Roma to Brisbane Pipeline – Dalby Compressor Station Upgrade

Environmental Management Plan

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Important Note

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Summary

The APA Group is proposing to upgrade the existing Dalby Compressor Station, located approximately 5 km south west of Dalby, Queensland, on the Roma to Brisbane Pipeline (RBP). Due to population growth in the main urban centres of south-east Queensland, there is an increased demand for natural gas. APA has determined that the most efficient way to meet this demand is to increase the throughput volume of gas in the RBP by compressing and pumping more gas. As such it is proposed to upgrade the Dalby Compressor Station.

The existing Dalby Compressor Station is authorised under Petroleum Pipeline Licence No. 2 (PPL 2) for the RBP, pursuant to the *Petroleum and Gas (Production and Safety) Act 2004* and under Environmental Authority (EA) PEN100389409, pursuant to the *Environmental Protection Act 1994* (EP Act). The upgrade of the Dalby Compressor Station will consist of the installation of two additional compressor units and the construction of ancillary infrastructure, immediately adjacent to the existing compressor station footprint.

Currently, there are six compressors located along the RBP. Up to nine compressors are authorised under PPL 2, therefore the current proposal does not require an amendment to the pipeline licence. The proposed additional compressors are not authorised under EA PEN100389409 and therefore this Environmental Management Plan (EM Plan) has been prepared in support of an application to the Department of Environment and Resource Management (DERM) to amend EA PEN100389409.

Subject to securing the relevant approvals, it is anticipated that construction of the first unit could commence by the end of August 2011 and be completed by 30 June 2012. Construction activities will be limited to the project site, except where arrangements have been made with local landholders (e.g. to stockpile topsoil for their use). The project will require a maximum workforce of approximately 20 – 45 personnel who will be accommodated at existing facilities in Dalby.

Desktop assessment of existing environmental values have been conducted and it has been determined that the proposed upgrade will involve minimal impacts on ecological values as the site is already cleared, the surrounding area has been heavily disturbed through agricultural activities and there are no watercourses or patches of remnant vegetation in close proximity to the site.

The proposed compressor station upgrade is unlikely to significantly impact air quality or be a significant contributor to Australia's assigned Greenhouse Gas Quota under the Kyoto Protocol.

Specialist noise assessment undertaken by Sonus Pty Ltd identified that noise attenuation will be required at the site to meet the noise assessment criterion derived from Rating Background Levels (RBLs) calculated in accordance with the DERM Noise Management Manual, for eight out of the nine sensitive receptors (residences) identified. Attenuation proposed to be installed includes upgraded air inlet and exhaust silencers and the manufacturer's standard enclosure package.

The noise environment at the remaining sensitive receptor is already dominated by noise from the existing compressor meaning that assessment against RBLs is not considered relevant, therefore a separate noise criteria designed to avoid background creep has been proposed. To meet this criterion a substantial noise attenuation barrier will be constructed in direct line of sight between the new compressor units and this sensitive receptor. With this barrier and all other noise attenuation measures in place it is predicted that there will be an overall reduction of 1 dB(A) in noise levels at this sensitive

receptor. The construction of a noise attenuation barrier in this area presents significant engineering challenges with respect to wind resistance and foundations due to soil conditions and underlines APAs commitment to maintaining or improving the existing environment at the Dalby site. Given the size of the proposed barrier, APA undertook to consult the landholder at the closest sensitive receptor. The landholder was apprised of APAs proposal to mitigate noise impacts through construction of a noise barrier and did not raise any concerns with regard to potential impacts on visual amenity. APA has also undertaken additional consultation with the Mayor and Councillors of Western Downs Regional Council and the general public at a public information session held on Wednesday 13 April 2011.

Additionally, landowner at the closest receptor has also signed an acknowledgement letter stating that they are aware that current noise levels at the property are high, that the proposed mitigation measures will result in a reduction to noise levels at the property and that they accept this situation. As such APA Group have nominated another sensitive receptor to be the monitoring point for any subsequent DERM audits (refer Section 7.0).

Potential environmental impacts will be further reduced through the implementation of APA Group's Environmental Management System, adherence to environmental control strategies documented in this EM Plan and by complying with the conditions of the amended EA.

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1.0 Introduction

APA Group (APA) is proposing to upgrade the existing Dalby Compressor Station which is located on the Roma to Brisbane Pipeline (RBP), approximately 5 km south west of Dalby, Queensland (Figure 1). The compressor station upgrade will involve the expansion of the current site facility to accommodate the construction and operation of two additional compressor units and other associated ancillary infrastructure. The proposed upgrade is designed to allow for a greater throughput of gas in the RBP (by compressing and pumping more gas) to enable APA to meet its contracted obligations with regard to increased gas supply, which have been driven by rapid population growth in south-east Queensland

The RBP is operated under Pipeline Licence No. 2 (PPL 2) pursuant to the *Petroleum and Gas (Production and Safety) Act 2004* and under Environmental Authority (EA) PEN100389409, pursuant to the *Environmental Protection Act 1994* (EP Act). Construction of up to nine compressors is authorised under PPL 2 and as there are only six compressors currently located along the RBP, the proposed addition of two compressors at the Dalby site will not require amendment of PPL 2. However the additional compressors are not authorised under EA PEN100389409 and therefore the project requires assessment under the EP Act.

This Environmental Management Plan (EM Plan) provides specific information regarding the proposed upgrade of the Dalby Compressor Station and is designed to support the application to the Department of Environment and Resource Management (DERM) to amend EA PEN100389409 to incorporate the proposed expansion project.

1.1 Proponent

The holder of PPL 2 and EA PEN100389409 is APT Petroleum Pipelines Pty Ltd (APT). APT is a wholly owned subsidiary of the APA Group (APA) who own and operate the RBP. The APA Group is composed of a number of other entities including the Australian Pipeline Trust and APT Investment Trust and is Australia's largest transporter of natural gas. APA Group owns and manages over 12,000 km of gas transmission pipelines and over 2,800 km of gas distribution network system across Australia. APA Group delivers more than half of Australia's annual gas use through its infrastructure.

All activities associated with the proposed upgrade of the Dalby Compressor Station will be carried out by specialist contractors under APA's direct supervision.

1.2 Purpose and Scope of this EM Plan

1.2.1 Purpose

As the existing EA for PPL 2 does not authorise the construction of additional compressors, an amendment is required pursuant to Section 426A of the EP Act. The EP Act further stipulates that EA amendment applications must be supported by enough information to allow the administering authority (DERM) to decide the application (Section 310U). This EM Plan has been prepared in support of the current Level 1 EA amendment application, to fulfill this information requirement and to enable the assessment of the proposed works at the Dalby Compressor Station.

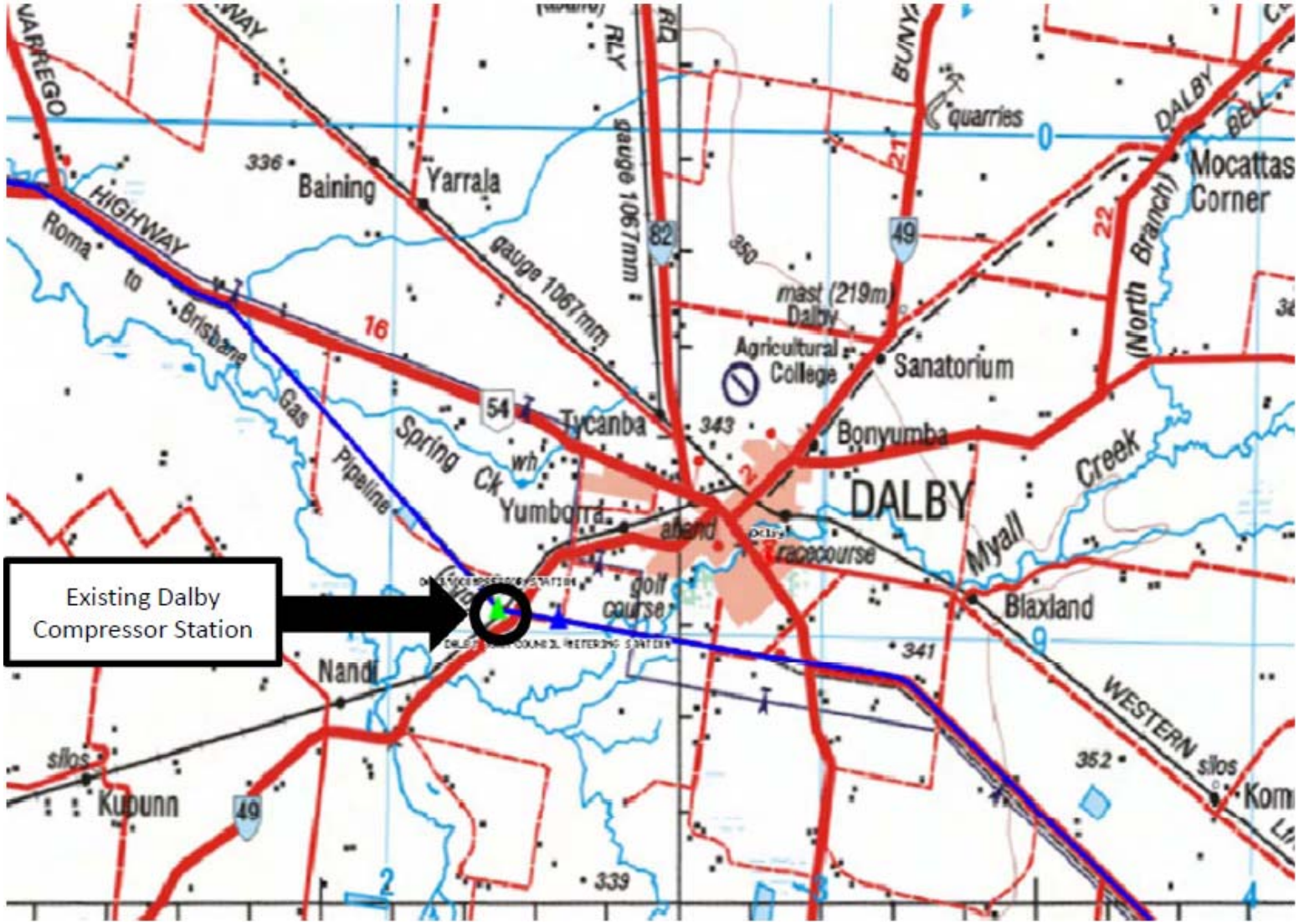

Figure 1: Site Location Overview

1.2.2 Scope

This EM Plan describes potential environmental impacts associated with upgrade of the Dalby Compressor Station as well as APA's proposed management approach to minimise such impacts. Specifically, this plan:

- Provides a description of the project, details of the proponent and applicable legislation;
- Describes the existing natural and social environment within the project area;
- Discusses potential environmental impacts associated with proposed activities;
- Proposes environmental protection objectives and control strategies;
- Proposes environmental management strategies for these impacts; and
- Includes financial assurance calculations for the proposed activities.

This EM Plan has been prepared in accordance with the Queensland Government, Ecoaccess Guideline: *Preparing an environmental management plan for coal seam gas activities* (DERM 2010a).

1.3 Proposed Resource Authority Area

The real property description of the land is Lot 1 on Plan RP172984 and the land is owned freehold by APA (refer to Plate 1 and Plate 2).

1.4 Financial Assurance

The proposed Financial Assurance for the construction and operation of the upgraded Dalby Compressor Station (including justification and supporting calculations) is provided in Appendix 1. Financial Assurance (FA) has been calculated on the basis of additional site specific estimates and is proposed as an additional amount to the FA already held by DERM against the RBP.

