-sensitive area or orient the equipment so that noise emissions are directed away from any sensitive areas. • Keep equipment well maintained.

	• Employ "quiet" practices when operating equipment (e.g. positioning and unloading of trucks in appropriate areas). • Implementation of an effective complaints handling system. • Limit compression and exhaust braking along access roads. • Switch off machinery when not in use for great periods. • With regard to potentially offensive noise events associated with construction activities AS 2436-1981 *"Guide to noise control on construction, maintenance and demolition sites"* provides the following: • If noisy operations must be carried out, then a responsible person should maintain liaison between the neighbouring community and the contractor. This person should inform the public at what time to expect noisy operations and also inform the contractor of any special needs of the public. • Consultation and cooperation between the contractor and his neighbours and the removal of uncertainty and rumour can help to reduce the adverse reaction to noise. • Vibration management measures are considered as not required as all vibration levels from operation of the development are predicted to be negligible at all receiver locations.
Vermin and Rubbish Control	• During operational hours the bin lids will be open. When the WTS is closed or during periods of high winds and/or storms/rain the lids should be closed. This simple management measure will mitigate the potential impacts of wind/water blown rubbish on the surrounding area and also ameliorate the encouragement of vermin activity and use of the site.
Incident and Risk Management	• Corrective and preventative actions will be carried out to ensure the appropriate follow up action is completed with the aim of improving environmental performance. This includes reporting, recording and investigation in accordance with the procedures outlined in the Environmental Management Plan. • Respective authorities will immediately be contacted regarding any specific incident details • Staff members to undergo incident management training to ensure they are able to identify an environmental incident or risk, take appropriate immediate actions and know the reporting requirements

8 CONSULTATION

Consultation has been a key part of the project development. Consultation has been undertaken with Palerang Council, NSW Department of Planning and Infrastructure, NSW Department of Environment and Heritage, Ngambri Local Aboriginal Land Council, Local Community Groups and relevant landowners and residents. Three principle aims were applied to the consultation processes of this proposal, these were:

- To raise awareness of the proposal within the local council, government agencies, adjacent residents and the local community;
- To provide opportunities for all residents, community groups and interested parties to comment on and provide feedback to the design and development of the project; and
- To provide as many opportunities as possible for the project team to interact with the local council, government agencies, adjacent residents and the local community.

The main objective of the consultation undertaken during the preparation of the proposal was to provide accurate information to the relevant agencies, and to provide a diverse range of opportunities for the community to engage and participate in the planning process through to the approval and construction phase.

Government Agency Consultation

Pursuant to section 112C of the *Environmental Planning and Assessment Act 1979*, the Director General of the Department of Planning and Infrastructure was consulted in regards to the proposal. A list of requirements was submitted by the Director General on the 23rd September 2011, a copy of which is contained in Appendix 14. The DGRs have been taken into consideration whilst preparing this EIS to ensure compliance with state legislation.

Consultation with the NSW Office of Environment and Heritage and the Department of Planning and Infrastructure has allowed for positive communication and feedback from these governing authorities throughout the approval process. Ongoing consultation with Palerang Council has been fundamental to the progress of this proposal; the intention being to ensure that once lodged Council has substantial information and thorough understanding of the proposal and its impacts. Ongoing consultation will be maintained with these authorities throughout the approval process. Appendix 15 contains letters received from the government agencies during consultations.

Community Consultation

A Community Consultation Program was prepared by Environmental Planning Services Pty Ltd which is contained within Appendix 13. There is strong support for the Waste Transfer Station from within the local community. An initial community survey undertaken by the Waste Management Working Group (established by Palerang Council) indicated that more than 75% of those who responded to the survey favoured placement of a waste transfer station within the existing landfill site. This was substantially higher than those requesting a council operated roadside bin collection. Letters were distributed to adjacent landowners detailing the initial community meeting held on the 24th January 2011, and provided copies of the proposed plans and environmental assessments. A copy of this letter is contained within Appendix 13. Phase 5 of the Community Consultation Program, which ensures ongoing consultation is held with the local community throughout the approval process, was continued until the 22nd of November 2011 when the most recent community information session was held at the Bywong Community Hall. A copy of the agenda for this meeting is contained within Appendix 15, as well as advertisements within local media sources of the meeting. The following images show members of the local community attending the meeting, providing valuable feedback and approval for the proposal.

