27C DRAFT ENVIRONMENTAL MANAGEMENT PLAN (WASTEWATER TREATMENT PLANT)

27C.1 INTRODUCTION

27C.1.1 PURPOSE OF THIS EMP

This Environmental Management Plan (EMP) will describe how the potential environmental impacts associated with the proposed construction and operation of the upgraded Wandoan wastewater treatment plant (WWTP) will be managed. The WWTP is currently operated under Development Permit ENDC00610406, issued under the *Environmental Protection Act 1994* (EP Act) and *Integrated Planning Act 1997*.

Compliance with the EMP will ensure the operation is conducted in accordance with relevant Environmental Protection Policy (EPP) requirements, the standard criteria as outlined in Schedule 3 of the *Environmental Protection Act 1994* (EP Act), current best practice environmental management and the principles of ecologically sustainable development. By doing so, the objective of the EP Act can be achieved.

The following Department of Environment and Resource Management (DERM) (formerly the Environmental Protection Agency) guidelines and operational policies were reviewed during preparation of this EMP:

- preparing environmental management plans
- framework for managing sewerage infrastructure to reduce overflows and environmental impacts
- approval of sewage treatment plants including options for use of reclaimed water
- management for beneficial reuse of biosolids from sewage treatment plants (STP)

This EMP will replace the current EMP developed for the existing STP by the (former) Taroom Shire Council (prior to amalgamation).

The Proponent for the proposed upgrade is Western Downs Regional Council (WDRC).

27C.1.2 PROJECT OVERVIEW

The augmentation of the WWTP is being conducted to provide capacity in the treatment plant for sewage effluent produced by the Wandoan Coal Project, in addition to the existing and foreseeable sewage effluent produced by the Wandoan township. The result will be an enhanced level of treatment, with the flexibility to further upgrade the plant for biological nutrient removal, should it be required in the future. This EMP covers the following activities:

- upgrade of the existing Wandoan sewage treatment plant
- upgrade of existing effluent disposal facilities at the Wandoan golf course and showgrounds
- a new rising main pipeline from the MLA boundary to the wastewater treatment plant site.

All related infrastructure upstream of the MLA boundary will be owned and maintained by the Wandoan Joint Venture (WJV) and is not covered under this EMP.

The location of the existing and proposed wastewater treatment infrastructure is shown in Figure 27C-1-SV1.3.

Existing plant

The Wandoan township has a waterborne sewerage reticulation system comprising a network of gravity pipes and pump stations that transport sewage to a sewage treatment plant (STP) located off Golden Street, approximately 2 km north east of the town centre.

The STP consists of an inlet channel and manually raked bar screens, a sludge settling Imhoff tank and three facultative lagoons. Sludge is decanted from the Imhoff tank to sludge drying beds, where it is dried and then manually removed to the local landfill site.

The STP currently treats an average daily flow of 104 kL. Approximately 52 kL of the treated effluent is discharged to the Juandah Creek and the balance is pumped to an earth dam at the Council owned showgrounds, where it is used to irrigate the showgrounds. Infrastructure exists to pump treated effluent to an earth dam adjacent the Wandoan Golf Course for irrigation, however this in not being used at present. The

current development permit permits the use of treated effluent for irrigation purposes at the showgrounds and golf course.

The existing water quality release characteristics limits for the Wandoan STP are contained in Tables 27C-1 and 27C-2. The release limits appear to conform to Class C recycled water standards, as per the *Queensland Water Recycling Guidelines* (Environmental Protection Agency 2005).

Table 27C-1: Existing release quality characteristic limits for discharge to the environment

Parameter	Unit	Release limit	Limit type
Treated sewage effluent release limit	Cubic metres	220	maximum
5-day Biochemical Oxygen Demand	mg/l	20	80th percentile
Suspended solids	mg/l	30	80th percentile
pH		6.0 to 8.5	Range
E coli	Organisms/100 ml	<1000	Maximum
Total dissolved solids	mg/L	1000	Maximum
Dissolved Oxygen	mg/L	2	minimum

Source: After Development permit ENDC00610406, Conditions (C2) and (C4), and Schedule C Table 1

Table 27C-2: Existing release quality characteristic limits for irrigation water

Parameter	Unit	Release limit	Limit type
pH		6.0 to 8.5	Range
E coli	Organisms/100 ml	<1,000	Maximum
Total dissolved solids	mg/L	1,000	Maximum

Source: Development permit ENDC00610406, Condition (E1) and Schedule E Table 1

Plant upgrades

The upgraded WWTP will be located at the same location as the existing sewage treatment plant. The WWTP design will be based on a maximum average daily dry weather flow (ADWF) of approximately 520 kL (including 15% contingency), and a peak wet weather flow of 7 x ADWF for Wandoan township and 1.2 for the mine infrastructure, based on an infiltration of 20% for stormwater.

The proposed plant upgrade will require the existing treatment process to be converted to an “intermittent decant (extended) aeration lagoon” (IDAL/IDEAL) process, as shown in Figures 27C-2-SV1.3 and 27C-3-SV1.3. The waste streams produced post-augmentation will be dried sludge and at least Class B recycled water. In line with existing approvals, the recycled water will be used for irrigation of the Wandoan showgrounds and golf course.

The new process will require the following:

- the construction of a new inlet channel and screens for a dedicated supply pipeline from the mine
- construction of a flow splitter tank and pipework to two buffer tanks
- construction of a 2 x 600 kL interconnecting buried reinforced concrete buffer tanks at the inlet to the works containing submersible sewage pumps
- the conversion of a portion of one of the existing points to create a two cell continuously fed, intermittently decanted IDAL/IDEAL process plant
- the construction of a reinforced concrete sludge digester with sludge pumping to drying beds
- the construction of new drying beds
- provision of mechanical aerators to the converted pond and sludge digester
- upgrade of the current electricity supply to the STP from a single phase to a three phase power supply to suit the demands of the proposed upgrade

The Wandoan Coal Project will not be disposing of industrial waste via the WWTP.

Effluent disposal upgrade

The *Approval of Sewage Treatment Plants Including Options for Use of Reclaimed Water* (EPA 2008) stipulates a goal of 100% beneficial reuse based on average dry weather flow of treated water reclaimed from sewage treatment plants, and that all reasonable efforts should be made to recycle up to approximately 90% of effluent treated at the WWTP (i.e. to allow discharge to receiving waters no more than 10% of the time where possible).

Based on aerial photography there are 13 ha and 16 ha of viable land available for irrigation at the golf course and showground respectively. Expected irrigation volumes available for irrigation, based on MEDLI modelling, are presented in Table 27C-3.

Table 27C-3: Irrigation potential in the vicinity of the WWTP

Phase of demand	WWTP Flow (kL/day)	Potential area for irrigation (ha)	Treated effluent to irrigation ponds (ML/yr)	Irrigation rate (ML/ha/yr)	Effluent reuse (%)	Overflow to Juandah Creek (ML/yr)
Construction	520	29	203	5.6	82.2	34
Operation	322	29	125	4.0	94.4	5

Earth dams at the WDRC owned showgrounds and privately owned golf course will be upgraded to hold additional effluent for irrigation. These dams will be sized by way of an irrigation balance.

The existing pipeline from the WWTP to the showgrounds has sufficient capacity for anticipated irrigation volumes and does not require upgrading. However, it is likely that all pump and pipeline infrastructure between the WWTP and golf course will need to be replaced with new higher capacity infrastructure.

New rising main pipeline

Sewage from the Wandoan Coal Project will be pumped to the WWTP by way of a new dedicated 150mm nominal diameter rising main and 225 mm diameter gravity main, and will not use any of the existing wastewater reticulation network.

A new 1,530 m long, 150 mm diameter mPVC rising main pipeline will be constructed from the mining lease boundary north of Wandoan township opposite the existing Wandoan airstrip, to the WWTP. The pipeline alignment will run within existing road reserves on the western and northern edges of the Wandoan township and through the Wandoan golf course. Where it crosses the Leichhardt Highway, the pipeline will be laid in a sleeve under the road. The crossing will be constructed by auger/thrust boring to obviate safety and traffic issues associated with open cut trenches in roadways.