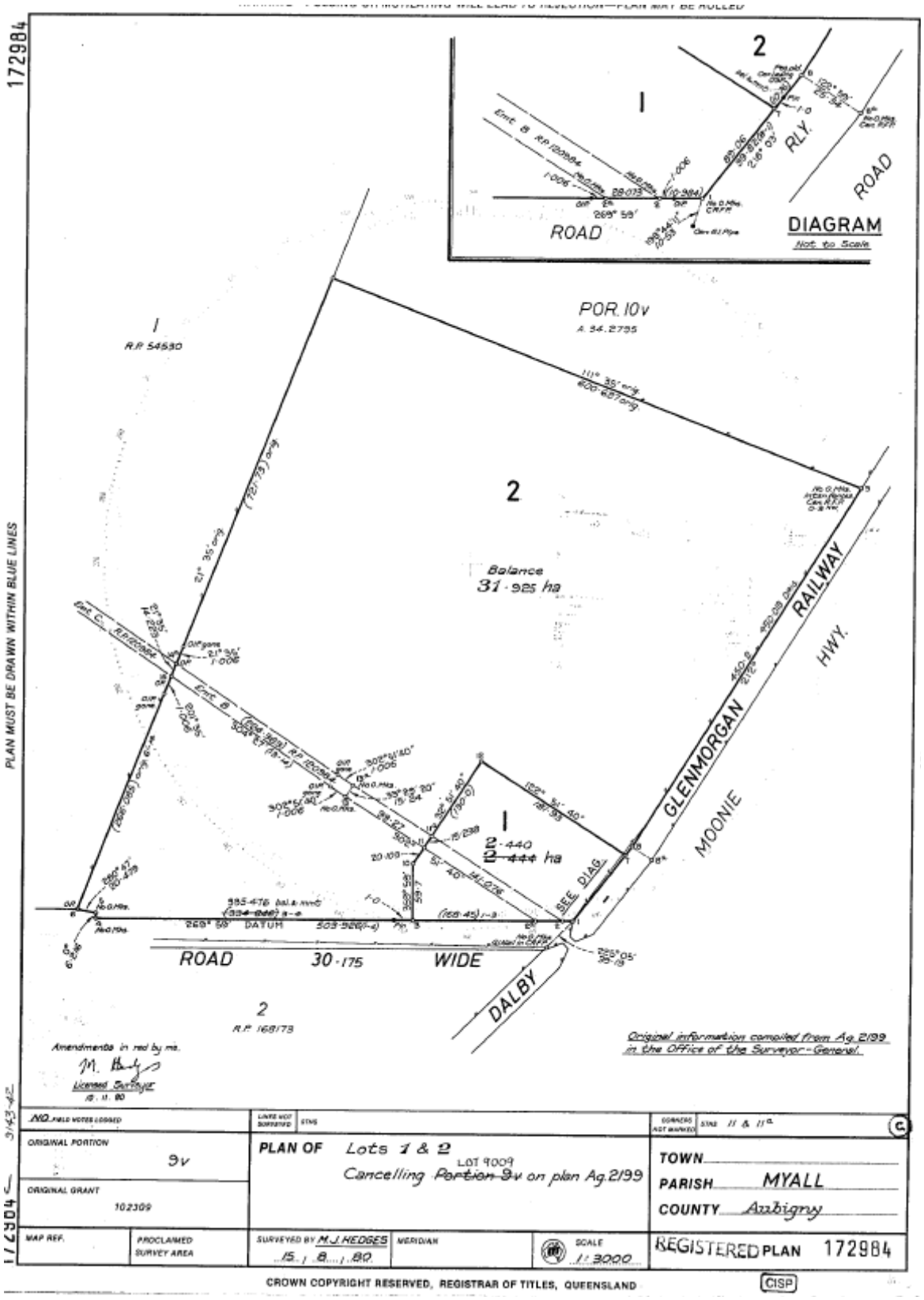

Plate 1: Survey Plan for the Site

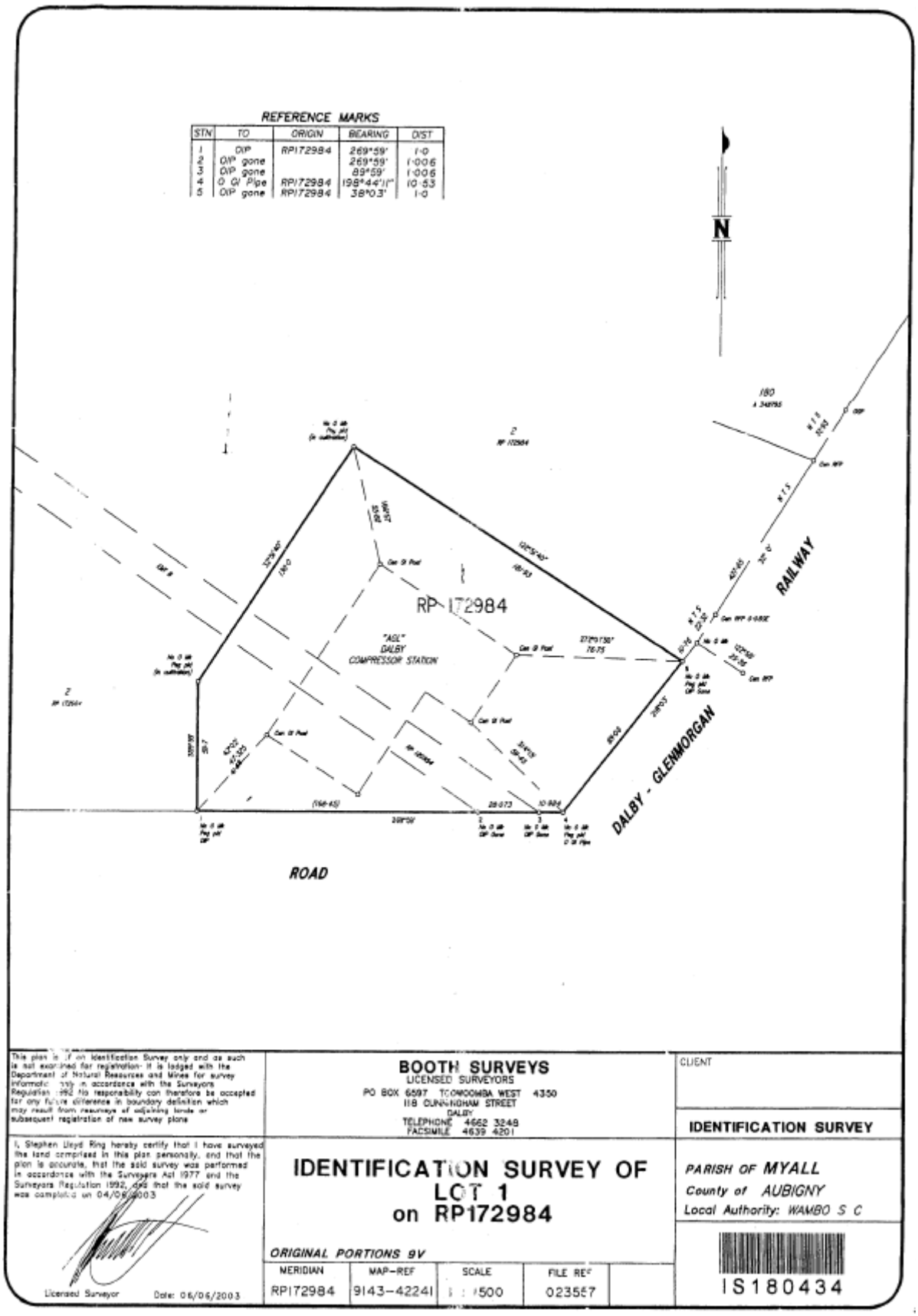

Plate 2: Identification Survey for Lot 1 RP172984

2.0 Legislative Framework

The primary legislation relevant to the upgrade of the Dalby Compressor Station is described below.

2.1 Commonwealth Approvals

2.1.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects the environment in relation to Matters of National Environmental Significance[1] (NES). Under the EPBC Act, if a development proposal involves an action that is likely to result in a significant impact on a matter of NES, the proposal must be referred to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC)[2].

Where such a referral is submitted, DSEWPC provides a determination as to whether the project is considered a 'controlled action' or 'not a controlled action'. Controlled actions require assessment under the EPBC Act in accordance with a formal assessment and approval process set by DSEWPC. Subject to the assessment process, project approval is granted by DSEWPC.

As described in Section 6.2.2 and Section 6.4, desktop assessment of Matters of NES at the project area did not identify any likely impacts to Matters of NES. Given these findings and in addition to the already significantly disturbed nature of the project area resulting from cropping activities, APA does not consider that the proposed upgrade of the Dalby Compressor Station will adversely impact on Matters of NES. As such a referral under the EPBC Act will not be made.

2.1.2 Native Title Act 1993

Under the *Native Title Act 1993* (NT Act), indigenous land rights may exist in areas such as vacant or unallocated crown land, some reserve lands, some types of pastoral lease and waters that are not privately owned. Native title can be extinguished by certain actions (for example where the land is held under freehold title).

The Dalby Compressor Station is located at Lot 1 on Plan RP172984 (refer to Plate 1 and Plate 2). This land is wholly owned (i.e. freehold) by the APA Group and therefore all native title has been extinguished at this location.

1 Matters of National Environmental Significance include: listed threatened species and ecological communities; migratory species protected under international agreements; Ramsar wetlands of international importance; the Commonwealth marine environment; World Heritage properties; National Heritage places; and nuclear actions.

2 Formerly the Department of Environment, Water, Heritage and the Arts (DEWHA)

2.2 State Approvals

2.2.1 Petroleum and Gas (Production and Safety) Act 2004

A PPL authorises the construction and operation of the pipeline including all connected facilities that are necessary for pipeline operation (such as valve, scraper, meter and compressor stations, plant and equipment and apparatus used for corrosion protection). The PPL also authorises activities that are considered to be 'incidental' to pipeline construction and operation (including temporary construction camps and storage areas), where such activities are carried out within the specified PPL area.

APA currently holds PPL 2, first granted under the *Petroleum Act 1923* on 21 December 1967. More recently, a number of amendments have been made to the PPL 2 under the *Petroleum and Gas (Production and Safety Act) 2004*. PPL 2 approves up to nine compressors to be constructed and operated along the length of the pipeline (refer Appendix 2). Currently there are six compressors operating along the RBP and therefore the proposed upgrade does not require additional approval under the *Petroleum and Gas (Production and Safety) Act 2004.*

2.2.2 Environmental Protection Act 1994

The purpose of the *Environmental Protection Act 1994* (EP Act) is to *"protect Queensland's environment while allowing for development that improves the total quality of life, now and in the future, in a way that maintains ecological processes on which life depends"*.

APA currently holds Level 1 EA PEN100389409, first granted on 18 February 2010 under the EP Act (refer Appendix 3). This EA authorises the operation of PPL 2 and associated pipeline facilities and specifically authorises the Chapter 5A Activity of fuel burning (Schedule 5, Activity Number 8), which is relevant to the operation of the compressor facilities. Under the current legislation this ERA is now listed as a Chapter 4 activity (refer to section 2.2.2.1 for further details).

The EP Act states that the holder of an EA may at any time, apply to the administering authority (DERM) to amend the EA and stipulates that the amendment application must be supported by enough information to allow DERM to decide the application (Section 310U). An amendment to EA PEN100389409 is required to allow for the upgrade of the Dalby Compressor Station. This EM Plan has therefore been prepared to fulfill the information requirements of the EP Act and represents the primary supporting information for this Level 1 EA amendment application.

2.2.2.1 Chapter 4 Activities

Chapter 4 Activities' are listed under Schedule 2 of the *Environmental Protection Regulation 2008* (EP Regulation). Where a Chapter 4 Activity has an 'Aggregate Environmental Score' (AES) stated in Schedule 2 of the EP Regulation and is undertaken under a Petroleum Authority, it will trigger a 'Level 1 Petroleum Activity[3]' as defined in Item 8 of Schedule 5 of the EP Regulation. The Chapter 4 Activity that may apply to the proposed RBP is:

- 15: Use of fuel burning equipment that is capable of burning at least 500 kg of fuel in an hour. The AES for this activity is 35.

2.2.3 Subsequent Approvals

A range of other legislation is potentially relevant to the proposed project and a number of additional approvals may be required prior construction and operation. Key approvals may relate to, for example:

- Relevant IDAS triggers (e.g. vegetation clearing) under the *Sustainable Planning Act 2009* (SPA), for all ancillary activities associated with the construction and operation of the compressor station, if undertaken outside the pipeline licence area;
- Removal of wildlife from excavations, and the taking (i.e. removal) of protected plants, may require permits under the *Nature Conservation Act 1992* (NC Act);
- Clearing of native vegetation will require a vegetation clearing permit under the NC Act;
- Approval to collect any cultural heritage material (as a result of accidental discovery during construction) may be required under the *Aboriginal Cultural Heritage Act 2003* (ACH Act);
- Taking water from watercourses or sub-artesian / artesian (bores) water may require permits under the *Water Act 2000*; and
- Diesel fuel storage may require a Flammable and Combustible Liquids licence from the local authority under the *Dangerous Goods Safety Management Act 2000*.

In addition to the above, all works will be undertaken in accordance with applicable WDRC requirements (e.g. building regulations) with all necessary approvals being obtained prior to construction.

3 Chapter 5A activities relevant to existing activities conducted on PPL 2 are listed in Table 1 of Appendix 3.

3.0 Project Description

A detailed description of the proposed upgrade of the Dalby Compressor Station is provided in the following sub-sections.

3.1 Justification and Alternatives

3.1.1 Project Justification

The RBP currently transports natural gas (including coal seam gas) from the Wallumbilla region to an existing gas market in south-east Queensland. The upgrade to the Dalby Compressor Station is required to increase the capacity of APA's RBP distribution network to continue to meet existing gas supply obligations and to meet the increasing demand for gas in the rapidly expanding urban centres of south-east Queensland. The current operating pressure of gas in the RBP limits APA's ability to meet this increased demand. Increasing compression will enable a higher throughput of gas and allow APA to meet their contractual obligations.

The construction of the upgraded compressor facility is also likely to have the following benefits:

- Environmental benefits through offsetting the overall reliance on coal based electricity generation (the traditional power source in Queensland) leading to an overall reduction in Greenhouse Gas (GHG) emissions; and
- Economic benefits for local businesses.

3.1.2 Project Alternatives

Based on existing demands for gas supply and tight time frames within which to meet these demands, increasing compression on the RBP was considered the most effective solution. Project alternatives such as looping of the RBP were not considered practical as:

- The pipeline is already partially looped; and
- Looping would also require additional compression facilities.

3.1.3 Design Alternatives

Construction of a looped pipeline was a possible design alternative, however, this was deemed to be unfeasible for the reasons discussed in Section 3.1.2, as such construction of additional compressors was the only other design alternative considered.

3.1.4 Construction Alternatives

Upgrade of the Dalby Compressor Station site is considered to be the only practicable option of increasing the volume of gas transported through the RBP. As such no construction alternatives were considered. However, where appropriate, alternative construction methods may be used as appropriate (refer to Section 5.4) to minimise construction related impacts.

3.2 Site Selection

The Dalby Compressor Station was chosen as the preferred location for the project as APA already own the land (freehold) and given the existing heavily disturbed and semi-rural nature of the site, impacts associated with the upgrade were considered to be minimal.

3.3 Project Timing and Life

Subject to APA having all of the necessary approvals in place, construction activities are scheduled to commence in August 2011 for a period of approximately 12 months. The design life of the compressor station is expected to be approximately 30 years.

3.4 Existing Dalby Compressor Station Site

The existing Dalby Compressor Station is located on the APA owned and operated Roma to Brisbane Pipeline (PPL 2), approximately 5 km south-west of Dalby, Queensland. It is situated wholly within the PPL 2 licence area and is adjacent to the Moonie Highway and the Dalby – Glenmorgan Railway (see Plate 3). The real property description of the land is Lot 1 on Plan RP172984 and the land is wholly owned by APA.

The existing compressor facility compound is approximately 2 ha and is comprised of:

- One 'Saturn 20' Solar Turbine compressor unit and associated piping;
- A bulk stores shed;
- An office and workshop;
- A control room;
- Oil store;
- Condensate tank;
- Diesel Engine Alternator (DEA);
- A small toilet block;
- A truck wash and a borrow pit; and
- DN100 off-take supplying fuel stock to the Dalby Bio-refinery.

Plate 3: Existing Dalby Compressor Station

3.5 Design and Engineering

APA currently allows a local landholder to crop those parts of Lot 1 not utilised by the existing compressor station as part of an on-going agreement. This agreement will be terminated by APA and the land utilised for the proposed upgrade. The site of the proposed expansion is immediately adjacent to the existing compressor compound in the neighbouring paddock. The proposed upgrade will involve the expansion of the compressor station compound to an area of 2.44 ha. This will accommodate the installation of two additional 'Centaur 50' Solar gas turbine compressor units and ancillary compressor equipment including:

- Ancillary air inlet system;
- Ancillary exhaust system;
- Cooler units;
- Fuel gas skids;
- Pipework and valves;
- Containment systems for spillage; and
- Station vent and machine vents.

Key design features of the proposed compressor station units are outlined in Table 1.

Table 1: Proposed Compressor Station Design Elements

Proposed Compressor Station Design Element	Details
Number of compressor units	2
Power output	4570kW
Fuel use	Gas
Engine Type	CENTAUR 50 Gas Turbine
Engine Power Site Rated	3.5 MW
Emissions (per unit): ▪ NO_x ▪ CO	 1.16g/s 2.75g/s
Stack Gas Temperature	515°C
Stack Gas Velocity	44 m/s
Stack Diameter	1.1m
Exhaust stack number	1
Noise control application	Refer Section 7.0

Other key infrastructure to be constructed at the compressor station will include:

- Oil store (existing oil store to be demolished);
- New control room;
- Diesel engine alternator (DEA);
- New access road and site carpark; and
- New toilet block (existing toilet block to be demolished).

The borrow pit at the front of the station will be filled and rehabilitated (Plate 1). The existing condensate tank and associated bunding will be decommissioned and removed. The proposed new site layout is shown in Figure 2.