Figure 8-1: Community Information Session – Bywong Community Hall

Figure 8-2: Community Information Session – Bywong Community Hall

There will be opportunities for ongoing community consultation throughout the planning assessment, construction and operation phases.

9 CONCLUSION

This Environmental Impact statement has been prepared for the proposed waste transfer station on Macs Reef Road, Bywong, NSW. The aim of the proposal is to provide the local community with a waste disposal facility that meets a community expectations and offers a more positive environmental outcome with the closure of existing landfill within the site. The purpose of this statement is to assess any potential environmental impacts or constraints arising from the proposed WTS, to provide Palerang Council with sufficient information to consider this proposal.

This statement has outlined the relevant environmental, social and economic matters associated with the proposal as known at this time. The Statement has clearly identified the benefits and compatibility of the site for the proposed WTS. It is considered that the proposed works will not result in any significant impacts with regards social, economic or environmental matters. Any potential impacts are considered to be minimal and transitory in nature and are easily managed by the recommended mitigation measures.

The statement provides information as required for assessment pursuant to section 79c of the *Environmental Planning and Assessment Act 1979*, matters for consideration pursuant to Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* and addresses the requirements issued by the Director-General of the Department of Planning and Infrastructure.
The proposal and history of development of the preferred WTS design and site location is representative of contemporary planning practice and reflective of the principles of ecological sustainable development. On merit it is considered that the proposed development meets all regulatory and environmental assessment criteria and is suitable for a positive development determination.

10 REFERENCES

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Department of Environment, Climate Change and Water (DECCW) 2009, *Environmental Guidelines: Solid Waste Landfills,* viewed 16 November 2010, available at http://www.environment.nsw.gov.au/waste/envguidlns/index.htm

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Good Environmental Systems (GSE), 2009, Environmental Survey and Assessment (REF)of the Macs Reef Tip Restoration and Redevelopment Site, by Roger Doo Environmental Consultants, Bungendore NSW.

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Palerang Council 2010, *Extraordinary Meeting No. 2 – 11 February 2010 To be held at Majara St Bungendore Commencing at 4.00 pm,* viewed 22 November 2010, URL:http://www.palerang.nsw.gov.au/files/11127/File/extord2010_02_11.pdf

Thomas, I (2001) Environmental Impact Assessment in Australia, Theory and Practice, Third Edition, Federation Press.

Appendix 1

Concept Options Report

Macs Reef Waste Transfer Station (2010)

Appendix 2

Macs Reef Waste Management Working Group – Report to Council (2010)

Appendix 3

Waste Transfer Station Concept Plans for Macs Reef

Prepared by Quadro Australia Pty Ltd (2011)

Appendix 4

Environmental Management Plan for the WTS

Prepared by Quadro (2011)

Appendix 5

Environmental Survey Assessment for the WTS

Prepared by Good Environmental Systems (2012)

Appendix 6

Cultural Heritage Assessment for the WTS

Prepared by Good Environmental Systems (2009)

Appendix 7

Air Quality and Odour Impact Assessment for the WTS

Prepared by SLR Consulting (2011)

Appendix 8

On-site Sewage Assessment for the WTS

Prepared by Soil and Land Conservation Consulting (2011)

Appendix 9

Landscape & Visual Assessment Report for the WTS

Prepared by EPS (2011)

Appendix 10

Transport and Traffic Review for the WTS

Prepared by Stapleton Transportation & Planning Pty Ltd (STAP) (2010), Palerang Council memorandum of 14 December 2010 to Quadro (Australia) regarding queries by STAP over increased traffic volumes.

Appendix 11

Noise and Vibration Assessment for the WTS

Prepared by SLR Consulting (2011)

Appendix 12

Soil and Water Management Plan

Prepared by Coffey Environments Australia Pty Ltd (2012)

Appendix 13

Community Consultation Program

Prepared by Environmental Planning Services Pty Ltd

Appendix 14

Director-Generals Requirements

Issued on the 23rd of September 2011

Appendix 15

Community Consultation Documents

Advertisement within local media

Consultation with Government Authorities

Appendix 16

Water Analysis Results

Supplied by Sonic Healthcare Food and Water Testing