An isolation valve chamber will be constructed at the mine lease boundary to provide separation between WJV and WDRC infrastructure.

A break-pressure manhole will be installed at a high point east of the Wandoan Golf Course boundary, and a new 810 m long, 225 mm diameter uPVC gravity main from this point to the WWTP, including an open cut crossing of Golden Street. The gravity main will discharge into a buffer tank at the WWTP.

27C.1.3 ENVIRONMENTALLY RELEVANT ACTIVITIES

The operation of the WWTP triggers environmentally relevant activities as shown in Table 27C-4.

Table 27C-4: Environmentally relevant activities

Location	Lot and Plan	Activities
Tip Road, Wandoan	Lot 151 on FT845	ERA 63(2)(c) Sewage treatment – operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 1,500 to 4,000 EP

The new rising main pipeline and construction works relating to the WWTP are not an ERA as, under Section 63 of the EP Regulation, the relevant activity does not include "*carrying out works, other than operating a sewage pumping station…involving only infrastructure for the collection of sewage, including for example pipes*".

The relevant development permit conditions of Development Permit ENDC00610406 will need to be updated with revised conditions in relation to the upgrade works. Proposed development permit conditions are provided in this EMP.

Development Permit ENDC00610406 is an amalgamated permit covering a number of infrastructure components, including the Taroom sewage treatment plant. Where proposed development permit conditions suggest different licence control or release limits to the current development permit, these limits only apply to the Wandoan WWTP, and not to the Taroom sewage treatment plant or other infrastructure contained under Development Permit ENDC00610406.

27C.2 EMP OUTLINE

The EMP is intended to be a dynamic document that identifies potentially significant environmental impacts and provides practical and feasible methods to manage and minimise those impacts.

The EMP is intended to address both the construction and operational impacts associated with the proposed upgrade, as well as provide proposed development permit conditions under the EP Act.

The EMP is structured as a series of action plans covering the environmental aspects of the Project. Each action plan of the EMP identifies potential environmental impacts and details controls and actions to be implemented to reduce the potential for environmental impacts, and corrective actions to be undertaken if an undesired impact were to occur. The structure of each action plan is as follows:

- each action plan is divided into early works, construction and operation (including maintenance) phases
- the operational policy which applies to the action plan is described
- the performance criteria for each action plan is stipulated
- the implementation strategies to achieve the performance standards are nominated
- the monitoring and auditing procedures to assess performance are described
- the procedure for reporting of monitoring and auditing results is described
- the corrective action or choice of corrective action is identified.

Where relevant, revised development permit conditions are proposed for the operation of the sewage treatment works.

The content of this EMP will be incorporated into a Construction EMP for the augmentation works to be prepared by the Principal Contractor.

27C.2.1 ROLES AND RESPONSIBILITIES

As the Proponent, Dalby Regional Council is responsible for implementing the EMP and ensuring compliance with the performance criteria of the EMP, including ensuring appropriate corrective actions are implemented when applicable.

In order for the EMP to operate effectively, specific roles and responsibilities need to be clearly defined. These will be determined by the WDRC Operations Manager, whose overall responsibilities with respect to environmental management include:

- inclusion of the EMP in contractual documents for all work to be undertaken by contractors
- ensuring all contractors comply with the requirements of the EMP and nominate an Environmental Site Representative with the necessary authority
- overall planning to ensure operations are conducted with due regard to all statutory requirements
- audit and review of the EMP in order to certify that work is compliant with the requirements of the EMP
- management of staff and contractors to ensure compliance with specified control measures and management requirements
- notification of staff and contractors with respect to any changes or amendments to the EMP or related procedures.

27C.2.2 PERFORMANCE CRITERIA

Relevant and measurable performance criteria are necessary to allow the effectiveness of the EMP to be assessed.

27C.2.3 REPORTING

The relevant reporting structure will be included in site environmental training and induction and will be clearly displayed, along with contact names and numbers.

In the event of an incident that causes, or is likely to cause, environmental harm, as defined in the EP Act, immediate action will be taken to minimise the effects of the incident. As soon as is reasonably practicable, the details of the incident and corrective actions taken will be reported to DERM.

27C.2.4 COMPLAINTS AND INCIDENTS PROCEDURE

Western Downs Regional Council's Complaints and Incidents Procedure will be implemented in accordance with the development permit conditions. A Complaints and Incidents Register will be used to record the details of all environmental incidents and complaints received. The information recorded will include the following, as a minimum:

- time, date and nature of complaint/incident
- nature of communication (telephone, letter, personal etc.)
- name, contract address and contact telephone number of complainant (note: if the complainant does not wish to be identified then "not identified" is to be recorded
- response and investigation undertaken as a result of the complaint/incident
- name of person responsible for investigating the complaint/incident
- action taken as a result of the complaint/incident investigation and signature of responsible person.

At all times, complainants will be treated courteously and complaints will be resolved as quickly as possible. The complainant will be contacted within 24 hours of receipt of the complaint and will be kept informed of the progress of any subsequent investigation and corrective action(s).

27C.2.5 ENVIRONMENTAL MONITORING AND AUDITING

Monitoring and auditing are key activities of the EMP and measures actual performance against targets to establish whether performance criteria are being met.

General environmental monitoring of construction activities will be carried out regularly (e.g. weekly) to identify issues which may result in non-compliance with the EMP or statutory requirements (e.g. Council development application and DERM development permit conditions).

All monitoring will be conducted by suitably qualified and experienced personnel. Should the results of monitoring or site inspections indicate that the relevant performance criteria have not been achieved, corrective action must be implemented to rectify the situation. Details must be included in the Complaints and Incident Register.

In the event that site inspections indicate any non-conformances with the requirements of the EMP, a non-conformance notice will be issued and details will be included in the Complaints and Incident Register.

Formal audits relating to compliance with the EMP and statutory requirements will be undertaken at least every two months and audit teams should include appropriately experienced internal or external personnel. Each audit will result in an Audit Report that clearly outlines any non-conformance or non-compliance situations identified. A copy of the Audit Report will be provided to the Project Proponent within two weeks of the audit.

The auditor will be responsible for determining the severity of non-compliances and may instruct work to cease until the non-compliance has been rectified.

Corrective actions will be identified and implemented in response to the findings of the Audit Report.

Copies of Audit Reports and details of any subsequent corrective actions should be available for inspection, upon request by the administering authority.

27C.2.6 ENVIRONMENTAL TRAINING

All staff and contractors will receive induction training about the general requirements of the EP Act and their specific duties and responsibilities associated with the operation of the WWTP and with the EMP. At a minimum, the environmental component of the induction will address the following:

- 'general environmental duty' and 'duty to notify environmental harm' (s319 and s320 of EP Act, respectively)
- specific environmental risks identified for the Project
- requirements of the EMP
- emergency contact information.

In addition, relevant environmental issues will be reinforced at regular opportunities.

27C.2.7 REVIEW AND UPDATE

The EMP is intended to be dynamic and should be reviewed as often as necessary in accordance with changes to:

- selected technologies or equipment
- operational activities
- the legislative environment and/or approval conditions
- improvements in best practice environmental management
- corrective actions implemented as a result of complaints, incidents or non-conformance situations
- Audit Report recommendations.

27C.2.8 LEGISLATIVE REQUIREMENTS

The EMP will be implemented in accordance with relevant legislation, codes of practice, guidelines and standards. Legislative and other requirements will need to be revised in response to changes in legislation and/or management procedures and policies of WDRC.

The legislation and standards provided in Table 27C-5 should be used as the basis of decision making and complaint resolution with respect to the EMP, but may not be limited to list provided.