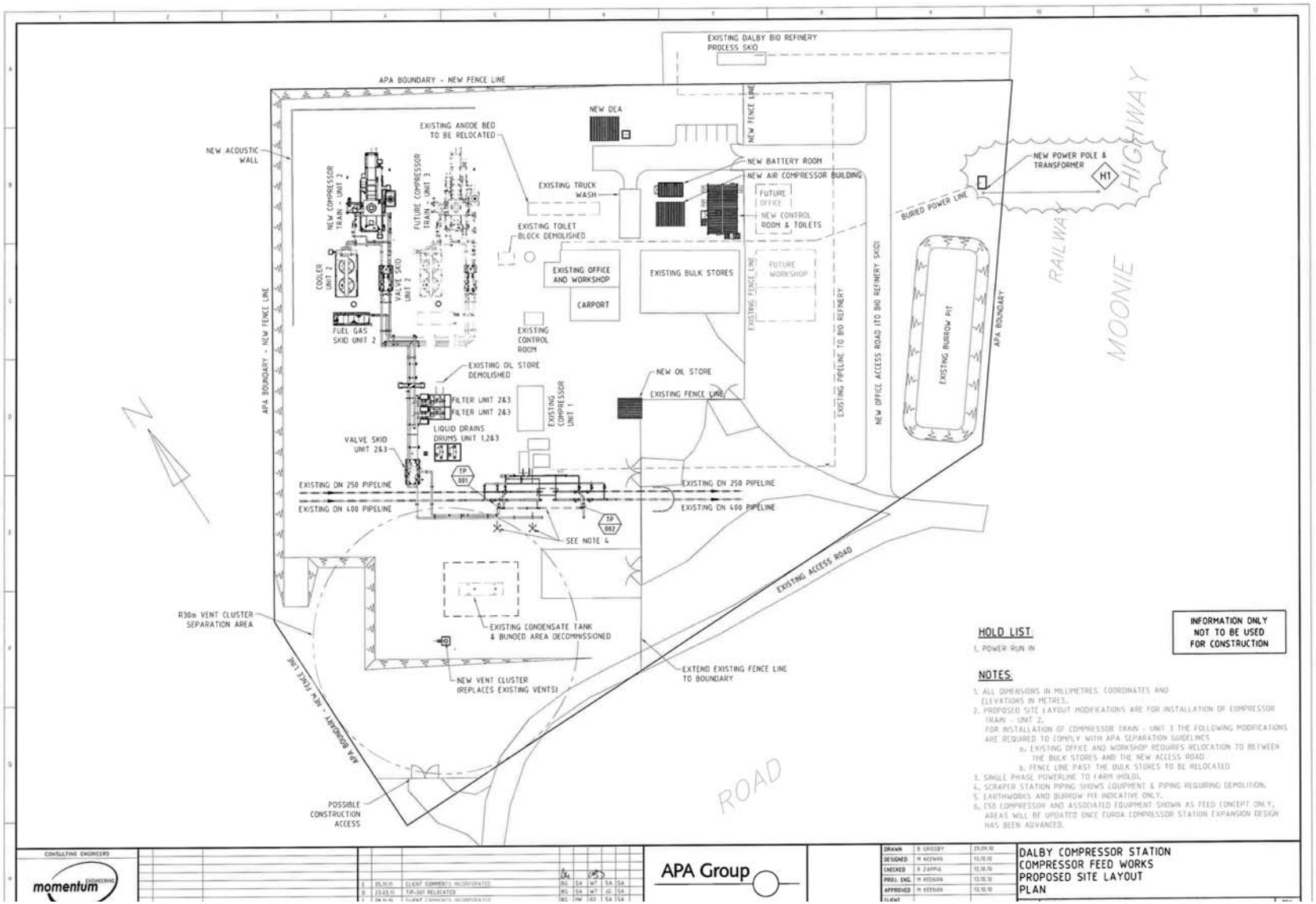

Figure 2: Proposed Site Layout for the Proposed Compressor Station Expansion

The access tracks and hardstand area within the compressor compound will be constructed of gravel, with the entire station being enclosed within a security fence with vehicle and personnel access gates as required.

Once operational the site will be powered by electricity from the supply grid. Standby power will be sourced from a back up diesel generator. Cold start up power will be supplied from a Diesel Electric Alternator (DEA).

3.5.1 Construction

Construction activities to be carried out at the site will generally include:

- Stripping and stockpiling of topsoil;
- Grading the site and carrying out excavations where necessary;
- Laying foundations for the compressor unit and other infrastructure. The site will be piled using reinforced concrete screw piles and a concrete slab will be poured on top and left to cure for 28 days;
- Installation of the compressor unit and all other associated infrastructure;
- Fencing the perimeter of the compressor station. The site will be fenced using a two metre high chain link fence;
- Commissioning of the new compressor unit;
- Installation of bunded fuel storage facilities of capacity <6,000 L; and
- Noise Attenuation Barrier.

A temporary office will be present on site for the duration of the project construction activities. There will be no construction camp on-site, with construction crews being accommodated in Dalby. All sewage generated at the construction site will be contained in portable toilets and removed from site by suitably licensed contractors to a facility that is lawfully able to accept such waste.

Topsoil will be imported to the site to enable to pad which the compressor slab sits on to be formed. This will be sourced from weed and pest free areas (if imported from outside the local area) and will be stored in temporary stockpiles on the site. These stockpiles will be temporary in nature and will be protected by appropriate erosion and sedimentation measures. Any surplus topsoil will be made available to the closest landholder under an existing agreement, and it is highly likely that this will be removed quickly to make good recent flood damage.

3.5.2 Hydrotesting

Water used for hydrostatic testing will be sourced off site through licensed water carters. This water is anticipated to be potable quality water and as such it is considered unlikely that any chemicals (e.g. biocides or oxygen scavengers) will be added. APA's preferred final disposal method for used hydrotest water is to discharge to land, subject to the water being of appropriate quality. Where chemicals may be added or where water is not of an appropriate quality, it will be disposed of offsite at an approved facility by licensed waste contractors.

3.5.3 Access

Construction crews will be able to access the compressor station via the existing site entrance from the Moonie Highway. For safety reasons, APA has made application to the Department of Transport and Main Roads (DTMR) to upgrade the entry to the site from the Moonie Highway by adding a turning lane to the highway (refer attached approval letter, Appendix 4). APA is also in discussions with Queensland Rail to upgrade the rail crossing into the site entrance so that it is suitable to support heavy vehicles. To minimise traffic impacts, over size and over weight vehicle movements will be planned in consultation with the DTMR, Local Government Authority and other relevant stakeholders. All on-site movements will be restricted to approved tracks to avoid impacting on the surrounding areas.

3.5.4 Relevant Stakeholders

APA owns freehold all of Lot 1 on Plan RP172984, which lies within the licence area of the RBP (also owned and operated by APA) where the proposed compressors will be constructed. Part of this land is currently cropped by a local landholder. APA will terminate the contract with this landowner if permission to construct the proposed compressors is granted.

APA also proposes to construct a vehicle turning lane to increase public safety and ease of access to sites for project traffic. APA has already undertaken discussions with the DTMR and relevant LGA (Western Downs Regional Council) regarding this matter and will undertake turning lane construction in accordance with their requirements.

APA held a public information session in Dalby on Wednesday 13 April 2011 and consulted with the WDRC Mayor and Councillors at this session.

3.5.5 Workforce

A workforce of 20 to 30 workers (up to a maximum of 45 workers during peak times) will be required to construct the additional compressor station. Local contractors will be utilised where possible (e.g. through supply of plant and equipment and some labour for civil works). The construction workforce will be accommodated at Dalby where facilities already exist.

3.5.6 Stockpile Areas

APA has identified general areas within the current compressor station footprint which will be utilised as temporary stockpile areas.

At this early stage of planning, the exact location and orientation of stockpile areas is not confirmed. These details will be defined in cooperation with the construction contractor and adjoining landowners on site prior to any works commencing.

All stock piles will be covered and treated where necessary to minimise any wind or water erosion that may occur.

Equipment stored in the stockpile areas may include:

- Topsoil;
- Construction vehicles;
- Diesel fuel and lubricants;
- Vehicle maintenance equipment;
- Tools and consumables;
- Sand bags, sediment fencing, star droppers and wooden stakes; and
- Pipe wrapping and joint coating materials.

Diesel will be stored in a Bulk Fuel Storage Facility with a capacity of 6,000 L. All fuel storage will be undertaken in compliance with relevant legislation and standards (including the *Dangerous Goods (Safety Management) Act 2002* and *AS 1940:).* Although the planned fuel storage capacity is below the threshold for the Chapter 4 (ERA) 8(3) (storage of 10 m^3 to 500 m^3 of class C1 or C2 combustible liquids) this ERA has been included in the EA application as a conservative measure, should additional fuel storage be required.

3.5.7 Waste

Relatively small amounts of domestic and industrial wastes (e.g. pipe off cuts, timber skids and food wrappers) will be generated during the construction and operation of the proposed compressors. Waste management will be based on a hierarchy beginning with waste avoidance, minimisation and recycling before disposal via an appropriately licensed contractor. Waste will be managed in accordance with the objectives of the *Environmental Protection (Waste Management) Policy 2000*. The types of construction and operational wastes expected to be generated by the compressor station expansion project and proposed disposal options are detailed below in Table 2.

Table 2: Typical Wastes and Disposal Options

Waste Type	Disposal
Construction	
Packaging (ropes, cardboard), timber skids, fibre/nylon rope spacers, pallets, drums and scrap metals	Recycled or licensed landfill
Used chemicals and oils e.g. lube oil, spent x-ray film developer chemicals, used tins from solvents, rust proofing agents or primer	Licensed disposal facility
Scrap – welding rods	Recycle if practicable
HDD cuttings	Licensed landfill
Wastes – putrescibles, paper, timber & plastic piping	Reuse or licensed landfill as applicable

Waste Type	Disposal
Sewage	APA intends to utilise a portable toilet contract that will cart all black water to local treatment facilities. The ultimate destination will be decided in consultation with the local government authority and will depend on other construction activities in the project area and the contribution to peak loads.
Hydrotest water	If water is of high quality it will be used to irrigate land. Otherwise it will be treated as wastewater and disposed offsite at an approved facility by licensed waste contractors.
Operation	
Filters (non-oily)	Licensed landfill
Sludge (pigging)	Licensed landfill
Packaging and waste oils and greases (maintenance)	Recycle if practicable, e.g. timber pallets. Otherwise licensed landfill as applicable.
Oil Contaminated Soil	Remediation in situ for small quantities. Advice sought from DERM regarding treatment options for larger spills (e.g. >200L). Removal under disposal permit to licensed facilities if required.

3.6 Compressor Station Operation

The operation of the upgraded compressor station will be in accordance with the approval documentation (i.e. the EA) and the RBP Operational Environmental Management Plan (OEMP) (which will be updated to include the upgrade once construction is complete).

A routine operation and maintenance program will be implemented, and will include leak detection, surveys, ground patrols, repair or replacement of faulty components, corrosion monitoring, remediation and maintenance.

More significant maintenance activities are likely to be infrequent. All maintenance activities will be conducted in accordance with this EM Plan and the OEMP.

Regular consultation will be maintained with land owners whose property may be potentially impacted by the proposed compressor station expansion.

3.7 Decommissioning

When the compressor station is no longer required it will be decommissioned in accordance with the regulatory requirements and accepted environmental best practice of the day. Currently, decommissioning procedures require the removal of all above ground infrastructure and the restoration of associated disturbed areas.

At the time of decommissioning a decision will be made regarding the opportunities for future use of the infrastructure onsite. However, if it is considered that the facilities may offer some future benefits, the site will be appropriately preserved to prevent corrosion and maintain the functionality of the infrastructure.

4.0 Air Quality

Katestone Environmental was commissioned by RPS, on behalf of the APA Group (APA), to undertake an air quality impact assessment of the expected emissions associated with the proposed upgrade of the Roma to Brisbane Pipeline (RBP), through the construction and operation of two additional compressors at the APA Compressor Station in Dalby, Queensland.

This assessment examined the potential air quality impacts of the project on the local atmospheric environment by:

- Describing the existing air quality in the region;
- Estimating the emissions to air associated with the construction and operation of the project in isolation and including the existing compressor station at Dalby;
- Quantifying meteorological parameters, land uses and terrain features in the region that may impact the dispersion of air pollutants released from the project;
- Predicting ground-level air pollutant concentrations using the dispersion model AUSPLUME; and
- Assessing and comparing predicted impacts against the relevant air quality objectives used in Queensland.

A copy of this report is provided in Appendix 5.

4.1 Existing Air Environment

Air quality in the region is of good quality due to the remoteness of the area and minimal polluting industry. Air quality is likely to be typical of the remote rural areas of Australia's interior and influenced by a range of activities such as:

- Dust from pastoral activities including, stock and vehicle movements;
- Environmental factors (including wind-borne dust, seed, pollen and smoke); and
- Limited vehicle and equipment exhaust fumes from roads and operating industries and towns.

The nearest air quality monitoring station is operated by DERM at Willowburn Oval, Toowoomba, approximately 80 km to the southeast of the project site. This monitoring station measures concentrations of nitrogen dioxide (NO_2) and carbon monoxide (CO). A summary of the monitoring data for NO_2 and CO collected at Toowoomba from July 2003 to May 2009 is presented in Table 3. As DERM typically uses the 95th percentile to represent the background air quality, these are also reported in Table 3.

Table 3 shows relatively low levels of CO in Toowoomba and that existing concentrations of NO_2 are below the objectives for health and well being *Environmental Protection (Air) Policy 2008* (EPP Air 2008). The main sources of air pollutants in Toowoomba are industrial and domestic activities such as motor vehicle use and wood-fired heating. The NO_2 concentrations measured at Toowoomba are expected to be dominated by emissions from motor vehicles.

Table 3: Measured Concentrations of Nitrogen Dioxide and Carbon Monoxide from the DERM Monitoring Station at Toowoomba July 2003 to May 2009

Air pollutant	Averaging period	Concentration (ug/m^3)		EPP(Air) Objective (ug/m^3)
		Maximum	95th percentile	
Nitrogen dioxide	1 hour	116	41	250
	Annual	14	-	62
Carbon monoxide	8 hour	3740	882	11,000

Source: Katestone 2011

The area surrounding the project site is rural and sparsely populated with few industries. Consequently levels of air pollutants are likely to be much lower than indicated by the Toowoomba measurements.

Nine dwellings have been identified as occurring within 2 km of the project site (approximate distances from the project site are summarised in Table 4). Locations of these relative to the project site are shown in Figure 3.

Table 4: Approximate Distance of Sensitive Receptors from Project Site

Receptor ID	Approximate Distance from Project Site (m)
R1	1,254
R2	401
R3	1,475
R4	1,739
R5	1,872
R6	1,947
R7	1,947
R8	1,595
R9	1,289

Source: Katestone 2011 (please note that receptors have been identified in a different order to the noise report)

4.2 Air Quality Modelling

Dispersion Modelling was undertaken to assess the impact of the proposed compressor station upgrade on air quality at sensitive receptors (Figure 3). The Air Pollution Model (TAPM) was used to generate the required meteorological data for use in the AUSPLUME dispersion model.

4.2.1 Air Quality Objectives

The EP Act gives the Minister of the DERM the power to create Environmental Protection Policies that identify, and aim to protect, environmental values of the atmosphere that are conducive to the health and wellbeing of humans and biological integrity.

Air quality was modeled against objectives presented in the Environmental Protection (Air) Policy (EPP (Air)). Where an air quality objective for a particular pollutant is not present in the EPP (Air), an appropriate objective from another jurisdiction, the Victorian State *Environmental Protection Plan (Health)* (VIC SEPP (Health)) has been adopted. Objectives that are relevant for this study are reproduced in Table 5.

Table 5: Ambient Air Quality Objectives for Air Pollutants Relevant to the Dalby Compressor Station Upgrade

Indicator	Environmental Value	Averaging period	Air Quality Objective (ug/m^3)	No. of days of exceedance allows per year
Nitrogen dioxide	Health and Wellbeing	1 hour	250	1
	Health and biodiversity of ecosystems	1 year	62	n/a
Carbon monoxide	Health and wellbeing	8 hour	11,000	1
1,3- Butadiene[1]	Health and wellbeing	Annual	2.4	n/a
Ethylene oxide[2]	Health	3-min	6	n/a

[1] EPP (Air)
[2] Vic SEPP (Health)
Source: Katestone 2011

4.2.2 Air Quality Modelling Scenarios

In order to comprehensively assess the impact to air quality of the proposed upgrades on the compressor station, three operational scenarios where modelled:

- Scenario 1 – Existing - Saturn 20 Gas Turbine compressor;
- Scenario 2 – Proposed – 2 x Centaur 50 Gas Turbine compressors; and
- Scenario 3 – Existing and Proposed – The cumulative impacts of the Saturn 20 and 2 x Centaur 50 Gas Turbine compressors.

Background air quality monitoring was undertaken by EML Air Pty Ltd and focused on the emissions currently generated by the Saturn 20 Gas Turbine compressor. Data collected was used to model existing emissions from site. Predicted emissions for the upgraded compressor station where derived from the technical specifications of the Centaur 50 Gas Turbine Compressor.