Table 27C-5: List of legislative requirements, standards and guidelines

Issue	Legislation, standards and guidelines
Approvals	*Environment Protection and Biodiversity Conservation Act 1999 (Cwth)* *Integrated Planning Act 1997* *State Development and Public Works Organisation Act 1971* *Transport and Infrastructure Act 1994* *Environmental Protection Act 1994* Environmental Protection Regulation 2008 Taroom Planning Scheme Taroom Shire Local law No. 21 (Roads)
Land use and contaminated land	*Environmental Protection Act 1994* Draft Guidelines for the assessment and management of contaminated land in Queensland (May 1998) *Integrated Planning Act 1997* *Land Protection (Pest and Stock Route Management) Act 2002* *Land Act 1994*
Geology, Mineral Resources, Overburden And Soils	Best Practice Erosion and Sediment Control – International Erosion Control Association, 2008 State Planning Policy 1/92 – Development and the Conservation of Agricultural Land
Groundwater	*Water Act 2000* Great Artesian Basin Water Resource Plan (Surat North Management Area (20)) *Environmental Protection Act 1994*

Issue	Legislation, standards and guidelines
	Environmental Protection (Water) Policy 1997
Water	*Water Act 2000* *Environmental Protection Act 1994* Environmental Protection (Water) Policy 1997 Water Quality Sampling Manual – Department of Environment and Heritage 1995 EPA Water Quality Sampling Manual Best Practice Erosion and Sediment Control – International Erosion Control Association, 2008 *Nature Conservation Act 1992* Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC, 2000
Traffic and Transport	*Transport Infrastructure Act 1994*
Air Quality	*Environmental Protection Act 1994* Environmental Protection (Air) Policy 2008 AS 3580 – Methods of sampling and analysis of ambient air National Environment Protection Council, National Environment Protection Measures for Ambient Air Quality
Noise	*Environmental Protection Act 1994* Environmental Protection (Noise) Policy 2008 AS 2436 – Guide to noise control on construction, maintenance and demolition sites AS 1055.1/2: 1997– Acoustics – Description and management of environmental noise EPA Noise Measurement Manual 2000 Ecoaccess Guideline: Planning for noise control User's guide to the Environment Protection (Noise) Policy Environmental Protection Agency 1997
Ecology	*Environment Protection and Biodiversity Conservation Act 1999 (Cwth)* *Water Act 2000* *Fisheries Act 1994* *Nature Conservation Act 1992* Nature Conservation (Wildlife) Regulation 2006 *Animal Care and Protection Act 2001* *Vegetation Management Act 1999* Vegetation Management Regulation 2000 *Agricultural Chemicals Distribution Control Act 1966* *Land Protection (Pest and Stock Route Management) Act 2002*
Waste Management	*Environmental Protection Act 1994* Environmental Protection Regulation 2008 Environmental Protection (Waste Management) Policy 2000 Environmental Protection (Waste Management) Regulation 2000
Cultural Heritage matters	*Queensland Heritage Act 1992* *Integrated Planning Act 1997* *Land Protection (Pest and Stock Route Management) Act 2002* Land Protection (Pest and Stock Route Management) Regulation 2003 *Environment Protection and Biodiversity Conservation Act 1999 (Cwth)* *Environment and Heritage Legislation Act (No 1) 2003* *Australian Heritage Council Act 2003* *Coroners Act 2003* *Native Title Act 1993 (Cwth)* *Native Title (Queensland) Act 1993* *Aboriginal Cultural Heritage Act 2003* *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cwth)*
Hazard and Risk	*Workplace Health and Safety Act 1995* *Explosives Act 1999* *Dangerous Goods Safety Management Act 2001* *Transport Infrastructure Act 1994* Transport Infrastructure (State-controlled Roads) Regulation 2006

Issue	Legislation, standards and guidelines
	Environmental Protection Act 1994 *Petroleum and Gas (Production and Safety) Act 2004* AS 4360: Risk Management
Health and Safety	*Workplace Health and Safety Act 1995* Workplace Health and Safety Regulation 2008 Relevant industry Codes of Practice *Dangerous Goods Safety Management Act 2001* Code of Practice for Management of Hazardous Substances at Work 1989 AS 1940 Storage and handling of flammable and combustible liquids AS 4360: Risk Management AS 4801: Occupational health and safety management system – specification with guidance for use.

27C.3 ENVIRONMENTAL MANAGEMENT STRATEGIES

Environmental management strategies for aspects potentially impacted by the construction and operation of the proposed WWTP upgrade are contained in the action plans attached in the following sections.

27C.3.1 CONTAMINATED LAND ACTION PLAN

Objectives	• To ensure that construction, operation and maintenance activities do not result in contamination. • To minimise contamination impacts to land, surface water and groundwater.
Performance Criteria	• No land or water contamination within or adjacent to the WWTP or associated infrastructure areas, except as authorised by this development permit. • Irrigation water to generally comply with Class B recycled water or better, and always be at least Class C recycled water, with the quality characteristics as presented in Table 27C-6.
Environmental Aspects	• Soils, surface water and groundwater in the vicinity of the WWTP, effluent irrigation areas, or associated infrastructure areas. • Oils, greases and chemicals used during construction, operation and maintenance. • Sewage and waste products from the operation of the rising main pipeline, WWTP and associated infrastructure.
EARLY WORKS	
Actions/Controls	• None required.
Monitoring	• None required.

Table 27C 6: End of pipe characteristic limits for irrigation water

Quality characteristics	Unit	Release limit	Limit type
pH	—	6-8.5	range
E. coli	organisms/100 ml	<1000	maximum
Total dissolved solids	mg/L	1000	Maximum
Biochemical oxygen demand (BOD)	mg/L	20	80th percentile
Electrical conductivity	uS/cm	1 600	80th percentile
Suspended solids	mg/L	30	80th percentile

Corrective Action	• None required.
Responsibility	• Not applicable.
Reporting	• None required.
CONSTRUCTION	
Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • No on-site fuel storage, other than at designated refuelling stations at the site depot. • No refuelling on site, other than at designated refuelling stations at the site depot. • Appropriate spill kits will be available on site in case of fuel or chemical spills. • Develop and implement waste disposal protocols. • Minimise the amount of potential contaminants stored on site. • Securely store potential contaminants (e.g. bunded and weatherproof chemical storage areas). • Ensure water supply for dust suppression does not lead to soil contamination (e.g. avoid saline groundwater or contaminated wastewater).
Monitoring	• Maintain a training register. • Record details of complaint(s) and incident(s) in the Complaints and Incidents Register. • Weekly inspection of all work areas to detect any chemical/oil/hazardous materials spills. • Weekly inspection of spill containment equipment. • Should a contaminant release incident occur with potential to impact on land, surface water or groundwater, undertake monitoring as required for relevant indicator parameters.
Corrective Action	• Immediately contain source of spill and deploy containment measures. • Clean up soil contamination or spillage immediately (disposal only by an appropriately licensed contractor). • Effect replenishment of spill kits immediately. • Immediately notify DERM/relevant Council officers if a significant spill occurs with potential to cause environmental harm. • Consult with DERM to facilitate remediation of soil, water and/or groundwater if soil, water and/or groundwater contamination is confirmed.
Responsibility	• Construction contractor.
Reporting	• Training register. • Weekly reporting commensurate with inspections throughout the construction period. • Complaints and Incidents Register.
OPERATION AND MAINTENANCE	
Actions/Controls	• WWTP to be operated in accordance with Operator's Manual. • Regular inspection and maintenance of the wastewater treatment plant. • Manage sewage overflows as provided in Section 27C.3.3 Water Quality Action Plan. • Securely store potential contaminants (e.g. bunded and weatherproof chemical storage areas). • Transfer of irrigation water to the showgrounds and golf course to only occur under a formal contractual agreement in accordance with development condition approvals. • Treated effluent will be chlorinated and pumped to the showgrounds and golf course for irrigation. The effluent will meet the quality specifications of a Class B recycle water, and in accordance with the parameter presented in Table 27C-6. • Irrigation with treated effluent to be carried out in a sustainable manner such that: ‣ vegetation is not damaged ‣ soil erosion and soil structure damage is minimised ‣ there is no surface ponding of the effluent ‣ the effluent is evenly distributed on the irrigation area

<table>
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the infiltration of effluent beyond the plant root zone is minimised.