Figure 3: Location of Sensitive Receptors in Relation to Dalby Compressor Station

4.2.3 Projected Emissions

Existing, proposed and combined air emissions were projected based on manufactures specifications for the compressor stations and using the AUSPLUME Modelling process. Projected results presented in Table 6 were used to model the ground-level concentration of contaminants as described in Section 4.4.1.

Table 6: Projected Emission Rates for the Project

Parameter	Units	Existing Compression Station	Proposed Compressor Stations (per Station)	Total Projected Emission Rates
Engine Type		**Saturn 20 Gas Turbine**	**2 x Centaur 50 Gas Turbine**	**Saturn 20 Gas Turbine plus 2 x Centaur 50 Gas Turbine**
Stack height	m	13.4	13	13.4 13 13
Stack diameter	m	0.61	1.1	0.61 1.1 1.1
Temperature	^{O}C	531	515	531 515 515
Exit Velocity	m/s	49	44	49 44 44
NO_x emission rate	g/s	0.45	1.16	0.45 1.16 1.16
TOTAL NO_x emission rate	**g/s**	**0.45**	**2.32**	**2.77**
NO_x concentration	mg/Nm^3	99	80	99 80 80
CO emission rate	g/s	0.08	2.75	0.08 2.75 2.75
TOTAL CO emission rate	**g/s**	**0.08**	**5.5**	**5.58**
CO Concentration	mg/Nm^3	18	64	18 64 64
Oxygen content	%	16.3	15	16.3 15 15

Source: Keystone 2011

4.3 Greenhouse Gas Emissions

Katestone Environmental undertook a greenhouse gas emission study for the project in order to measure and predict current and future greenhouse gas emissions. A copy of this assessment is provided in Appendix 5.

In December 2007, the Australian government ratified the Kyoto Protocol, an international agreement designed to restrict the growth in the emission of greenhouse gases in developing countries to the quantity being emitted in 1990.

The majority of greenhouse gas emissions (i.e. CO_2, CH_4 and Nitrous Oxide (N_2O)) from this project are from the stationary fuel combustion of fossil fuels (direct emissions) in existing and proposed gas compressor engines.

The predicted greenhouse gas emissions estimated for the Project are based on the maximum annual fuel usage for each source and as a combined total represent worst-case greenhouse gas emissions. See Table 7.

Table 7: Estimated Annual Greenhouse Gas Emissions for the Project (Tonnes CO_2e)

Source	Greenhouse gas emissions (tonnes CO_2e)	% of Australia's Kyoto Target
Existing Unit (1x Saturn 20)	7,817	0.001%
Proposed units (2x Centaur 50)	49,441	0.008%
Combined units	57,258	0.010%

Source: Katestone 2011

The peak annual emission rate of greenhouse gases from the Project is 0.057 Mt CO_2-e or 0.01% of Australia's assigned amount under the Kyoto Protocol.

Based on the above, it is considered that the proposed compressor station upgrade is unlikely to significantly contribute to greenhouse gas emissions.

4.4 Potential Adverse or Beneficial Impacts on Existing Air Environment

4.4.1 Air Quality Modelling Results

As the Dalby Compressor Station is located in an agricultural area, modelling was conducted to determine the ground-level concentrations of pollutants. The results of air quality modelling show that predicted ground-level concentrations of 1-hour average and annual average NO_2 for all scenarios modelled are significantly below (less than 1%) the EPP (Air) Objectives within the 2 km radius modelling domain.

Table 8 and Table 9 show the predicted ground level concentration of CO_2 and NO_2 at all identified sensitive receptors (Figure 3) for all modelled scenarios.

Table 8: Predicted Ground Level Concentrations (ug/m^3) of NO_2 at Sensitive Receptors

Pollutant	Scenario 1 – Existing		Scenario 2 – Proposed Expansion		Scenario 3 – Existing and Proposed Expansion	
	NO_2		NO_2		NO_2	
Averaging period	1hr	Annual	1hr	Annual	1hr	Annual
Maximum at domain	0.60	0.04	1.50	0.06	2.02	0.09
R1	0.46	0.02	0.80	0.03	0.99	0.05
R2	0.53	0.01	1.20	0.01	1.69	0.02
R3	0.38	0.01	0.71	0.03	1.07	0.04
R4	0.40	0.01	0.75	0.02	1.14	0.03
R5	0.42	0.01	0.79	0.02	1.20	0.02
R6	0.41	0.01	0.79	0.02	1.20	0.02
R7	0.41	0.01	0.78	0.01	1.17	0.02
R8	0.38	0.01	0.76	0.01	1.07	0.02
R9	0.37	0.01	0.77	0.02	1.10	0.02
EPP (Air) Objective	250	62	250	62	250	62

Table 9: Predicted Ground Level Concentrations (ug/m^3) of CO at Sensitive Receptors

Pollutant	Scenario 1 – Existing		
	CO_2	CO_2	CO_2
Averaging period	8hr	8hr	8hr
Maximum at domain	0.33	2.73	3.05
R1	0.19	1.65	1.78
R2	0.26	2.12	2.38
R3	0.15	1.50	1.60
R4	0.15	1.31	1.40
R5	0.16	1.42	1.55
R6	0.14	1.40	1.52
R7	0.12	1.41	1.50
R8	0.12	1.41	1.50
R9	0.18	1.57	1.72
EPP (Air) Objective	11,000	11,000	11,000

The predicted ground-level maximum 8 hour concentrations of CO for all model scenarios are significantly below (less than 1%) the EPP (Air) Objectives within the 2 km radius modeling domain.

Emissions of air pollutants considered in the air quality and modelling assessment are associated with the combustion of natural gas in the compressor engines. Fugitive emissions and on-site vehicle emissions will have a negligible impact compared to combustion impacts.

Production of airborne dust will impact on air quality during the construction and operation of the compressor station. Dust will principally arise from general vehicle movements during construction and operation. Dust generation is expected to be localised and short-term throughout construction. Air quality impacts associated with dust generation will be managed through the standard dust suppression measure of water application during dry and windy periods. Dust monitoring will also be conducted in response to any DERM direction or complaints received from local residents.

4.4.2 Potential Impacts to Air Environment

Potential project related impacts to air quality relate to emissions of CO_2 and NO_2 as a result of compressor operations, with the installation of the two new compressors resulting in an overall increase NO_2 and CO_2 emissions rates. However, as shown by the results of the air quality monitoring, the predicted ground level concentrations of CO_2 and NO_2 for the existing, proposed expansion and cumulative impacts at all locations are significantly below the EPP (Air) Objectives. As such, whilst the proposed expansion represents an overall increase in emissions, modelled ground level concentrations are well within the EPP (Air) Objectives and the predicted air quality impact of the project on the surrounding atmospheric environment is low.

Greenhouse Gas emissions from the proposed project are also unlikely to be a significant contributor to Australia's assigned Greenhouse Gas quota under the Kyoto Protocol.

Based on the above, it is considered that the proposed compressor station upgrade is unlikely to significantly impact air quality at identified sensitive receptors.

4.5 Potential Protection Commitments, Objectives and Control Strategies

Environmental Protection Objective	To complete the construction and operation of the compressor station in a manner that maintains the ambient air quality of the local area and ensures that emissions do not affect sensitive receptors.
Specific Objectives	To minimise the generation of dust. To eliminate uncontrolled atmospheric emissions. To receive zero complaints from sensitive receptors regarding air quality.
Management Strategies	Dust suppression measures (e.g. water trucks) will be implemented as required during construction to minimise potential for environmental nuisance at sensitive receptors. Access and tracks will be maintained to minimise dust. All construction vehicles and equipment will be well maintained and fitted with appropriate exhaust systems and devices. Vehicle speeds will be limited to reduce dust. Smoke generation will be avoided by a strict no burning policy. Fire control procedures will be implemented during welding operations. All complaints will be investigated, recommendations actioned and closed out. A program of regular monitoring, inspection and maintenance during operations will be implemented to ensure optimal efficiency and prevent compressor station malfunction.
Performance Indicators	No complaints in relation to dust nuisance. Any recorded complaints are actioned and closed out. No fires on site (or in adjacent areas) as a result of project activities. No excessively visible dust clouds in proximity to sensitive receptors. Any required air emissions monitoring demonstrates compliance with regulatory requirements (including EA specified emission limits).

5.0 Land Management

5.1 Climate

The proposed project area is located in the subtropical climatic zone with mean daily temperatures at Dalby (located approximately 5 km to the north east, and the closest meteorological station to the project area), ranging from 18.5°C to 32.0°C in January (summer) to 4.1°C to 18.7°C in July (winter). Dalby Airport (located approximately 7 km north east of the project area), has mean daily temperatures ranging from 18.8°C – 32.6°C in January (summer) to 4.1°C – 19.7°C in July (winter). Annual average temperatures are relatively stable throughout the region with minimal differences between the two meteorological stations (Dalby Post Office averages 11.8°C – 26.3°C and Dalby Airport averages 12.0°C – 26.8°C).

Rainfall varies seasonally, with wetter summers and drier winters. Dalby Post Office averages 93.1 mm of rain in the wet season (December) and 30.1 mm in the dry season (August), compared to Dalby Airport which averages 98.2 mm of rain in the wet season (December) and 20.3 mm in the dry season (April). Rainfall statistics indicate a marginal variation across the region, with the average annual rainfall for Dalby Post Office of 676.2 mm, compared to 615.9 mm for Dalby Airport.

Light winds averaging speeds of 11.6 km/hr (Dalby Airport) and 8.3 km/hr (Dalby Post Office) in the morning and 13.3 km/hr (Dalby Airport) and 9.3 km/hr (Dalby Post Office) in the afternoon are common throughout the year, with winter mornings typically having calmer winds (BoM 2010).

A summary of annual rainfall and temperature details for the Surat and St George meteorological stations is provided in Table 10.

Table 10: Annual Temperature and Rainfall Data for Dalby Post Office and Dalby Airport

Parameter	J	F	M	A	M	J	J	A	S	O	N	D	Ave	Years
Dalby Post Office														
Mean max temp (°C)	32.0	31.2	29.7	26.6	22.6	19.4	18.7	20.8	24.2	27.6	30.4	31.8	26.3	1893 1992
Mean min temp (°C)	18.5	18.2	16.4	12.4	8.2	5.4	4.1	5.2	8.4	12.6	15.6	17.6	11.8	1893 1992
Mean rainfall (mm)	84.6	77.2	65.7	38.9	35.2	40.0	41.9	30.1	38.3	57.7	73.5	93.1	676.2	1870 1992
Median rainfall (mm)	74.8	58.5	55.4	29.8	25.6	27.7	35.3	22.9	31.8	51.0	61.5	79.4	553.7	1870 1992
Dalby Airport														
Mean max temp (°C)	32.6	31.3	30.2	27.4	23.3	20.2	19.7	21.7	25.4	28.5	30.1	31.7	26.8	1992 2010
Mean min temp (°C)	18.8	18.6	16.2	12.5	8.5	5.5	4.1	4.9	8.9	12.6	15.6	17.6	12.0	1992 2010
Mean rainfall (mm)	70.4	87.8	44.1	20.3	38.3	33.7	24.0	24.4	32.6	59.0	83.1	98.2	615.9	1992 2010
Median rainfall (mm)	42.8	80.6	23.4	14.0	15.4	27.0	16.4	11.6	25.4	49.0	81.2	98.3	485.1	1992 2010

Source: BoM (2010)

5.2 Existing Soils and Terrain

A desktop assessment identified that the area surrounding the compressor station is typically characterised by gently sloping plains, comprised predominantly of dark cracking clays and associated with small areas of dark friable clays, shallow dark plastic clays and loamy duplex soils. The actual site of the Dalby Compressor Station is relatively flat.

5.2.1 Good Quality Agricultural Land (GQAL)

In conjunction with *State Planning Policy 1/92: Development and Conservation of Agricultural Land* (SPP1/92), the Planning Guidelines for the Identification of Good Quality Agricultural Land (The Planning Guidelines) (DPI & DHLGP, 1993) defines Good Quality Agricultural Land (GQAL) as *'land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources'*. The Planning Guidelines define four classes of GQAL, as outlined in Table 11.

Table 11: GQAL Classes

Class	Description
A	**Crop Land** - Land that is suitable for current and potential crops with limitations to production which range from none to moderate levels
B	**Limited Crop Land** - Land that is marginal for current and potential crops due to severe limitations; and suitable for pastures. Engineering and/or agronomic improvements may be required before the land is considered suitable for cropping
C	**Pasture Land** - Land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production; but some areas may tolerate a short period of ground disturbance for pasture establishment.
D	**Non-agricultural Land** - Land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant habitat, conservation and/or catchment values or land that may be unsuitable because of very steep slopes, shallow soils, rock outcrop or poor drainage.

Much of the surrounding area is intensively cropped and classified as class A GQAL; APA currently have an agreement with the local landholder which allows the unused portion of APAs land parcel (0.4 ha) to be cropped. However, the agreement has been terminated to allow for construction of the upgrade and as all the land or the upgrade is owned freehold by APA an assessment of impacts to GQAL is not required.

5.3 Potential Adverse or Beneficial Impacts to Land Management

5.3.1 Land and Soil Impacts

Given the localised and short term nature of the construction activities and the low environmental values of the previously cleared site, it is anticipated that potential land and soil impacts associated with the upgrade of the Dalby Compressor Station include:

- Soil erosion and sedimentation;
- Soil contamination; and
- Soil compaction.

These are discussed below.

5.3.1.1 Potential Erosion and Sedimentation Impacts

Construction activities, in particular grading of the site, have the potential to exacerbate erosion within the project area. The risk of erosion and sedimentation at the project site is perceived as low due to it being relatively flat and distant from any watercourses. However, during periods of rainfall, erosion of the construction area and sedimentation of the adjacent environment may occur if appropriate controls are not implemented.

Given that the compressor station compound is likely to be graveled post construction and that appropriate erosion and sediment controls will be implemented during construction, it is considered that project related impacts associated with erosion and sedimentation will be minimal.

5.3.1.2 Potential Soil Contamination Impacts

The potential exists for localised soil contamination to occur during construction and operation of the proposed project. These are mainly associated with:

- Small spills of fuels or chemicals;
- Run-off of contaminated storm water; and
- Discharge of hydrotest water.

Further details of chemical storage and hydrotest water are below.

Chemical Storage

A range of chemical storages will exist on site, including the following:

- 2 x 850 L drain drums containing pipeline waste (lubrication oil and glycol);
- 6 x 200 L drums containing turbine oil. These are stored within the oil storage shed, which possesses a fully bunded floor and that is linked to the waste oil collection tank;
- 6,000 L waste oil collection tank;
- 200 L tank of unleaded fuel;
- 6,000 L of diesel; and
- 2,525 L lube oil tanks on compressor units (combined storage).

All storages will be fully bunded and will be undertaken in compliance with relevant legislation and standards (including the *Dangerous Goods (Safety Management) Act 2002* and *AS 1940: Storage and Handling of Flammable and Combustible Liquids*) and in accordance with the conditions of the EA. Construction equipment will not be refueled on-site. Oily water derived from compressor units will be captured in a tank and removed offsite as required, by suitably licensed waste oil recyclers.

As the volume of hydrotest water will be small (refer following sub-section) and no chemicals are likely to be added, and that only small quantities of fuels, lubricants and other chemicals will be used during construction in accordance with relevant legislation and AS 1940, proposed project activities are not unlikely to result in soil contamination.

Given the implementation of environmental controls (Section 6.5) and APA's quality assurance systems (which are in compliance with all regulatory requirements) throughout the construction and operation of the compressor station, it is considered that project related impacts associated with soil contamination will be minimal.