Notices must be prominently displayed on any treated effluent irrigation area warning the public that the area is irrigated with treated effluent and not to use or drink the wastewater. These notices must be maintained in a visible and legal condition.
If the responsibility of the treated sewage is transferred to another person or entity (e.g. the golf course), a third party agreement must be prepared in accordance with development condition approvals.
The existing Irrigation Management Plans to be reviewed and implemented with regard to the WWTP augmentation for all areas being irrigation with treated effluent. A copy of the revised plan will be sent to the administering authority following completion of the revision.
A recycled water management plan will be prepared and implemented in accordance with Chapter 3 of the Water Supply (Safety and Reliability) Act 2008 for irrigation of treated effluent at the Wandoan Showgrounds and Wandoan Golf Club.

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<tr><td>Monitoring</td><td>

As part of the regular inspection and maintenance program.
The following items in regard to the irrigation areas:

volume of irrigated effluent (ML)
irrigated area (ha)
biochemical oxygen demand (BOD)
pH
electrical conductivity (uS/cm)
suspended solids (mg/L)
faecal coliforms (organisms/100 mL).

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<tr><td>Corrective Action</td><td>

Conduct prompt maintenance to repair any leaks or spills identified.
Clean up soil contamination or spillage as soon as practicable (disposal only by an appropriately licensed contractor).
Effect replenishment of spill kits immediately.
Immediately notify the DERM/relevant Council officers if a significant spill occurs with potential to cause environmental harm.
Consult with DERM to facilitate remediation of soil, water and/or groundwater if soil, water and/or groundwater contamination is confirmed.

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<tr><td>Responsibility</td><td>

WWTP operator.

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<tr><td>Reporting</td><td>

Irrigation Management Plan sent to the administering authority.
Maintenance records.
Inspection records.
Record details of incident(s) in Complaints and Incident Register.
Quality and quantities of treated sewage effluent transferred to the golf course and showground provided to the administering authority if requested.

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<tr><td>Proposed new/changed development permit condition</td><td>
Application of treated effluent to land will generally occur under the conditions as contained in Schedule E Land Application of Development Permit no. ENDC00610406, with amendments proposed relating to water quality and legislation changes.
The following amendments are therefore proposed for Schedule E Land Application of Development Permit no. ENDC00610406:

Condition (E1): Revise in relation to Wandoan WWTP as follows: The contaminants released must comply, at the sampling and in-situ measurement points specified in Schedule H, with each of the release limits specified in Schedule C Table 1 for each quality characteristic.
Table E Table 1 – Release quality characteristic limits for irrigation water

<table>
<tr><th>Quality characteristics</th><th>Unit</th><th>Release point number</th><th>Release limit</th><th>Limit type</th></tr>
<tr><td>pH</td><td>—</td><td>W1</td><td>6-8.5</td><td>range</td></tr>
<tr><td>E. coli</td><td>(organisms/100 ml)</td><td>W1</td><td><1000</td><td>maximum</td></tr>
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	Total dissolved solids	mg/L	W1	1000	maximum

- Condition (E2): Revise in relation to Wandoan WWTP as follows: A formal contractual agreement between Dalby Regional Council and the party who accepts effluent from the Wandoan wastewater treatment plant must be reviewed and updated with regard to the upgrade of the Wandoan Wastewater treatment plant. The agreement should consist of at least the following:
  - define the roles, responsibilities and obligations of the parties with respect to managing the inflow, storage and disposal of treated sewage effluent
  - specify the operational methods and practices that will be adopted by both parties to effectively manage the transportation, storage and disposal system. Information on the system's design, storage and flow rates and the provision to manage the systems in periods of wet weather is also provided
  - define how both parties will comply with the General Environmental Duty under the *Environmental Protection Act 1994*
  - a copy of the agreement is to be forwarded to the administering authority prior to transporting treated effluent from the upgraded wastewater treatment plant to the other party.
- Condition (E3): No change.
- Condition (E4): No change.
- Condition (E5): No change.
- Condition (E6): No change.
- Condition (E7): No change.
- Condition (E8): No change.
- Condition (E9): No change.
- Condition (E10): No change.
- Condition (E11): No change.
- Condition (E12): Revise in relation to Wandoan WWTP as follows: A copy of the Irrigation Management Plan (IMP) for the Wandoan wastewater treatment plant must be sent to the administering authority prior to the use of recycled water for irrigation from the upgraded wastewater plant.
- Condition (E13): No change.
- Condition (E14): No change.
- New Condition (E15): The holder of this approval must prepare and implement a recycled water management plan (RWMP) in accordance with Chapter 3 of the *Water Supply (Safety and Reliability) Act 2008* for irrigation of treated effluent at the Wandoan Showgrounds and Wandoan Gold Club (as per condition (E3)).
- New Condition (E16): A copy of the RWMP for the Wandoan wastewater treatment plant must be sent to the administering authority prior to the use of recycled water from the upgraded wastewater plant.

27C.3.2 SITE PREPARATION AND REHABILITATION ACTION PLAN

Objectives	• To minimise the area of clearing and general disturbance. • To encourage establishment of permanent and stable vegetation groundcover in areas disturbed for the construction of the pipeline and temporary construction areas. • To ensure that water quality downstream of the construction work area is maintained and not adversely affected as a result of the construction works.
Performance Criteria	• No ongoing erosion or land degradation following completion of construction.
Environmental Aspects	• Soils, surface water and vegetation in the vicinity of the WWTP and associated infrastructure areas.
EARLY WORKS	
Actions/Controls	• Prepare an Erosion and Sediment Control Plan in accordance with Best Practice in Erosion

	and Sediment Control (International Erosion Control Association 2008) prior to the commencement of any construction activities specifying the locations and types of erosion and sediment control measures to be used and in which locations. Measures listed under the construction section of this action plan should be included in the Plan.
Monitoring	• None required.
Corrective Action	• None required.
Responsibility	• WDRC/construction contractor.
Reporting	• Erosion and Sediment Control Plan approved by WDRC prior to commencement of construction.
CONSTRUCTION	
Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • Provide construction works personnel with training regarding minimising land disturbance and need for erosion and sediment control. • Install erosion and sediment controls in accordance with the Erosion and Sediment Control Plan. • Implement appropriate site drainage, sediment and erosion controls prior to, or as soon as possible, following the removal of vegetation. Maintain as required to control surface runoff from all disturbed areas. • Bund all stockpiles. Short term stockpiles may be bunded by sediment fencing, while long term stockpiles should have measures such as earthen bunds. • Clearly identify the areas required to be disturbed to ensure that land disturbance and vegetation clearance is minimised. • Rip the top layer of soil in previously compacted areas that are to be rehabilitated (e.g. trench edges, access tracks, stockpile and layover areas). Ripping the top layer of soil breaks down the soil structure, and as a result protection of these areas from re-compaction (i.e. vehicles or grazing animals) after ripping is required to allow the soil structure to reform. • Strip topsoil and stockpile separately during clearing for reuse in site rehabilitation. • Sow all disturbed areas with an appropriate mix of species (e.g. native seed in road reserve areas). • Where practicable, mulch vegetation removed for construction works and stockpile for subsequent use in rehabilitation. • Direct water runoff around or away from disturbed areas using diversion bunds and catch drains as appropriate. • Revegetate exposed soils as soon as practical after works have been completed. • In relation to the pipeline to be constructed between the WWTP and mining lease, excavated topsoils and subsoils will be replaced in the trench according to the order in which they were removed (i.e. subsoils initially followed by a cover of topsoil). • In relation to the pipeline to be constructed between the WWTP and mining lease, compact fill around the pipeline to at least the density of the surrounding soil material, and leave the filled trench slightly higher than the natural land surface to minimising ponding or infiltration around the pipe.
Monitoring	• Maintain a training register. • Record details of complaint(s) and incident(s) in Complaints and Incident Register. • Weekly (at minimum) visual inspection of sediment and erosion control measures. • Visual inspection of sediment and erosion control measures following heavy rain events. • Weekly visual inspection of trench and water management infrastructure for erosion. • Continue erosion monitoring until the vegetation cover has become fully established. • Monitoring for occurrence of erosion. • Monitoring of landform stability and vegetation cover, weeds, etc. • Monitoring for the development of tunnel erosion should be undertaken 3 monthly for 12 months following the completion of construction.

Corrective Action	• Where monitoring programs indicate that rehabilitation is failing, rehabilitation maintenance works will be implemented in a timely manner. • Rehabilitation activities to be undertaken in areas where unplanned damage to vegetation or landforms result from construction activities. • Remediate erosion as soon as practicable. This may include levelling the eroded area, capping with non-dispersive topsoil, application of seed and applying erosion control measures to prevent water impacting the site. • Rehabilitation activities to be undertaken in areas where unplanned damage to vegetation or landforms results from construction activities.
Responsibility	Construction contractor.
Reporting	• Training register. • Complaints and Incidents Register. • Weekly reporting commensurate with inspections throughout the construction period.
OPERATION AND MAINTENANCE	
Actions/Controls	• None required.
Monitoring	• Visual monitoring of the revegetated/rehabilitated areas to ensure that successful rehabilitation is occurring.
Corrective Action	• Where monitoring programs indicate that rehabilitation is failing, rehabilitation maintenance works will be implemented in a timely manner.
Responsibility	• WWTP operator.
Reporting	• Inspection records.
Proposed new/changed development permit condition	• Not applicable.

27C.3.3 WATER QUALITY ACTION PLAN

Objectives	• To minimise the potential for soil loss and degradation. • To prevent adverse impacts on water quality. • To effectively manage risks associated with sewage overflows.
Performance Criteria	• No deterioration in water quality in the creeks and drainage lines in the vicinity due to the upgrade of the WWTP, except as authorised by the development permit. • No uncontrolled sewage overflows.
Environmental Aspects	• Soils and surface waters in the vicinity of the WWTP, pipeline, irrigation areas and other associated infrastructure areas. • Sewage and waste products from the operation of the pipeline, WWTP and associated infrastructure. • Juandah Creek, being the receiving water for discharges from the WWTP.
EARLY WORKS	
Actions/Controls	• Project design will ensure all sewage conveyance and treatment infrastructure are located out of the 100 year flood inundation levels. • Prepare an Erosion and Sediment Control Plan in accordance with Section 27C.3.2 Site Preparation and Rehabilitation Action Plan.
Monitoring	• As per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan.
Corrective Action	• As per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan.
Responsibility	• As per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan.

<table>
<tr><td>Reporting</td><td>• Erosion and Sediment Control Plan approved by WDRC as per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan.</td></tr>
<tr><td colspan="2">CONSTRUCTION</td></tr>
<tr><td>Actions/Controls</td><td>• The contents of this EMP will be communicated to all contractors and staff via the site induction.
• Install erosion and sediment controls in accordance with the Erosion and Sediment Control Plan.
• Divert clean surface runoff away from disturbed areas.
• Stockpile excavated materials away from gullies and drainage lines.
• Plan construction works to minimise the length of time that soils are disturbed and ensure prompt revegetation of areas as soon as works are complete.
• Limit vegetation clearing and disturbance (including grass cover) to the minimal amount required for construction works.
• Confine traffic to defined roads and access tracks.
• Install measures to remove mud from vehicles prior to leaving the site, such as by use of rubble strips.</td></tr>
<tr><td>Monitoring</td><td>• As per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan.</td></tr>
<tr><td>Corrective Action</td><td>• As per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan.</td></tr>
<tr><td>Responsibility</td><td>• Construction contractor.</td></tr>
<tr><td>Reporting</td><td>• As per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan.</td></tr>
<tr><td colspan="2">OPERATION AND MAINTENANCE</td></tr>
<tr><td>Actions/Controls</td><td>• Pumps will be fitted with a low pressure cut-out control system and pump failure alarms in the event of a pipe section failure.
• Pump failure alarms will be able to operate without mains power, for if a power failure occurs, failure will be detectable.
• Contaminants will not be released directly or indirectly to any water or the bed or banks of any waters except as permitted by the Projects development permit.
• Treated effluent, other than effluent being used for irrigation at the showground or golf course, is to only be discharged via the unnamed gully flowing into Juandah Creek.
• The effluent discharged to Juandah Creek will meet the quality specifications of a Class B recycled water, and in accordance with the parameters presented in Table 27C-7. E. Coli are to be sampled after chlorination at the outlet and all other quality characteristics are to be sampled prior to chlorination.
Table 27C-7: Proposed discharge licence allowances (end of pipe)
<table>
<tr><th>Parameter</th><th>Unit</th><th>Release limit</th><th>Limit type</th></tr>
<tr><td>Licensed effluent release volume</td><td>l/day</td><td>220,000</td><td>maximum</td></tr>
<tr><td>5 day BOD</td><td>mg/L</td><td>20</td><td>80th percentile</td></tr>
<tr><td>Suspended solids</td><td>mg/L</td><td>30</td><td>80th percentile</td></tr>
<tr><td>pH</td><td></td><td>6.0-8.5</td><td>range</td></tr>
<tr><td>E. coli</td><td>organisms/ 100 mL</td><td><1,000</td><td>maximum</td></tr>
<tr><td>Total dissolved solids</td><td>mg/L</td><td>1,000</td><td>maximum</td></tr>
<tr><td>Dissolved oxygen</td><td>mg/L</td><td>2</td><td>minimum</td></tr>
</table>
• All batteries, consumable chemicals and/or petroleum products must be stored in a bunded area in accordance with the Australian Standard AS 3833-2007 and AS 1940 – 2004 or more recent editions or supplements to these documents as such become available.
• The bund must have a minimum capacity equivalent to 110% of the largest container kept in the bunded area.</td></tr>
</table>

<table>
<tr><td></td><td>

All bunding to be constructed of materials which are impervious to the material stored.
All bunding to be roofed where practicable.
Appropriate spill kits will be available on site in case of fuel or chemical spill. Spills will be cleaned up immediately and spill kit must be kept replenished.
Review and update the existing Stormwater Management Plan for the Wandoan WWTP in relation to the augmentation.
Stormwater that has been in contact with any contaminations at the site must not be allowed to be released to any waters.
Develop and maintain sewage overflow contingency plans, including measures for remediation and clean-up.
Ensure appropriate resources, including emergency response staff for the occurrence of out-of-hour incidents, are in place to effectively implement sewage overflow contingency plans.

</td></tr>
<tr><td>Monitoring</td><td>

Water quality monitoring to be conducted at Release Point W1, being described as immediately downstream of the discharge point in the mixing zone in Juandah Creek, with discharge from the third aerobic pond, in accordance with Table 27C-8.
Release Point W1 is to be located at 797 463E, 7108 627N

Table 27C-8: Water quality sampling frequency of parameters
<table>
<tr><th>Quality characteristics</th><th>Release point number</th><th>Frequency</th></tr>
<tr><td>5 day Biochemical Oxygen Demand (mg/L)</td><td>W1</td><td>Weekly</td></tr>
<tr><td>Suspended solids (mg/L)</td><td>W1</td><td>Weekly</td></tr>
<tr><td>pH</td><td>W1</td><td>Weekly</td></tr>
<tr><td>E coli (organisms/100 ml)</td><td>W1</td><td>Weekly</td></tr>
<tr><td>Total dissolved solids</td><td>W1</td><td>Weekly</td></tr>
<tr><td>Dissolved oxygen (mg/L)</td><td>W1</td><td>Weekly</td></tr>
<tr><td>Total nitrogen and its forms (mg/L)</td><td>W1</td><td>Weekly</td></tr>
<tr><td>Total phosphorus (mg/L)</td><td>W1</td><td>Weekly</td></tr>
<tr><td>Aluminium (Al)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Arsenic (As)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Cadmium (Cd)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Copper (Cu)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Chromium (Cr)</td><td>W1</td><td>Quarterly</td></tr>
<tr><th>Quality characteristics</th><th>Release point number</th><th>Frequency</th></tr>
<tr><td>Lead (Pb)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Nickel (Ni)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Zinc (Zn)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Mercury (Hg)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Iron (Fe)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Manganese (Mn)</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Chlorobenzene</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>1,2-dichlorobenzene</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>1,4-dichlorobenzene</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Ethylbenzene</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Benzo-(a)-pyrene</td><td>W1</td><td>Quarterly</td></tr>
<tr><td>Toluene</td><td>W1</td><td>Quarterly</td></tr>
</table>