Hydrotest Water

Hydrostatic testing can result in localised soil contamination if the procedure is inappropriately managed or water of a poor quality is disposed of to land. Hydrotest waste is only required to test compressor station piping and therefore, the anticipated volume required is small (<5,000 L). Water used for the hydrostatic testing will be sourced off site through licensed water carters. Hydrotest water is likely to be of potable quality and given the high potential quality of the water, it is considered unlikely that any chemical additives (e.g. biocides, oxygen scavengers or corrosion inhibitor) will be used.

Where no chemical additives are used and the hydrostatic test water meets relevant water quality criteria, the preferred disposal option is to irrigate to land.

If, in the unlikely event that the addition of corrosion inhibiting chemicals, oxygen scavengers or biocides to hydrotest water is necessary, test water will be carted from the site and disposed of at an approved facility by licensed waste contractors.

Based on the above it is considered that contamination impacts associated with hydrotest water will be negligible.

5.3.2 Potential Soil Compaction Impacts

Soil compaction outside of the expanded compressor station compound may occur during the construction phase, particularly in areas where there is heavy traffic or at those areas designated for equipment and machinery laydown. Impacts from soil compaction are likely to be minimal, as project activities which may result in soil compaction will be restricted to suitably marked and approved areas (e.g. designated tracks) on APA land.

In the event that soil compaction does occur outside the compressor facility and access tracks, standard industry control mechanisms, including scarification or ripping, will be utilised to reduce the impacts associated with soil compaction.

5.4 Proposed Environmental Protection Commitments, Objectives and Control Strategies – Land Management

Environmental Protection Objective	To avoid or minimise adverse impacts to soils during construction, and maintain soil stability / integrity of the compressor compound and surrounding area during operations. To avoid land contamination.
Specific Objectives	To minimise soil erosion and sedimentation as a result of construction, and remediate soil erosion, occurring during operations, in a timely manner. To mitigate soil compaction if necessary by remedial action. To reinstate soil and terrain to pre-construction contours and conditions. To prevent soil inversion. To prevent spills occurring and if they occur to minimise their impact. To ensure that rubbish and waste material are disposed of in an appropriate manner. To prevent impacts as a result of hydrotest water and waste water (e.g. washdown water) disposal. To minimise impacts to surrounding land uses from construction and operation of the compressor station.
Control Strategies	**Land and Soil Management** *Access* Access tracks and turn around points for vehicles will be identified prior to construction. The compressor station will be accessed via existing roads / tracks. Where additional access tracks may be required, these will be restricted to the minimum practical width subject to safe vehicle movement. Appropriate traffic management procedures shall be developed and implemented. Speed restrictions will be applied to project vehicles as appropriate. Project related equipment shall be delivered during daylight hours where practicable. *Grade of Site* Ground disturbance shall be minimised to the greatest extent possible. Alteration to topography and drainage outside the compressor station compound will be minimised during the grading phase and restored to original condition during cleanup and rehabilitation. Graded soil, including topsoil, from the construction site will be stockpiled where it can be readily recovered for respreading during rehabilitation, in areas outside the permanent compressor station compound. Where appropriate, containment devices (e.g. silt fences) will be used to preserve stockpiled soils. **Erosion Management** Erosion and sediment control measures will be implemented as per APA's Erosion and Sediment Control Plan (refer to RBP OEMP). Erosion and sedimentation controls will be monitored, maintained and repaired to ensure they remain effective, particularly after heavy rainfall events and during periods of prolonged rainfall.

	Silt fences will be installed for interim on-site erosion control, as required. Ground disturbance will be limited to the minimum extent necessary for safe construction practices. The period between grading and restoration will be limited to the minimum practicable (to limit the duration of soil exposure). **Reinstatement** Rehabilitation of disturbed and exposed areas will be undertaken where necessary and will include the re-spreading of topsoil and/or gravel. The compressor station compound will be re-profiled to stable contours. Erosion and sediment controls (e.g. berms, silt fences, jute matting) will be installed, monitored and maintained as necessary during, and after construction, until stabilisation is achieved. Ground stability will be maintained on all unsealed areas at above ground facilities, either by cover (e.g. gravel) or compaction. The compressor station compound will be fenced to discourage third party, stock and wildlife entry. Disused silt fences will be removed. After construction is completed: ▪ Construction generated rubbish / equipment will be removed; ▪ The site will be inspected to ensure that any minor spills that may have occurred have been appropriately remediated; and ▪ Erosion and sediment control structures will be routinely inspected and maintained, particularly after heavy or prolonged rainfall. **Hydrotest Water Management** Detailed procedures for hydrostatic test water disposal will be developed which may address the following disposal options: ▪ Water disposal onsite after assessment or analysis, provided the water meets ANZECC criteria for the disposal site and no biocides have been used; and ▪ Hydrotest water being removed from site. If hydrostatic test water quality is not suitable for discharge to land, it will be disposed of offsite at an approved facility. Any discharge to land will be undertaken in such a way as to prevent runoff into any watercourse or drainage lines, or erosion (e.g. against a splash plate or other dispersive device in order to aerate, slow and disperse the flow). Discharge of hydrostatic test water shall be in compliance with all regulatory and landholder requirements and shall not cause environmental harm. Prior to discharge of hydrostatic test water, the project environmental manager shall be consulted about requirements for water quality testing. Where the water source and water quality is known, and no chemicals have been added, testing may not be required. **Hazardous Materials and Wastes** Refer to Section 9.3. **Decommissioning** The compressor station will be decommissioned in accordance with the regulatory requirements and accepted current environmental best practices of the day. (Note: Current decommissioning procedures require the removal of all above ground infrastructure and the restoration of associated disturbed areas).
Performance Indicators	No complaints in relation to soil erosion and sedimentation. Any recorded complaints are actioned and closed out. Appropriate soil stockpiling. Effective reinstatement of surface contours. No evidence of erosion. No evidence of contamination / spills. Any contamination or spill incidents are effectively documented and closed out. Appropriate storage and handling of fuel and chemicals. Long term success of rehabilitation measures.

6.0 Land Tenure and Use

Third party infrastructure situated near the Dalby Compressor Station includes:

- The Moonie Highway, approximately 100 m east of the existing boundary fence. APA have obtained approval from the DTMR to construct a turning lane off the Moonie Highway in order to minimise traffic disturbance and maximise public and site safety;
- The Dalby – Glenmorgan railway, approximately 70 m east of the existing boundary fence;
- A private residence approximately 400 m north of the existing compressor station; and
- A bio-diesel refinery off-take station.

6.1 Bioregions

The pipeline area lies within the Brigalow Belt South Bioregion. Brigalow (*Acacia harpophylla* dominant and co-dominant) is a mosaic of open forest and woodland communities. Semi-evergreen vine thickets, heath and eucalypt open woodlands are scattered throughout this region, with small pockets of eucalypt open forests.

The major impacts to biodiversity in the Brigalow Belt South Bioregion to date have included historical vegetation clearance (for agricultural purposes), the introduction and spread of weeds and animal pests, changed fire regimes and altered hydrology regimes. The major vegetation groups cleared are acacia forests and woodlands, eucalypt woodlands, eucalypt open woodlands, tussock grasslands, rainforests and vine thickets (DSEWPC 2010a).

6.2 Ecological Assessment

A desktop ecological assessment was undertaken for the Dalby Compressor Station site and immediate vicinity. Whilst the site is located in a pre-existing disturbed area, the assessment incorporated searches for significant flora and fauna attributes, utilising available literature and government databases including:

- Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) Protected Matters Search Tool (DSEWPC 2011b);
- DERM Environmentally Sensitive Area mapping (DERM 2010c); and
- DERM Wildnet database (DERM 2010d).

6.2.1 Maters of National Environmental Significance (NES)

EPBC search results (Appendix 6) identified four Matters of NES:

- One Wetland of International Significance: Narran: Further discussed in Section 10.0;
- Three Threatened Ecological Communities: Further discussed in Section 6.2.2 and Section 6.4;
- 14 Threatened Species: Further discussed in Section 6.4; and
- 11 Migratory Species: Further discussed in Section 6.4.

6.2.2 Flora

The Dalby Compressor Station is located in an existing cleared area (Plate 1), with the adjacent paddock also cleared and presently utilised for cropping activities (i.e. no grass cover). A small group of mature trees are present at the front of the facility and a line of trees have been planted along the eastern side of the compound. A review of DERM RE mapping (Version 6.0, 2009) indicated that there is no remnant vegetation (under the *Vegetation Management Act 1999*) located in the vicinity of the site. No Regional Ecosystems are mapped over the proposed site with the nearest ('Of Concern' RE11.3.2 – Poplar Box Woodland) located approximately 1.8 km to the north and the 'Of Concern' RE11.3.4 / 11.3.25 (Eucalyptus woodland on alluvial plains) associated with Myall Creek, approximately 2 km to the south (refer to Figure 4). Three EPBC listed Threatened Ecological Communities (TEC) were identified to possibly occur within the wider area of the compressor station:

- Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland;
- Weeping Myall Woodlands; and
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

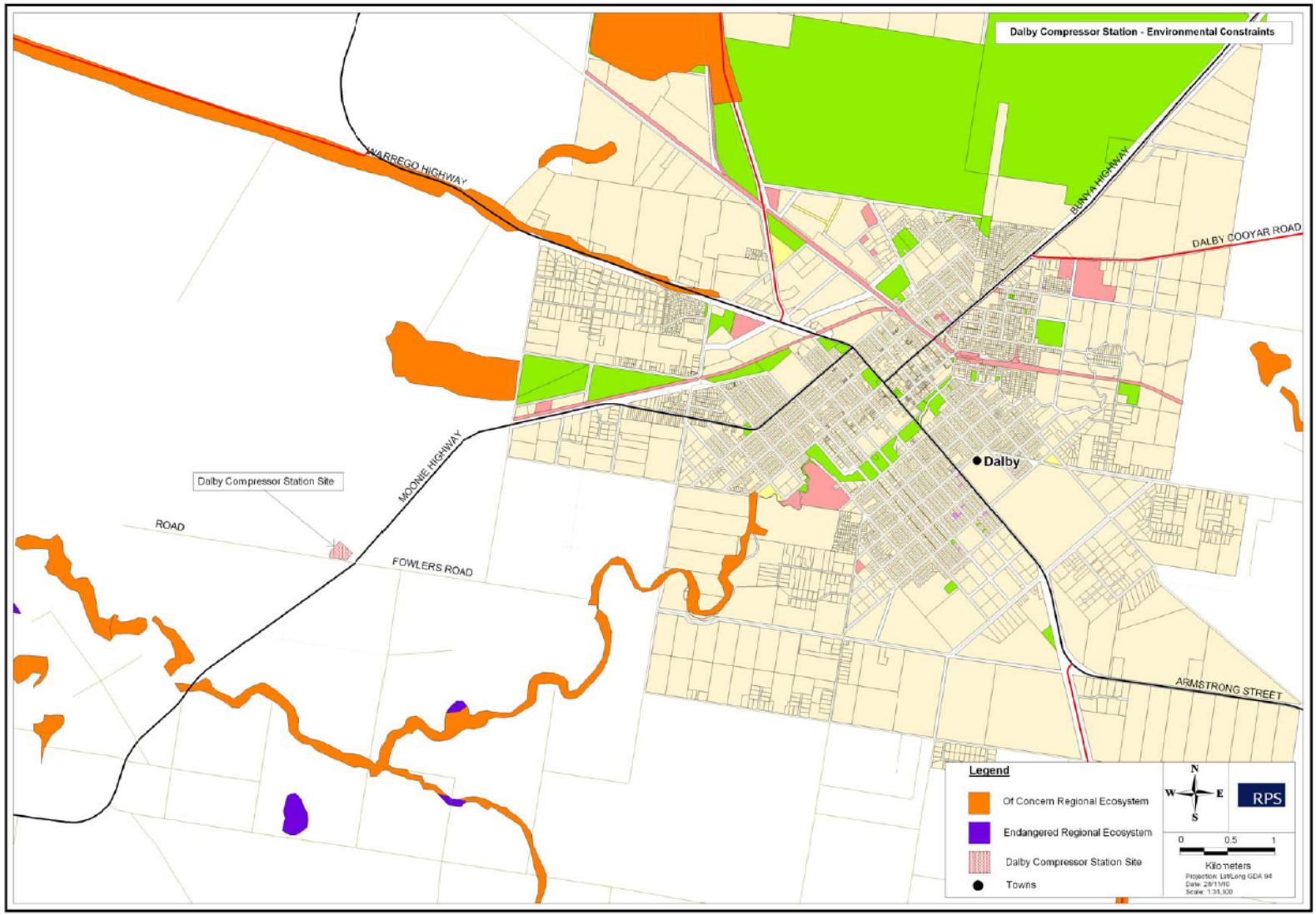

Figure 4: Environmental Constraints

6.2.3 Weeds

No declared environmental weed populations are present at the Dalby Compressor Station. The compressor compound is predominantly a hardstand area that is actively managed by APA in accordance with their weed management protocols outlined in the Operational Environmental Management Plan (OEMP) for the RBP (see Section 5.4 of the RBP OEMP (Appendix 7).

6.2.4 Fauna

The EPBC Protected Matters Database search for the compressor station site identified 11 threatened species, 10 marine species and 11 migratory species potentially inhabiting the wider area. These species comprised 16 birds, two mammals, three reptiles and one fish. The full list is provided in Appendix 6.

An online search of the DERM Wildnet Database did not indicate the presence of any Endangered, Vulnerable or Threatened species (as listed under the NC Act) occurring in the area. The results of this search are provided in Appendix 6.

The compressor station site is cleared and surrounded by cropped agricultural land (Plate 3) and there is a lack of available fauna habitat in the general vicinity of the compressor station.

6.3 Environmentally Sensitive Areas (ESA's)

Based on the information contained in Appendix 2 of EA PEN100389409, the Dalby Compressor Station is located within the Wambo River Improvement Trust Area, a Category C Environmentally Sensitive Area.

Petroleum activities in Category C Environmentally Sensitive Areas are subject to approval from DERM. Discussions with DERM (Wambo River Improvement Trust) on 8 November 2010 (DERM 2010b) ascertained that approval is only required within River Improvement Trust Asset Areas. The Wambo River Improvement Trust confirmed that the Dalby compressor site is not located within their Trust Asset area and do not have any concerns regarding the proposed upgrade.

Three very small patches of Endangered Regional Ecosystem (ERE) (Category B ESA) were identified at distances of approximately 2 km, 2.5 km and 3 km from the compressor station site (refer to Figure 4).

6.4 Potential Adverse or Beneficial Impacts on Environmental Values

As no ESAs were identified within or in close proximity to the project area, construction of the proposed project is not expected to impact significantly upon ESAs. Additionally, the proposed project is not expected to significantly impact upon ecological values in the area given that:

- The site is adjacent to an existing operational compressor station, where the land is highly disturbed (i.e. cleared and cropped) and is unlikely to support fauna due to a lack of significant natural habitat (i.e. mature vegetation and shelter) (see Plate 3).
- As described in Section 6.2.2, the nearest known RE (11.3.2 – poplar box woodland) is located approximately 1.8 km from the site. Specific REs are known to be analogous to TECs; as no mapped REs are present within 1.8 km, it is assumed that TECs will not be present either.

- Threatened and Migratory species identified by the EPBC search as being potentially present are predominantly mobile and/or migratory bird species that can fly over the site, or species whose habitat requirements are absent from the proposed site.
- No significant weed species occur on the site. Weed management measures in accordance with APA's RBP OEMP (refer Section 5.4 of Appendix 7) will be implemented throughout construction to prevent the spread of declared and environmental weeds. These measures will include undertaking vehicle inspections.