All water quality monitoring to be made in accordance with methods prescribed in the Environmental Protection Agency Water Quality Sampling Manual, 3rd Edition,

</td></tr>
</table>

<table>
<tr><td></td><td>December 1999, or more recent additions or supplements to that document as such become available.
• Rehabilitation monitoring to be undertaken for a period post-construction.
• Water quality monitoring for appropriate suite of parameters to be undertaken if rehabilitation works fail and erosion and sedimentation is evident.</td></tr>
<tr><td>Corrective Action</td><td>▪ Investigate reason(s) for inadequate performance, identify appropriate corrective measures and implement as necessary.
▪ Additional site preparation and rehabilitation works to be undertaken should initial rehabilitation works fail and impact to water quality through erosion and sedimentation is continuing.</td></tr>
<tr><td>Responsibility</td><td>• WWTP operator.</td></tr>
<tr><td>Reporting</td><td>• Stormwater monitoring plan.
• Keep a record of monitoring results for parameters contained in Table 27C-8.
• In the event of an incident, DERM must be notified in accordance with DERM development permit requirements.
• Maintenance records.
• Inspection records.</td></tr>
<tr><td>Proposed new/changed development permit condition</td><td>Release of water will generally occur under the conditions as contained in Schedule C Water, Schedule D Stormwater Management and Schedule H Self Monitoring and Reporting of Development Permit no. ENDC00610406, including the use of Release Point W1. The following amendments are proposed for Schedule C Water of Development Permit no. ENDC00610406:
• Condition (C1): No change.
• Condition (C2): Revise in relation to Wandoan WWTP as follows: The only contaminants permitted to be released are sewage treatment effluents from Wandoan Wastewater Treatment Plants at release point W1. The total quantity of treated sewage effluent released form Release Point W1 during any day must not exceed 300 cubic metres.
• Condition (C3): No change.
• Condition (C4): Revise in relation to Wandoan WWTP as follows: The release of contaminants to water must comply, at the sampling and in situ measurement point/s specified in Schedule H, with each of the limits specified in schedule C Table 1 for each quality characteristic.
• Schedule C Table 1 Release quality characteristics limits
<table>
<tr><th>Quality characteristics</th><th>Release point number</th><th>Recommended trigger values for parameters[3]</th><th>Limit type</th></tr>
<tr><td>Five day Biochemical Oxygen Demand (mg/L)</td><td>W1</td><td>80th percentile[1] of reference sites[2] or 15, whichever is higher</td><td>80th percentile[1 4]</td></tr>
<tr><td>Suspended solids (mg/L)</td><td>W1</td><td>80th percentile[1] of reference sites[2]</td><td>80th percentile[1 4]</td></tr>
<tr><td>pH</td><td>W1</td><td>20th percentile[1] of reference sites[2] or 6, whichever is lower.
80th percentile[1] of reference sites[2], or 8.5, whichever is higher</td><td>Range</td></tr>
<tr><td>E coli (organisms/100 ml)</td><td>W1</td><td><100</td><td>maximum</td></tr>
<tr><td>Total dissolved solids</td><td>W1</td><td>1,000</td><td>maximum</td></tr>
<tr><td>Dissolved oxygen (mg/L)</td><td>W1</td><td>80th percentile[1] of reference sites[2], or 2 whichever is higher</td><td>80th percentile[1 4] or maximum</td></tr>
<tr><td>Total nitrogen and its forms (mg/L)</td><td>W1</td><td>80th percentile[1] of reference sites[2]</td><td>80th percentile[1 4]</td></tr>
<tr><td>Total phosphorus (mg/L)</td><td>W1</td><td>80th percentile[1] of reference sites[2]</td><td>80th percentile[1 4]</td></tr>
</table>
</td></tr>
</table>

Aluminium (Al) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.055 whichever is higher (at pH>6.5)	95th percentile[1 4]
Arsenic (As) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.024, whichever is higher	95th percentile[1 4]
Cadmium (Cd) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.00047, whichever is higher	95th percentile[1 4]
Copper (Cu) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.0025, whichever is higher	95th percentile[1 4]
Chromium (Cr) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.0058, whichever is higher	95th percentile[1 4]
Lead (Pb) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.0082, whichever is higher	95th percentile[1 4]
Nickel (Ni) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.020, whichever is higher	95th percentile[1 4]
Zinc (Zn) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.014, whichever is higher	95th percentile[1 4]
Mercury (Hg) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.0005, whichever is higher	95th percentile[1 4]
Iron (Fe) (mg/L)	W1	80th percentile[1] of reference sites[2] or 0.34, whichever is higher	95th percentile[1 4]
Quality characteristics	**Release point number**	**Recommended trigger values for parameters[3]**	**Limit type**
Manganese (Mn) (mg/L)	W1	80th percentile[1] of reference sites[2] or 1.7, whichever is higher	95th percentile[1 4]
Chlorobenzene (µg/L)	W1	55	95th percentile[1 4]
1,2-dichlorobenzene (µg/L)	W1	160	95th percentile[1 4]
1,4-dichlorobenzene (µg/L)	W1	60	95th percentile[1 4]
Ethylbenzene (µg/L)	W1	350	95th percentile[1 4]
Benzo-(a)-pyrene (µg/L)	W1	0.2	95th percentile[1 4]
Toluene (µg/L)	W1	180	95th percentile[1 4]

Notes:

1. Trigger levels based on the 80th or 20th percentile to be derived using ANZECC (2000) accepted methodology
2. Reference site as defined in Figure 27C-1-SV1.3 as Upstream Juandah Creek.
3. ANZECC (2000) or Queensland Water Quality Guidelines (2006) trigger levels for upland streams in a slightly to moderately disturbed condition.

	4. The 80th and 95th percentile must be determined based on no more than 10 consecutive samples. • Condition (C5): No change. • Condition (C6): No change. • Condition (C7): No change. The following amendments are proposed for Schedule D Stormwater Management of Development Permit no. ENDC00610406: • Condition (D1): No change. • Condition (D2): No change. • Condition (D3): No change. • Condition (D4): No change. • Condition (D5): Revised in relation to Wandoan WWTP as follows: The holder of this development permit must: ‣ (a) review and implement the existing stormwater management plan in respect to the upgrade of the Wandoan wastewater treatment plant which provides for the following functions: — avoidance and minimisation of contaminated stormwater — reuse, treatment and disposal of contaminated stormwater. ‣ (b) prior to the commencement of operation of the upgraded Wandoan waste water treatment plant. • Condition (D6): No change. • Condition (D7): Revise as follows: All batteries, consumable chemicals and/or petroleum products must be stored in a bunded area in accordance with the Australian Standard AS 3833-2007 and AS 1940 – 2004 or more recent editions or supplements to these documents as such become available: ‣ the bund must have a minimum capacity equivalent to 110% of the largest contained kept in the bunded area ‣ all bunding must be constructed of materials which are impervious to the material stored ‣ all bunding must be roofed where practicable. • Condition (D8): No change. • Condition (D9): No change • Condition (D10) to (D17): Not applicable to the Wandoan wastewater treatment plant. The following amendments are proposed for Schedule H Self Monitoring and Reporting of Development Permit no. ENDC00610406: • Condition (H1): Not applicable to water management. • Condition (H2): No change. • Condition (H3): No change. • Condition (H4): No change. • Condition (H6) to (H12): Not applicable to water management.