6.5 Environmental Protection Commitments, Objectives and Control Strategies

Environmental Protection Objective	To minimise adverse impacts to vegetation and fauna, and avoid the spread of weeds and pathogens.
Specific Objectives	To minimise disturbance to fauna during construction. To avoid the introduction or spread of weeds and pathogens and undertake weed control where required during construction. To minimise additional clearing of native vegetation as part of operational activities. To ensure that maintenance activities are planned and conducted in a manner that minimises impacts on native fauna. To ensure that weeds and pathogens are controlled during operations.
Control Strategies	**Vegetation Management** The facility will be maintained free of vegetation (including weeds) for its operational life. **Weeds** All vehicles and plant will be inspected to ensure that they are weed free prior to their initial commencement of works, and conduct washdowns (using appropriate facilities) where required. Biodegradable chemicals will be used where practicable for the treatment and control of weeds. Monitoring for weed infestations within disturbed areas should occur regularly during construction. Where topsoil is imported from outside the local area it will be sourced from weed and pest free areas **Fauna** Any excavation shall be regularly checked for the presence of fauna. Project vehicles will travel at safe speeds to reduce fauna mortalities, wherever practical. Fauna will be prevented from accessing food scraps through the careful management of waste materials and prevention of direct feeding by personnel. Where required, procedures shall be implemented to prevent fauna access to any spills.
Performance indicators	No unauthorised vegetation clearance. No mortalities of fauna or livestock as a result of construction activities. No proliferation of weeds in compressor station compound or immediate surrounds. All onsite vehicles have certification of appropriate washdown / cleanliness.

7.0 Noise

Sonus Pty Ltd (Sonus) was commissioned by RPS on behalf of APA to undertake an impact assessment of environmental noise from the construction and operation of the proposed expansion to the Dalby Compressor Station. The assessment consisted of:

- A survey of the existing acoustic environment and equipment on site;
- Measurements of the noise from the existing compressor;
- A prediction of the noise from the new compressors on site at the closest sensitive receptors;
- A comparison of the predicted levels with the relevant environmental noise criteria; and
- Recommendations for acoustic treatment measures.

A copy of this report is provided in Appendix 8.

7.1 Existing Noise Environment

7.1.1 Noise Environment and Sensitive Receptors

The Dalby Compressor Station is located approximately 5 km south west of the township of Dalby in an area dominated by arable cropping. The acoustic environment at sensitive receptors is characterised by local and distant road traffic and natural noise sources such as wind in trees and birds. This results in a low noise environment, typical of a rural setting, except where a receptor is located in close proximity to the compressor station or roads. Nine sensitive receptors were identified within 2 km of the compressor station (refer Table 12 and Figure 6), with the closest receptor (R1) being less than 500 m from the site boundary. The topography between the site and the sensitive receptors is relatively flat and it is expected that the topography will have negligible influence on the noise predicted at the closest sensitive receptors

Table 12: Approximate distances of Sensitive Receptors to Dalby Compressor Station

Sensitive Receptor	Approximate Distance from Compressor Station (m)
R1	350
R2	1,300
R3	1,300
R4	1,600
R5	1,900
R6	1,900
R7	1,800
R8	1,700
R9	1,400

Source: Modified from Sonus 2011

7.1.2 Existing Noise Sources

7.1.2.1 Transient Sources

Sources of transient or intermittent noise from the compressor station include vehicle movements, venting, purging, or flaring activities as well as non-routine and preventative maintenance works. These activities are typically temporary, short-term and will predominantly occur during daylight hours (7am – 6pm). Noise from these activities is anticipated to be negligible at all sensitive receptors and will not cause a nuisance.

7.1.2.2 Fixed Sources

The Dalby Compressor Station currently comprises one compressor unit which operates on a continuous basis (excluding shut-downs for maintenance). Compressors generate noise from the following components on a continuous basis:

- Gas Turbine Compressor Unit, including:
  - Engine air inlet;
  - Engine exhaust;
  - Engine mechanical parts; and
  - Cooling fans.

This existing compressor significantly influences the existing noise environment at receptor R1 (discussed further in Section 7.1.3) and may also influence the surrounding acoustic environment beyond this.

7.1.3 Background Noise Monitoring

Sonus undertook measurements of background noise levels (L_{A90}) at a location which was selected to be indicative of nearby residences. The location of the selected monitoring location was not influenced by any existing fixed noise sources and was an equivalent distance to roads as most residences. Background noise monitoring was undertaken 18 – 27 October 2010 in accordance with the DERM Noise Measurement Manual.

Using the data obtained, Rating Background Levels (RBL) were calculated in accordance with the "Planning for Noise Control" Guideline released by DERM. The RBL is the overall single-figure background level representing each assessment period (day / evening / night) over the whole monitoring period (DERM 2004). The calculated RBLs are summarised in Table 13 and are considered to be representative of all sensitive receptors located in an environment dominated by distant traffic and natural noise sources. The calculated RBLs are also considered sufficient to control background creep at all sensitive receptors excluding R1.

Table 13: Calculated Rated Background Levels for Identified Sensitive Receptors Located near the Dalby Compressor Station

Rated Background Levels (dB(A))		
Day	Evening	Night
29	32	26

Source: Sonus 2011

7.2 Noise Modelling

Specialist noise modelling was undertaken to assess the potential noise related impacts from the construction and operation of the new compressor units. The modelling was conducted using the CONCAWE noise propagation model and the *SoundPLAN* noise modelling software. The CONCAWE propagation model takes into account topography, ground absorption and meteorological conditions, and has been used and accepted around the world as an appropriate sound propagation model.

7.2.1 Noise Criteria

7.2.1.1 Construction Noise

Noise generated by compressor construction and installation activities will largely be associated with the operation of vehicles and equipment. This is likely to result in a temporary increase in ambient noise levels within the immediate vicinity of the construction site; however, given the short construction period (6 months) impacts associated with construction noise are anticipated to be minimal. In addition, given the temporary and transient nature of construction related noise, there is no potential for background noise creep. Construction activities (except boring) will be undertaken during daylight hours only (7am – 6pm).

7.2.1.2 Operational Noise

Noise modelling based on data gathered during background monitoring and information from manufacturer's specifications has been undertaken for the Dalby Compressor Station site for the operation of one existing compressor and two additional compressors. Noise levels within the normal frequency (>200 Hz) and Low frequency (<200 Hz) bands were predicted at each sensitive receptor. Relevant noise criteria were determined from a number of different guidelines including the Environmental Protection (Noise) Policy (EPP (Noise)), the World Health Organisation (WHO) guidelines, the *Planning for Noise Control Guideline* (DERM 2004) and the *Low frequency Noise draft Guidelines (Undated)*. Noise criteria and guidelines applicable to receptors R2 – R9 are presented in Table 14.

Table 14: Applicable Noise Criteria and Guidelines (R2 – R9)

Guideline	Maximum Day Noise Level	Maximum Evening Noise Level	Maximum Night Noise Level	Unit
Planning for noise control (planning noise levels)	-	-	29	dB(A) $L_{Aeq, 1hr}$
Planning for noise control (control background creep criteria (RBL))	29	32	26	dB(A) $L_{A90,T}$
Low Frequency Noise Draft Guideline	-	20	25	dB(A) $L_{pA, LF}$
World Health Organisation Guideline (indoors)	35	35	30	dB(A) $L_{Aeq,adj, 1hr}$

Source: Modified from Sonus 2011

To convert background noise levels (L_{A90}) to equivalent noise levels (L_{Aeq}), 3 dB(A) can be added to background levels. Therefore, to satisfy the intent of the EPP (Noise), the WHO guidelines and the DERM planning for noise control guidelines, the proposed noise criterion for the operation of the expanded compressor station is 29 dB(A) L_{Aeq} (26 dB(A) L_{A90}) at receptors R2 – R9.

At the sensitive receptor R1, the noise from the existing compressor was found to dominate the acoustic environment; therefore, an assessment of noise from the proposed additional compressors against the RBLs calculated at a location which is not influenced by the existing compressor was not considered relevant. In line with the intent of the *Environmental Protection (Noise) Policy 2008*, the total noise from the Compressor Station site should achieve a level of 41 dB(A) in order to prevent background creep at receptor R1.

7.2.2 Noise Modelling Scenarios

7.2.2.1 Predicted Existing Noise Levels

As a conservative approach, existing noise levels at receptors R2 – R9 have been predicted based on worst case meteorological conditions (refer Table 15). These conditions are reflective of a clear night sky, with wind blowing from the source to the sensitive receptor. These conditions are likely to occur approximately 10% of the time for sensitive receptors R3 – R9 and 20% of the time for R2. Predicted noise levels are for the simultaneous un-attenuated operation of the existing compressor plus the two additional proposed compressors.

Table 15: Estimated Existing Noise Levels at Sensitive Receptors

Sensitive Receptor	Estimated Noise Level (dB(A))
R1	90
R2	59
R3	60
R4	55
R5	51
R6	51
R7	52
R8	53
R9	57

Source: Modified from Sonus 2011

7.2.2.2 Operational Noise

The noise model for predicting operational noise was based on monitoring data at the existing compressor unit and the sound power levels contained in the manufacturer's specifications for the two new compressors. Specifically, the modelling has assessed noise generated by the simultaneous operation of the following:

- One Solar Saturn 20 Compressor;
- Two Solar Centaur 50 Compressors, including:
  - Air inlets;
  - Exhausts;
  - Mechanical engine; and
  - Cooling fans.

7.3 Potential Adverse or Beneficial Impacts on Environmental Values

7.3.1 Noise Modelling Results

As initial modelling results identified that noise attenuation for the proposed new compressors is required in order to meet the proposed noise criteria for the project, the following noise attenuation measures were proposed:

- Replace the standard inlet silencer with a silencer that provides an improved acoustic performance;
- Replace the standard exhaust silencer with a silencer that provides an improved acoustic performance. A suitable example is a "Colpro 750 series" silencer;
- Utilise the standard manufacturers enclosure package; and
- Build a noise attenuation barrier from compressed fibre cement with a minimum thickness of 18 mm, located no greater than 6 m from the enclosed package. The barrier should block line of sight between the enclosed package and the closest residence and be at least 35 m in length and a height of at least 1.5 m above the height of the of the enclosed package and air inlet. The barrier should be

sealed airtight from the ground to the full height of the barrier. Acoustic insulation 50 mm thick with a minimum density of 32 kg/m^3 should be installed on the acoustic barrier. This insulation may be protected with a perforated material (such as sheet steel or fibre cement sheeting) with an open area of at least 15% (Figure 5).

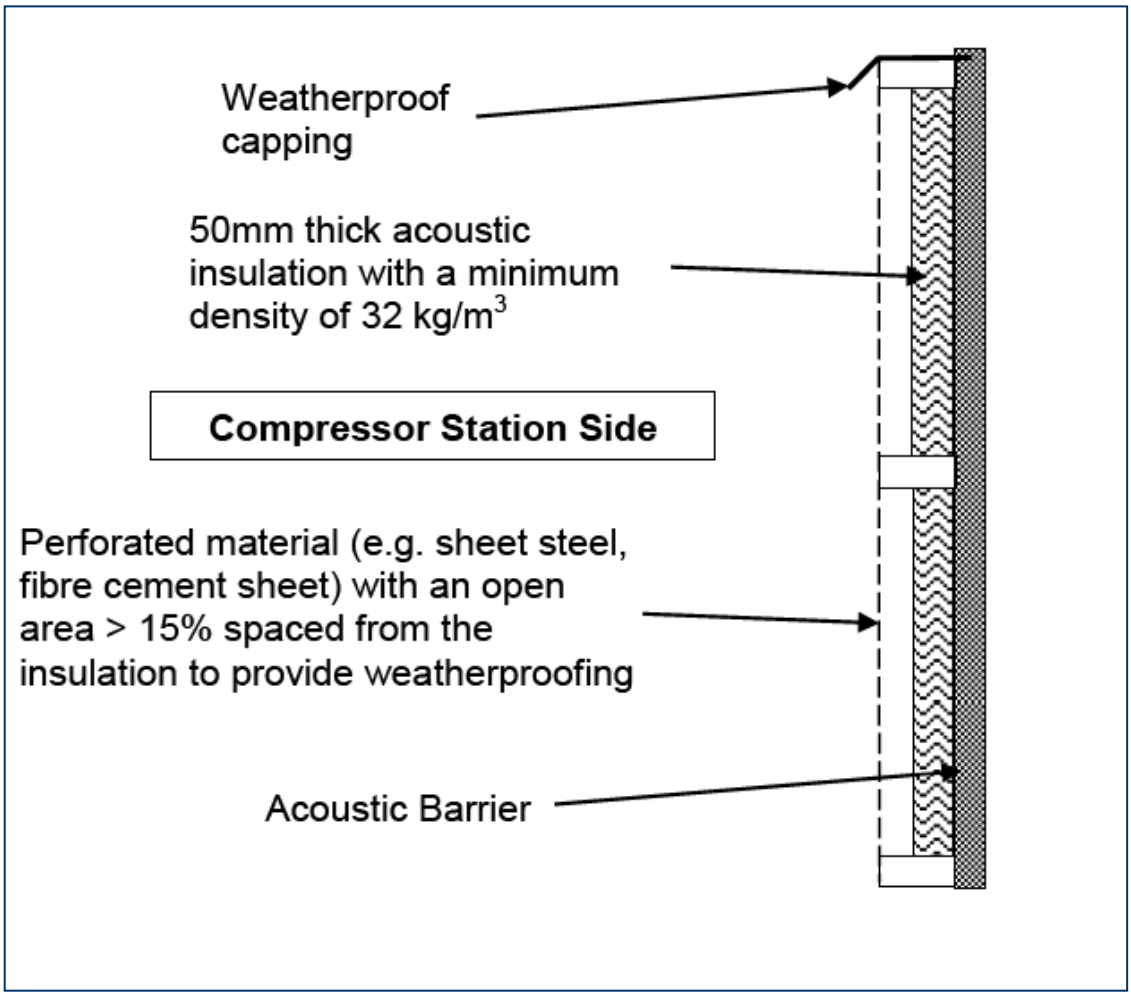

Figure 5: Recommended Composition of Noise Attenuation Barrier

Given that the proposed noise wall would be 6 m in height and approximately 65 m long, construction poses significant engineering challenges. APA therefore requested that alternative attenuation measures be investigated which may allow the proposed noise criteria to be achieved. The following alternative measures were identified, all of which would need to be implemented to achieve the noise criteria:

- An acoustic enclosure around the proposed compressors that performs significantly better than the manufacturer's standard enclosure;
- An air inlet attenuator that performs significantly better than the manufacturer's standard attenuator; and
- Additional attenuation to the existing compressor, which may take the form of a small barrier to block line of sight to the cooling fan.

Custom built compressor enclosures, such as the one proposed create a number of issues with regard to build up of fumes and maintaining a safe working environment on site. Therefore, APA has opted to follow the original recommendation of constructing a noise attenuation barrier. Sonus undertook additional noise modelling to include upgraded inlet and exhausts silencers, the manufacturer's standard enclosure package and the noise attenuation barrier. The predicted noise levels at sensitive receptors are presented in Table 16 and Figure 6, with all above noise attenuation measures applied.

Table 16: Predicted Noise Levels Outside Sensitive Receptors (dB(A))

Sensitive Receptor	Predicted Noise Level (dB(A))
R1	40
R2	28
R3	26
R4	23
R5	21
R6	18
R7	15
R8	16
R9	18

Source: Modified from Sonus 2011

As can be seen from the modelling results, with all proposed noise attenuation measures, the predicted noise levels meet the specified noise criteria (refer Section 7.1.3) and predicted noise levels at receptor R1 will be 40 dB(A), or 1dB(A) less that the existing noise levels. APA have consulted the landholder at R1 who has communicated their acceptance of the current noise levels, the proposed expansion and APA's proposed noise attenuation measures (as detailed in correspondence between APA and the landholder and included as Appendix 9). Given that the noise environment at R1 is significantly influenced by noise from the existing compressor and is currently exposed to noise levels greater that those contained in the DERM noise guideline, APA propose to nominate R2 as the monitoring point for any subsequent DERM audits.