27C.3.4 TRAFFIC AND SAFETY ACTION PLAN

Objectives	• To facilitate a safe work area in which traffic movements to, from and throughout the work areas are undertaken in a safe manner.
Performance Criteria	• Safe flow of traffic to, from and throughout the work areas. • Implement traffic controls around work areas where necessary to ensure safe environment is created for road users and construction workers alike. • Minimise hazards and nuisance which may be created by heavy machinery traffic to the work area and along haulage routes.
Environmental	• Local roads during the construction phase

Aspects	• Site access roads during the construction phase • Minimal changes to traffic volumes during operational phase
EARLY WORKS	
Actions/Controls	• If required, obtain Heavy Vehicle Permits prior to commencement of equipment and transport and construction. • Develop and implement a site Traffic and Access Management Plan specifying the locations and types of traffic management measures to be used. Measures listed under the construction section of this action plan should be included in the Plan. • Negotiations with local and state government to utilise local and state government controlled road reserves for the pipeline alignments where applicable.
Monitoring	• None required.
Corrective Action	• None required.
Responsibility	• WDRC/Construction contractor.
Reporting	• Heavy vehicle permit application. • Traffic and Access Management Plan for approval by WDRC and/or Department of Transport and Main Roads.
CONSTRUCTION	
Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • All drivers and operators will retain the appropriate licence for the class of vehicle being used. • Staff will be made aware of weed dispersal and management issues throughout the area as detailed in Section 27C.3.7 Terrestrial Ecology Action Plan. • Implement appropriate traffic management measures where pipelines are constructed in close proximity to roads or are required to cross roads. • Installation of appropriate signage in accordance with the *Workplace Health and Safety Act 1995* will be undertaken to provide adequate control of the work site and associated access roads. • Restrict speed limits within and adjacent to work areas to reflect the surrounding environment and to limit dust suppression. • Reduce heavy vehicle movements during the school bus route operational hours. • Ensure vehicles do not exceed standard vehicle weights. • Provide the workforce with appropriate induction training and regular reinforcement of traffic rules and policies.
Monitoring	• Maintain a training register. • Record details of complaint(s) and incident(s) in Complaints and Incidents Register. • Safety and traffic issues will be monitored. • Complaints regarding vehicle access and traffic issues to be monitored.
Corrective Action	• Review Traffic Management Plan and amend if required (e.g. in response to a complaint or incident).
Responsibility	• Construction Contractor.
Reporting	• Training register • Reporting to be undertaken throughout construction period. • Complaints and Incidents Register.
OPERATION AND MAINTENANCE	
Actions/Controls	• In regard to pipeline maintenance, maintenance vehicles will only utilise and remain within specifically constructed and dedicated maintenance tracks. • Restrict speed limits on maintenance tracks to reflect the surrounding environment.
Monitoring	• Inspections in response to a complaint.

Corrective Action	• Should a valid complaint be received, it will be investigated immediately and corrective actions taken within an appropriate timeframe.
Responsibility	• WWTP operator.
Reporting	• Complaints and Incident Register.
Proposed new/changed development permit condition	• Not applicable.

27C.3.5 AIR QUALITY ACTION PLAN

Objectives	• To prevent dust and other atmospheric emissions generated by construction activities from causing a hazard or nuisance to nearby sensitive receptors. • To prevent odour generated by WWTP operations from causing a nuisance to nearby sensitive receptors. • To comply with the *Environmental Protection Act 1994* and the Environmental Protection (Air) Policy 2008.
Performance Criteria	• No complaints received relating to dust or odour. • Dust levels remain well below the EPP (Air) goals for annual TSP, PM_{10}, dust deposition and odour at sensitive receptors (e.g. residences), as presented in Table 27C-9.
Environmental Aspects	• Residences in the vicinity of the WWTP and associated infrastructure areas. The nearest residence is 850 m from the WWTP, while the Wandoan Golf Course Clubhouse is approximately 480 m from the WWTP. • Odour from the operation of the WWTP. • Dust from the construction and operation of the WWTP. • The dust generation potential during operation will be similar to the current WWTP, which is minimal.
EARLY WORKS	
Actions/Controls	• None required.
Monitoring	• None required.
Corrective Action	• None required.
Responsibility	• Not applicable.
Reporting	• None required.
CONSTRUCTION	
Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • Rehabilitate and/or apply ground surface cover (e.g. mulch or seed) to disturbed areas as soon practicable following completion of construction activities. • Water access roads and potential dust generating areas as necessary. • Truck loads of materials that have the potential to create dust will be covered or dampened prior to transportation. • No cleared vegetation or other waste to be burnt on-site.

Table 27C-9: Air Quality goals at sensitive receptors

Pollutant	Averaging period	concentration	Units
Dust deposition	annual	120	$mg/m^2/day$
PM_{10}	24-hour	150	$\mu g/m^3$
Odour	1-hour	2.5	Ou (5^{th} percentile)

Monitoring	• Maintain a training register. • Record details of complaint(s) and incident(s) in the Complaints and Incident Register. • Daily visual inspection for dust generation. • Opportunistic visual inspections during windy conditions for dust generation. • Visual inspections in response to a complaint.
Corrective Action	• Application of ground surface cover (e.g. mulch) to disturbed areas. • Application of water spray. • Review water spray procedures and amend if required (e.g. frequency of watering or conditions under which watering is required).
Responsibility	• Construction contractor
Reporting	• Training register • Record of inspections. • Throughout the construction period. • Complaints and Incidents Register.
OPERATION AND MAINTENANCE	
Actions/Controls	• WWTP to be operated in accordance with Operator's Manual. • Sludge to be managed to ensure it is not a dust generating source. • The WWTP site and pipeline maintenance tracks to be maintained in a condition which minimises the release of wind blown or traffic generated dust.
Monitoring	• Complaints and Incident Register • Complaint-based, in accordance with DERM development permit. • Dust deposition monitoring to be made in accordance with the Australian Standard AS 3580.10. • PM_{10} monitoring to be made in accordance with Australian Standard AS 3580.9.6 or any alternative method of monitoring PM_{10} which may be permitted by the Air Quality Sampling Manual November 1997, or more recent additions or supplements to that document as such become available.
Corrective Action	• Application of ground surface cover (e.g. mulch) to disturbed areas. • Application of water spray. • Plant maintenance or modification to control odour. • Other measures as determined based on inspection results and resultant investigation.
Responsibility	• WWTP operator.
Reporting	• Complaints and Incidents Register. • Monitoring report in compliance with development permit conditions (if required).
Proposed new/changed development permit condition	Dust and odour management will occur under the conditions as contained in Schedule B Air of Development Permit no. ENDC00610406. However, revised conditions regarding monitoring are proposed. The following amendments are proposed for Schedule B Air of Development Permit no. ENDC00610406: • Condition (B1): No change. • Condition (B2): Remove and replace with new conditions (B7) and (B8) below. • Condition (B3): No change. • Condition (B4): No change. • Condition (B5): No change. • Condition (B6): No change. • New condition (B7): The Administering Authority may require the undertaking of, and the provision of a written report on, a reasonable and practicable monitoring program for dust or odour generated by the premises to which this development permit relates (by way of investigation) where the Administering Authority has received a complaint, which is

neither frivolous nor vexatious nor based on mistaken belief (in the reasonable opinion of an authorised officer), of unlawful environmental nuisance at any sensitive place (outside the premises to which this development permit relates) caused by dust or odour.