The low frequency noise level predicted inside receptors R2 – R9 is below 20 dB(A), and low frequency noise at R1 is not anticipated to be any greater than the current existing level.

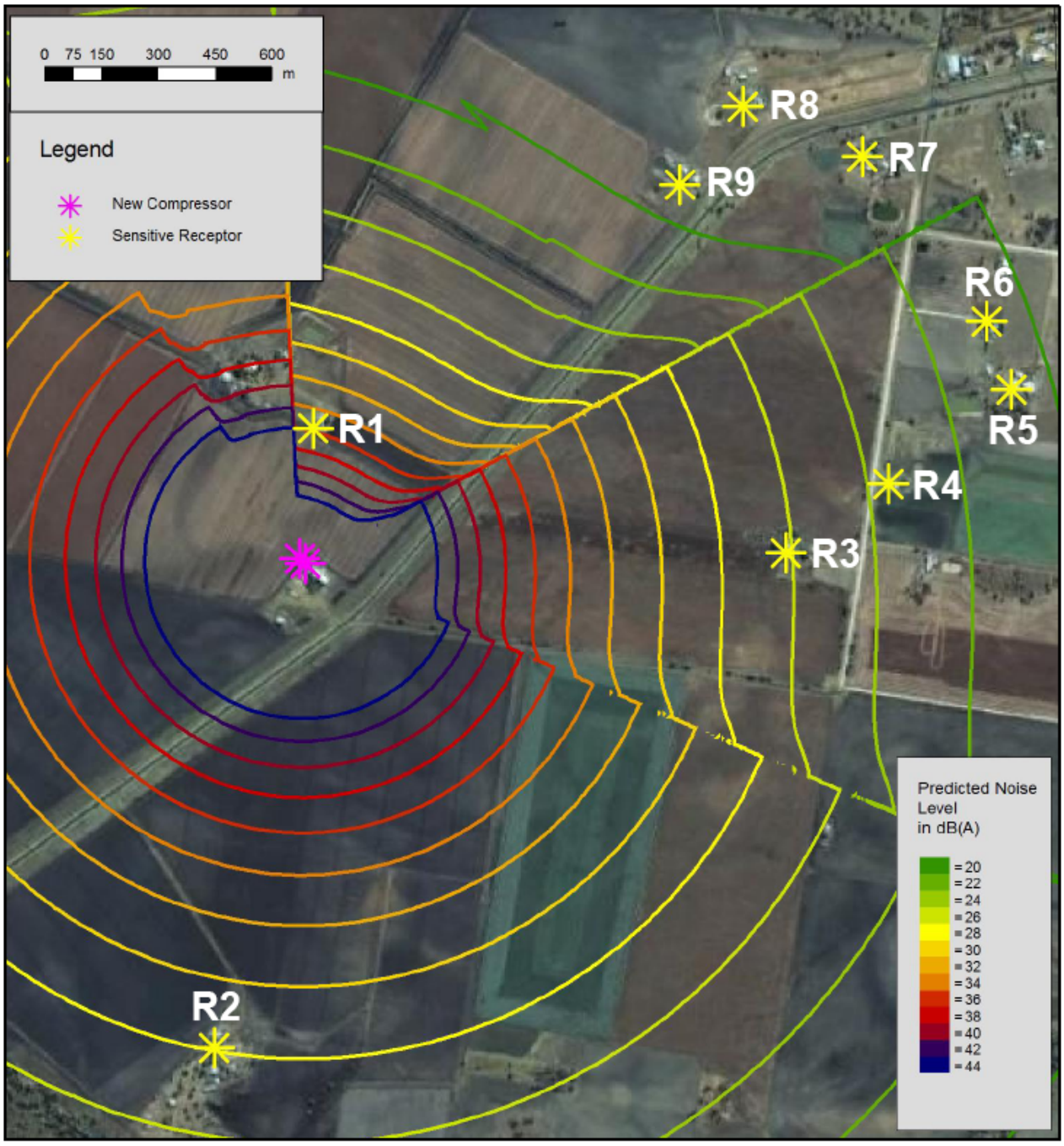

Figure 6: Noise Contour Mapping Showing Predicted Noise Levels at Closest Sensitive Receptors

7.4 Environmental Protection Commitment, Objectives and Control Strategies

The location of the Dalby Compressor Station, and in particular the fact that a sensitive receptor is located within 500 m of the site makes it a particularly challenging prospect to meet stringent noise criteria designed to avoid noise nuisance and background creep. However, through the implementation of multiple noise attenuation measures (as outlined in Section 7.2.2.2) it is anticipated that operational noise levels from the site will meet the relevant noise criteria and in the case of the closest sensitive receptor actually result in a small improvement to the existing noise environment. In particular the construction of a 6 m high by 65 m long noise attenuation barrier which has significantly increased project costs and caused delays to major project milestones clearly demonstrates APA's commitment to the maintenance of existing environmental values.

As discussed in Section 3.5.4, APA has discussed this proposal with the adjacent landholder who raised no concerns with regard to the construction of the noise barrier (refer Appendix 9). This barrier will result in an effective decrease in existing noise levels at the closest sensitive receptor (R1), Given that the existing noise environment at R! is significantly influenced by noise from the existing compressor APA consider the nomination of R2 as the monitoring point for subsequent DERM audits is appropriate. Potential visual amenity impacts associated with the noise barrier are discussed in Section 8.1.3.

Environmental Protection Objective	To construct and operate the compressor station in a manner that minimises the impact of noise on surrounding residences and industry.
Specific Objectives	To minimise noise impacts associated with the: ▪ movement and operation of construction vehicles and equipment; and ▪ operation and maintenance of the compressor station. To ensure operational activities comply with relevant noise standards.
Control Strategies	Earthmoving equipment and other vehicles will be fitted with appropriate noise control devices (e.g. mufflers) and such devices will be maintained. Appropriate equipment will be selected for construction and operations. Vehicle speeds will be limited on all access roads in proximity to residences (and other sensitive receptors). Where practicable, landholders will be notified in advance of unavoidable loud construction activities Where appropriate, alternative arrangements may be made with landholders to minimise noise nuisance. The manufacturer's standard enclosure package and upgraded air inlet and exhaust silencers will be installed on new compressors as per the Sonus Noise Assessment Report (Appendix 8). The noise attenuation barrier will be constructed in accordance with the specifications contained in the Sonus noise assessment report and will be installed prior to operation of the new compressors. Construction works will be conducted Monday and Saturday and between 7am – 6pm. Noise related complaints will be documented, and immediately reported to the Project Manager who will investigate the complaint. The noise barrier will be constructed in accordance with any applicable Local Government regulations and building codes and engineering standards.
Performance Indicators	No complaints in relation to noise nuisance. Any recorded complaints are actioned and closed out. Any required noise monitoring demonstrates compliance with regulatory requirements (including EA specified noise levels).

8.0 Existing Social Environment

8.1 Existing Community Environment

The project site is located within the Western Downs Regional Council. The Western Downs region historically was predominantly rural based, with cotton and grains forming the majority of the agriculture grown (DRC, 2010). Businesses in the Western Downs Region have since diversified from the agricultural sector into components, parts and services for the energy sector (WDRC 2010a). Mining is now the leading contributor to GDP in the area with agriculture, fishing and forestry the other major industries (WDRC, 2010).

The Western Downs Regional Council covers 38,039 km^2 (WDRC 2010a) and in June 2007 housed 30,230 people (WDRC 2010b). The closest town to the project site is Dalby (5 km north). In 2006, there were 9,778 people in Dalby town (ABS 2010). This is the most up to date statistic for population numbers in Dalby.

8.1.1 Cultural Heritage

The area proposed to be impacted by the station upgrade is heavily disturbed by agricultural (cropping) activities and there is a very low likelihood that sites or items of cultural heritage will be present. In the event that a cultural heritage discovery is made during construction activities, the discovery will be managed in accordance with the Queensland *Aboriginal Cultural Heritage Act 2003* and the RBP OEMP (refer Section 5.10 of Appendix 7).

8.1.2 Native Title

The Dalby Compressor Station, where the proposed upgrade is proposed, is located at Lot 1 on Plan RP172984. This land is owned wholly (i.e. freehold) by the APA Group, therefore, all native title has been extinguished at this location.

8.1.3 Visual Amenity

The area surrounding the project is predominantly flat, cleared agricultural land with few topographical features of note such as hills. Tourism is not a major industry in this region of Queensland and potential impacts to visual amenity are anticipated to be limited to local residents.

8.2 Potential, Adverse or Beneficial Impacts to Social Environment

8.2.1 Socio-Economic Impacts

Potential adverse socio-economic impacts associated with the Dalby Compressor Station upgrade project activities are likely to be minimal and short-term. Potential impacts to community values, although considered unlikely, may include:

- Air quality and noise disturbance (addressed in Section 4.0 and Section 7.2);
- Damage to third party infrastructure;
- Minor increases to traffic volume; and
- Reduced visual amenity.

Construction activities and the installation of infrastructure have the potential to disrupt traffic as well as key land use activities. Interruptions of land use are not anticipated as part of the current project, as the construction activity will be largely confined to land owned by APA.

Construction traffic will be required to utilise the local roads and may potentially impact on traffic flows and road conditions. APA have received written approval from the DTMR (refer Appendix 4), to add a turning lane to the Moonie Highway to facilitate vehicle entry to the project site. If required, a Traffic Management Plan (TMP) will be developed in consultation with affected stakeholders, including the local government. This plan will be applicable to all project related vehicle movements.

Impacts to visual amenity generally relate to aesthetic impacts to landholders, residents and tourists, where an activity or aspect may be perceived to contrast significantly with existing landscape settings and aesthetic values. The construction of a noise barrier to mitigate noise emissions from the site has the potential to impact on visual amenity as it may block views in certain directions and may cause shadowing effects. However, the orientation (predominantly (approximately east – west) of the proposed barrier means that shadowing effects will be significantly minimised through morning and afternoon periods when the sun is low in the sky. Given that the Dalby Compressor Station is already present, the construction of the proposed noise barrier is unlikely to represent any significant deterioration of visual amenity. APA propose to use a sympathetic paint scheme to minimise initial visual impacts and will plant fast growing native trees which will form a natural screen for the noise barrier over the longer term.

The closest resident to the Dalby Compressor Station has been consulted with regard to the proposed construction of the noise barrier and has not raised any concerns with regard to potential visual amenity impacts. APA has also held a public information session with Western Downs Regional Council to further discuss this proposal (on 13 April 2011). No issues or concerns arose from this information session and APA will construct the noise wall in compliance with any applicable local government regulations, building codes or engineering standards.

Fire risk is considered unlikely as the land is predominantly cleared and cropped, however, implementation of control measures as detailed in Section 8.3 will further reduce fire risk.

8.3 Environmental Protection Objectives and Control Strategies

Environmental Protection Objective	To avoid significant impacts on the livelihood and well being of the community.
Specific Objectives	To minimise disturbance or damage to infrastructure / land use and remediate where disturbance cannot be avoided. To minimise disturbance to landholders and residents. To appropriately reinstate and rehabilitate areas temporarily disturbed for construction To protect public safety during both construction activities and normal operations. To avoid fires associated with compressor station construction and operations. To prevent unauthorised activity that may impact on the compressor station integrity.
Control Strategies	**Public Risk and Safety** A complaints register will be established and maintained and complaints investigated. Signage will be installed and the site fully fenced to ensure no public access. Appropriate measures will be installed and maintained to prevent impacts to sensitive receptors (e.g. noise attenuation). Procedures will be implemented for fuel and chemical storage, handling and spill management that prevent public access to fuel, chemicals or spills (if they occur). Vehicles and personnel are to remain on the designated access roads and tracks and construction site wherever practicable. Appropriate traffic management procedures will be developed and implemented. Equipment and material transport routes and storage areas will be planned in consultation with local authorities where appropriate to minimise disruption to traffic, residents and local industry. Any damage caused to roads through construction or operational activities will be rectified in consultation with relevant local or state authorities. **Fire Management** Open fires will be banned on the project. Fires include open barbecues, billy fires, brush burning and rubbish burning. Unnecessary build-up of flammable material in work areas will be prevented. Vehicle and machinery exhaust systems shall be inspected regularly for leaks and accumulated vegetation debris. Fuel systems shall also be inspected for leaks. An Emergency Response Plan shall include details on local contacts for fire fighting assistance. All relevant by-laws with regard to fire management will be adhered to. Appropriate fire and emergency response measures will be maintained onsite during construction and operations. **Cultural Heritage** Site inductions are to include cultural heritage awareness issues and procedures for discovery of potential artefacts (both indigenous and non indigenous). Where necessary, signage, flagging, fencing or erosion control measures will be installed to protect any sites detected in or near the site. In the event that site earthworks uncover potential indigenous heritage material, actions will be carried out in accordance with relevant legislation and the RBP OEMP (including notification and follow up actions). **Visual Amenity** Existing roads and access tracks will be utilised, wherever possible. All working areas will be maintained in a neat and orderly manner. Appropriate waste management practices will be adopted. Dust emissions, and erosion and sedimentation of land and waterways will be minimised through implementation of mitigation measures outlined in Sections 4.5 and 5.4.

	The noise barrier will be painted using a sympathetic paint scheme (e.g. bottom 4 m green and top 2 m blue) to minimise short term impacts Fast growing native trees will be planted on site between the noise barrier and the site boundary to provide a natural screen over the long term.
Performance Indicators	Disturbance to landholders and residents is minimised. All complaints are recorded, actioned and closed. All areas disturbed temporarily have been rehabilitated. No open fires on site. Cultural heritage items identified, recorded and reported in compliance with existing APA protocols.

9.0 Waste

9.1 Waste Generation

It is anticipated that only small amounts of domestic and industrial wastes will be generated during the construction and operation of the upgraded compressor station. All waste materials will be managed and disposed of in accordance with relevant legislation (including the *Environmental Protection (Waste Management) Policy 2000*) and the construction contractor Waste Management Plan (WMP).

During construction, the onsite sewage system will consist of portable sewage units. All sewage will be pumped out and trucked to existing local treatment facilities for disposal by appropriately licensed contractors. All construction sewage systems will be serviced by appropriately qualified contractors, and removed prior to the operational phase, and no associated impacts are expected. During the operation of the upgraded compressor station, a small toilet block will be situated on site. Details regarding the system are yet to be finalised, but the capacity of the system will be less than 21 EP and its operation will be in compliance with regulations set by the Western Downs Regional Council.

APA is proposing to hydrotest the compressor station piping. At present it is anticipated that no chemicals e.g. biocides and oxygen scavengers will be added. However, should chemicals be added, used hydrotest water may be classed as a waste product and would be managed as such by APA. The management of hydrotest water is discussed in Section 5.4.

9.2 Potential Adverse or Beneficial Impacts on Environmental Values

Due to the anticipated low volume of waste generated and the implementation of appropriate waste management strategies as detailed in Section 9.3 of this EM Plan and Section 5.13 of the RBP OEMP (Appendix 7), no adverse impacts from waste generation are anticipated.

As sewage will be trucked offsite and disposed of to existing local treatment facilities by appropriately licensed contractors, no adverse impacts from sewage disposal are anticipated.

9.3 Environmental Protection Commitments, Objectives and Control Strategies

Environmental Protection Objective	To minimise waste generation, maximise reuse and recycling of construction waste products and avoid contamination of land.
Specific Objectives	To prevent spills of waste materials occurring and if they occur to minimise their impact. To dispose of all waste materials and rubbish in an appropriate manner.
Control Strategies	**General Waste** All work areas will be maintained in a neat and orderly manner and free of litter and general waste (such as lunch wrappers). Refuse containers will be located at each worksite and will be covered to prevent access by fauna and the spread of rubbish by wind. All food wastes will be collected for disposal off site, taking into account health and hygiene issues. All litter and general waste disposal will be at a licensed disposal facility. Where waste contractors are used they will be appropriately licensed. All bonding material and dunnage from transport vehicles and unloading areas is to be collected and transported off site to designated disposal areas.

	Reusable and recyclable wastes, such as timber skids, fibre / nylon rope spacers, pallets, drums and scrap metals, will be stockpiled and salvaged. All waste materials and construction equipment will be removed from the site once construction is completed. **Hazardous Materials and Wastes** All project personnel will be instructed on prevention, safety and response practices as a component of the environment induction process. MSDS's and a dangerous goods register will be available, and easily accessible, for all hazardous and dangerous materials used. Fuels and lubricants will be stored within containment areas (e.g. lined, bunded areas) in accordance with AS 1940. Spill mats and spill response kits will be available during refuelling activities, and relevant personnel will be trained in their correct use. Machinery will be regularly inspected for fuel and oil leaks and will be maintained in good working order. Spills of dangerous goods will be rendered harmless and collected for treatment and disposal at a designated site, including cleaning materials, absorbents and contaminated soils. Emergency response procedures will be developed and implemented. Small quantities (<250 kg) of contaminated soil may be transported to licensed facilities for disposal. Regulated waste transport and/or disposal permits for all contaminated materials (>250 kg) will be undertaken in consultation with the DERM. Protective clothing, appropriate to the materials in use, will be provided. Regulated wastes e.g. hazardous wastes will be collected and removed from site (via a licensed waste contractor) for recycling, reuse or disposal at a facility licensed to accept such wastes. Materials and equipment for responding to hazardous spill incidents will be provided and maintained. **Hydrotest Water** (see Section 5.4)
Performance Indicators	No complaints in relation to waste management. Any recorded complaints are actioned and closed out. Appropriate handling and treatment of contaminated land. Any contamination or spill incidents are effectively documented and closed out. Wastes are appropriately segregated and stored onsite. Regulated waste transport forms are kept on site. No evidence of contamination / spills. Appropriate storage and handling of fuel and chemicals. No presence of flammable material in work areas.

10.0 Water Resources

10.1 Description of Environmental Values

A search of EPBC Protected Matters Database indicates that the site occurs within the catchment of the Ramsar wetland – Narran Lake Nature Reserve, NSW (DSEWPC 2010b). This reserve is located approximately 480 km to the south-west of the compressor station.

There are no other watercourses, springs or wetlands identified in the vicinity of the project area.

10.2 Potential Adverse or Beneficial Impacts on Environmental Values

Given the distance to the Narran Lakes from the proposed project site and the lack of watercourses, wetlands or springs in the vicinity of the project area, impacts to water sources are considered to be negligible.

Any topsoil stockpiled as part of construction activities may adversely impact overland flow / drainage patterns and where inappropriately protected may result in sedimentation impacts to the surrounding area. Given that soil stockpiles will have appropriate erosion and sediment controls in accordance with APAs ESCP and that most topsoil will be made available to the closest landowner,, these stockpiles will be temporary in nature and impacts associated with altered overland flow and sedimentation are anticipated to be negligible.

10.3 Environmental Protection Commitments, Objectives and Control Strategies – Water

Potential impacts stemming from erosion and sedimentation will be dealt with in accordance with APA's Erosion and Sedimentation Control Plan and the erosion and sedimentation control measures proposed in Section 5.4.

11.0 Rehabilitation

The compressor station will be decommissioned in accordance with the regulatory requirements and accepted current environmental best practices of the day. Current decommissioning procedures require the removal of all above ground infrastructure and the restoration of associated disturbed areas.

The proposed construction and rehabilitation and decommissioning Financial Assurance amount for this EA amendment application and supporting calculations are provided in Appendix 1.

12.0 Environmental Management System

The APA Health, Safety and Environment (HSE) Policy governs the development of APA's HSE Management System and is contained in Appendix 10. This policy and the management system are key tools use to manage environmental responsibilities, issues and risks associated with APA activities. The environmental standards and processes within the HSE Management System are aligned with the international standard AS/NZS ISO14001:2004. The HSE Management System has been established to ensure that environmental issues have been identified and managed throughout each construction and operation project. All construction activities for the proposed project will be carried out in accordance with this system.

Proposed construction activities will be carried out in a manner that ensures that:

- All relevant regulatory and corporate obligations are fulfilled;
- Any community and affected landholder concerns are considered;
- Potential environmental impacts are adequately identified;
- Appropriate construction techniques are adopted to minimise potential environmental impacts;
- Mitigation measures are developed and implemented for all identified environmental impacts; and
- Roles and responsibilities for the implementation of environmental management are defined and understood.

Any potential environmental issues associated with the construction activities of the compressor station upgrade will be managed through the use of the environmental protection measures outlined in this document, any conditions prescribed in the EA and a Construction Environmental Management Plan (CEMP) that encompasses the requirements of the preceding two documents.

APA has developed an Operations Environmental Management Plan (OEMP) (Appendix 8) which provides guidance on the management of environmental impacts during the operation of the Roma to Brisbane Pipeline and associated infrastructure, including compressor stations. Once construction of the upgraded compressor station is completed, the OEMP will be updated to reflect the operational requirements of the new facility.

12.1 Responsibilities

APA will be responsible for overall environmental compliance for Dalby Compressor Station Upgrade project. Day-to-day environmental management during project activities will be the responsibility of all personnel, including construction contractors and sub-contractors who are accountable through the conditions of employment.

APA will additionally maintain onsite supervision of contractors during construction and operations and will monitor and review their environmental performance. Targeted training and inductions will ensure that all individuals involved in the project (including APA personnel and contractors) are aware of their environmental responsibilities and accountable for their actions.

The indicative environmental management responsibilities for project personnel are listed in Table 17.

Table 17: Roles and Responsibilities for Construction

Role	Responsibility
APA Executive Management	Licence and Authority holders. Hold overall responsibility for project and environmental management.
APA Project Director	Directly responsible for the management of the project, including all environmental aspects.
APA Construction Manager	Directly responsible for the overseeing and fulfilling of commitments contained in EM Plan. Assesses environmental compliance (i.e. with the EM Plan, EA and CEMP through regular inspection).
APA HELM Manager	Oversees the implementation of environmental management measures. Monitors the activities of construction contractors and assesses environmental compliance. Coordinates the environmental monitoring and audit program. Represents the project on environmental matters with stakeholders. May delegate landowner consultation and environmental management to field based personnel.
Construction Contractors	Responsible for ensuring that works comply with the contractual agreements, meet regulatory requirements and that all environmental objectives contained in the contracts are attained.
Environmental Adviser(s)	Field personnel that provide specialist advice on specific issues on an 'as needs' basis. May be external or internal.
Environmental Auditor(s)	External auditors contracted periodically to audit the project against the Pipeline Licenses (which authorises the compressor station), EM Plan and the EA.

12.2 Training

All personnel and contractors associated with the project will be required to complete an induction and environmental training prior to carrying out works on site. This will involve the discussion of the commitments made in this EMP and will also address other environmental aspects including:

- Applicable legislation and legislative requirements;
- Roles and responsibilities;
- Environmental issues, including:
  - Noise management;
  - Air emissions management;
  - Erosion and sediment control;
  - Weed control;
  - Protecting existing utilities and infrastructure;

  - Traffic and access; and
  - Waste management;
- Emergency response;
- Project documentation (including the approvals documents (CEMP, EA and Operational EM Plan); and
- Incident reporting.

All training will be recorded in a training register to ensure that all personnel are trained prior to commencing work on the site. A training verification test will be completed by all personnel and assessed by the trainer prior to training being recorded on the register.

12.3 Environmental Inspections and Audits

Regular inspections of project construction activities will be conducted during the construction phase to ensure compliance with the EMP, EA conditions and other environmental requirements. Any of the construction contractor's personnel will also be required to progressively implement, inspect and report on compliance with environmental requirements.

As part of environmental inspections, attention will be focused on aspects such as:

- Landholder complaints;
- Integrity and efficacy of erosion and sedimentation control measures;
- Presence of weeds;
- Evidence of erosion;
- General housekeeping of the site and appropriate waste disposal;
- Appropriate soil stockpiling and segregation of topsoil and subsoil;
- Evidence of contamination / spills;
- Reinstatement of surface contours;
- Presence of flammable material in work areas; and
- Restriction of activities to approved access routes.

A minimum of two formal environmental audits will be undertaken during construction project by APA staff. The first audit will take place during the early stages of the construction works to ensure compliance with the EA conditions and the EM Plan commitments. This will enable any non-compliance to be identified and appropriate corrective actions be implemented at a very early stage of the project. Where appropriate an audit will be carried out post construction.

Following completion of the construction activities, all future auditing will be conducted in accordance with the OEMP for the Roma to Brisbane Pipeline and the conditions of the EA.

12.4 Monitoring

Monitoring will be conducted on an ongoing basis throughout the construction stage of the project to accurately assess environmental performance and to determine any actions required.

Environmental monitoring will be undertaken as specified in the conditions of the EA may be carried out in response to complaints.

Specific monitoring, in accordance with recognised industry standards e.g. APIA and DERM guidelines, will include:

- Noise nuisance assessments (in response to a request by DERM or reasonable complaints); and
- Air emissions monitoring, as stipulated in the project EA.

Monitoring records will be maintained and provided to DERM as requested or required by the EA.

12.5 Reporting and Recording

Throughout the construction activities, APA will maintain an auditable record system in accordance with industry practice and the EA conditions.

Records to be maintained will include:

- Training and induction attendance;
- Environmental incidents and identified non-compliance reports;
- Remedial actions taken following incident reports;
- Inspection reports;
- Environmental monitoring results;
- Consultations conducted and meeting minutes;
- Audit reports; and
- Complaint details.

Should an environmental incident occur within the project area, it will be reported in line with APA's Incident / Hazard Reporting Procedure (HSE 8-1) and all potentially affected parties and relevant regulatory authorities will be notified by APA (as per EA conditions and relevant legislation).

13.0 Conclusion

Through effective specialist environmental assessments, ongoing engineering input and stakeholder consultation, APA considers that the proposed expansion of the Dalby compressor station has effectively investigated and addressed potential environmental and social sensitivities at this location. Consequently, APA is confident that the proposed expansion (as described in this EM Plan) can be implemented in a manner that effectively minimises potential adverse social and environmental impacts.

The project will be located entirely on APA land within a landscape heavily disturbed by cropping and other agricultural activities where there are few environmental sensitivities present. APA's approach to install the infrastructure adjacent to the previously developed area further reduces the area of disturbance and potential environmental impacts associated with the project. The lack of available habitat in the project area and the fact that APA will not clear the mature trees present at the site means that impacts to flora biodiversity associated with clearing and habitat loss will be negligible. Impacts to land use are also minimal given that the land for the proposed expansion is already owned freehold by APA.

The predicted air quality impact of the project on the surrounding atmospheric environment is low and is unlikely to significantly impact air quality at identified sensitive receptors. Additionally, the Greenhouse Gas emissions are unlikely to be a significant contributor to Australia's assigned Greenhouse Gas Quota.

Specialist noise assessment (Sonus 2011) identified that the addition of two new compressors at the Dalby site without any noise attenuation measures is likely to adversely affect the noise environment at identified sensitive receptors. However, the implementation of specified noise attenuation measures as detailed in the noise assessment report (Sonus 2011) and this EM Plan mean that impacts to the noise environment at eight of the nine identified sensitive receptors will be minimal and that at the closest sensitive receptor, a reduction to existing noise levels of 1 dB(A) is predicted. Given the implementation of specified noise attenuation measures by APA such that the intent of the DERM Noise Management Manual and identified noise criteria can be met, it is considered that impacts to the noise environment as a result of project activities will not be significant.

Construction of the proposed noise barrier has the potential to adversely impact on visual amenity, however APA have undertaken specific stakeholder consultation in relation to this issue. To date, no concerns have been raised by adjacent landholders in relation to this issue. Further public and stakeholder consultation conducted on 13 April 2011 yielded no issues or concerns for APA to address prior to construction. Appropriate measures will be implemented to limit visual impacts in the short and long term.

APA is confident that proposed construction and operation of the expanded compressor station facility will not significantly impact the environmental or social values within the project area.

Overall, with the implementation of the noise attenuation measures detailed in this EMP (Section 7.0) desktop and specialist assessments (including field based data gathering) have concluded that the proposed project does not present a significant risk of long-term or irreversible environmental and community impacts. Potential impacts such as those associated with erosion and sedimentation will be further reduced through the implementation of targeted industry proven control mechanisms (consistent with the APIA Code) as well as strict adherence to the project EA and key documentation (including this EM Plan, the CEMP and OEMP).

14.0 References

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15.0 Abbreviations and Units

ACH Act	*Aboriginal Cultural Heritage Act 2003*
AES	Aggregate Environmental Score
AS	Australian Standard
CEMP	Construction Environmental Management Plan
DERM	Department of Environment and Resource Management (Queensland)
DEWHA	Department of Environment, Water, Heritage and the Arts (Commonwealth)
DGSM Act	*Dangerous Goods Safety Management Act 2000*
DSEWPC	Department of Sustainability, Environment, Water, Population and Communities (Commonwealth)
EA	Environmental Authority
EM Plan	Environmental Management Plan
EP Act	*Environmental Protection Act 1994*
EP Reg	*Environmental Protection Regulation 2008*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ERA	Environmentally Relevant Activity
ESA	Environmentally Sensitive Area
ESCP	Erosion and Sediment Control Management Plan
GQAL	Good Quality Agricultural Land
GHG	Greenhouse Gas
HDD	Horizontal Directional Drilling
IDAS	Integrated Development Assessment System
MSDS	Material Safety Data Sheet
NC Act	*Nature Conservation Act 1992*
NES	(Matters of) National Environmental Significance
NT Act	*Native Title Act 1993*
OEMP	Operational Environmental Management Plan
PL	Petroleum Lease
PPL	Petroleum Pipeline Licence
RE	Regional Ecosystem
SLAM	State Land Asset Management
SPA	*Sustainable Planning Act 2009*
SPP	State Planning Policy
TAPM	The Air Pollution Model
TEC	Threatened Ecological Community
TMP	Traffic Management Plan
WDRC	Western Downs Regional Council

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DGSM Act	*Dangerous Goods Safety Management Act 2000*
DSEWPC	Department of Sustainability, Environment, Water, Population and Communities (Commonwealth)
EA	Environmental Authority
EM Plan	Environmental Management Plan
EP Act	*Environmental Protection Act 1994*
EP Reg	*Environmental Protection Regulation 2008*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ERA	Environmentally Relevant Activity
ESA	Environmentally Sensitive Area
ESCP	Erosion and Sediment Control Management Plan
GQAL	Good Quality Agricultural Land
GHG	Greenhouse Gas
HDD	Horizontal Directional Drilling
IDAS	Integrated Development Assessment System
MSDS	Material Safety Data Sheet
NC Act	*Nature Conservation Act 1992*
NES	(Matters of) National Environmental Significance
NT Act	*Native Title Act 1993*
OEMP	Operational Environmental Management Plan
PL	Petroleum Lease
PPL	Petroleum Pipeline Licence
RE	Regional Ecosystem
SLAM	State Land Asset Management
SPA	*Sustainable Planning Act 2009*
SPP	State Planning Policy
TAPM	The Air Pollution Model
TEC	Threatened Ecological Community
TMP	Traffic Management Plan
WDRC	Western Downs Regional Council