- New condition (B8): If the monitoring report prepared after request by the Administering Authority pursuant to clause (B7) indicates that the parameters described in Schedule B Table 1 have not been met at a sensitive place outside the environmentally relevant activities site, and that dust generated in undertaking the environmentally relevant activities has significantly contributed to such exceedance, a dust management plan which describes reasonable and practicable measures to minimise the impact of dust releases at that sensitive place shall be prepared, implemented and updated on a regular basis while the activities are continuing.
- Schedule B Table 1: Contaminant parameters

Source/ activities	Contaminants	Parameters	Monitoring standard
Wandoan waste water treatment plant	Dust deposition	Dust deposition of 120 milligrams per square meter per day, averaged over one year	In accordance with Australian Standard AS 3580.10 methods for sampling and analysis of ambient air – determination of particulates – deposited matter – gravimetric method of 1991.
Wandoan waste water treatment plant	PM_{10}	A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM_{10}) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at the boundary of any affected dust sensitive place downwind of the premises to which this development permit relates	In accordance with Australian Standard AS3580.9.6 Ambient air – particulate matter – determination of suspended particulate PM10 high-volume sampler with size-selective inlet – gravimetric method" or any alternative method of monitoring PM10 which may be permitted by the Air Quality Sampling Manual as published from time to time by the administering authority
Wandoan waste water treatment plant	Odour	Odour level of 2.5 Ou (5^{th} percentile) measured over a 1 hour averaging period	

27C.3.6 NOISE ACTION PLAN

Objectives	• Minimise noise impacts at sensitive receptors (e.g. residences and public places).
Performance Criteria	• No noise-related complaints from sensitive receptors.
Environmental Aspects	• Residences in the vicinity of the WWTP and associated infrastructure areas. The nearest residence is 850 from the WWTP, while the Wandoan Golf Course Clubhouse is approximately 480 km from the WWTP. • Noise from construction activities. • The upgrade of the WWTP will not significantly alter operational noise levels of the plant.
EARLY WORKS	
Actions/Controls	• None required.
Monitoring	• None required.

Corrective Action	• None required.
Responsibility	• Not applicable.
Reporting	• None required.
CONSTRUCTION	
Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • All machinery on site to be maintained regularly and in good working order to minimise noise generation. • Undertake a community consultation program to inform the nearby residences, businesses and the local community when noise impacts are planned to occur. • Construction activities will not be undertaken during the following hours: ‣ on a Sunday or Public holiday at any time, unless after consultation and agreement has been made with appropriate government authorities and property owners ‣ on a Saturday or business day before 6:30 am or after 6.30 pm.
Monitoring	• Weekly inspection for excessive noise generation. • Opportunistic inspections for excessive noise generation. • Inspections in response to a complaint. • Maintain a training register. • Record details of complaint(s) and incident(s) in the Complaints and Incident Register.
Corrective Action	• Instigate mitigation measures (commensurate with noise impact occurring and complaint) to ensure noise levels are reduced to acceptable levels wherever necessary.
Responsibility	• Construction contractor.
Reporting	• Throughout the construction period. • Records of weekly inspections. • Training register. • Complaints and Incidents Register.
OPERATION AND MAINTENANCE	
Actions/Controls	• WWTP to be operated in accordance with Operator's Manual. • All plant and machinery on site to be maintained regularly and in good working order to minimise noise generation.
Monitoring	• Complaints and Incident Register • Complaint-based, in accordance with DERM development permit. • Noise monitoring to be made in compliance with the latest edition of the Noise Measurement Manual as published from time to time by the administering authority.
Corrective Action	• To be determined based on non-compliant monitoring results and resultant investigation.
Responsibility	• WWTP operator.
Reporting	• Complaints and Incidents Register. • Monitoring report in compliance with development permit conditions (if required).
Proposed new/changed development permit condition	Noise management will occur under the conditions as contained in Schedule F Noise of Development Permit no. ENDC00610406. However, revised conditions regarding monitoring are proposed. • Conditions (F1) to (F3): Remove and replace with new conditions (F4) to (F6) below. • New condition (F4): The Administering Authority may require the undertaking of, and the provision of a written report on, a reasonable and practicable monitoring program for noise generated by the premises to which this development permit relates (by way of investigation) where the Administering Authority has received a complaint, which is neither frivolous nor vexatious nor based on mistaken belief (in the reasonable opinion of an authorised officer), of unlawful environmental nuisance at any sensitive place (outside the premises to which this development permit relates) caused by noise. Monitoring must

include:

- (a) $L_{A\ 10,\ adj,\ 10\ mins}$
- (b) $L_{A\ 1,\ adj,\ 10\ mins}$
- (c) the level and frequency of occurrence of impulsive or tonal noise
- (d) atmospheric conditions including wind speed and direction
- (e) effects due to extraneous factors such as traffic noise
- (f) location, date and time or recording
- New condition (F5): The method of measurement and reporting of noise levels must comply with the latest edition of the Noise Measurement Manual as published from time to time by the administering authority.
- New condition (F6): If the monitoring report prepared after request by the Administering Authority pursuant to clause (F4) indicates that the parameters described in Schedule F Table 1 have not been met at a sensitive place outside the environmentally relevant activities site, and that noise generated in undertaking the environmentally relevant activities has significantly contributed to such exceedance, a noise management plan which describes reasonable and practicable measures to minimise the impact of such noise releases at that sensitive place shall be prepared, implemented and updated on a regular basis while the activities are continuing.

- Schedule F Table 1: Contaminant parameters

Noise level at a Noise Sensitive Place measured as the adjusted maximum sound pressure level L (Amax adj, T)	**Period**
Background noise level plus 5 dB(A)	7 am – 6 pm
Background noise level plus 5 dB(A)	6 pm – 10 pm
Background noise level plus 3 dB(A)	10 pm – 7 am
Noise level at a Commercial Sensitive Place measured as the adjusted maximum sound pressure level L (Amax adj, T)	Period
Background noise level plus 10 dB(A)	7 am – 6 pm
Noise level at a Noise Sensitive Place measured as the adjusted maximum sound pressure level L (Amax adj, T)	**Period**
Background noise level plus 10 dB(A)	6 pm – 10 pm
Background noise level plus 8 dB(A)	10 pm – 7 am

27C.3.7 TERRESTRIAL ECOLOGY ACTION PLAN

Objectives	To minimise impacts to native flora and fauna, domestic animals and stock.
Performance Criteria	• No clearing or destruction of vegetation outside that required for WWTP works. • No injury of death of native animals, domestic animals and stock resulting from WWTP works. • No impacts on threatened flora or fauna other than that authorised under approvals.
Environmental Aspects	• Sewage treatment plant site and road reserve between the site and mining site is largely cleared of vegetation, therefore requiring the minimal vegetation clearing and minimal expected impact to terrestrial flora and fauna. • The WWTP is located on the edge of the Wandoan township, with the potential for interaction with domestic animals and stock, the site is however fully fenced so this potential is significantly reduced.
EARLY WORKS	
Actions/Controls	• Revisit and revise this action plan based on conditions imposed by DEWHA for the *Environment Protection and Biodiversity Conservation Act 1999* referral. • During detailed design, endeavour, where possible, to locate ancillary areas and infrastructure to avoid impacts to areas of sensitive biodiversity.

	• Prepare a Weed Management Plan, with a particular focus on declared weed species. • Prior to commencement of construction activities, obtain all applicable licenses, approvals and permits (e.g. fauna handling and removal, vegetation clearing, etc). • Prepare a Biodiversity Management Plan prior to the commencement of any construction activities, specifying the locations and types of flora and fauna management measures to be used and in which locations. Measures listed under the construction section of this action plan should be included in the Plan.
Monitoring	• None required.
Corrective Action	• None required.
Responsibility	• WDRC/construction contractor.
Reporting	• Weed management plan for approval by WDRC. • Biodiversity Management Plan for approval by WDRC (if required).
CONSTRUCTION	
Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • Select previously cleared sites for activities such as construction materials laydown areas and hardstand areas. • Clearly delineate or temporarily fence off vegetation to be retained prior to any commencement of clearing works or construction activities. • Preserve large mature trees where possible, particularly in areas where they may be located near the fringes of the construction area. • Notify surrounding properties to appropriately manage domestic and stock animals during the construction period. • In the event of sick, injured or orphaned native animals being located during clearing activities, the Queensland Parks and Wildlife Service is to be contacted and appropriate arrangements made. • Undertake a certified washdown of vehicles prior to commencing work on the site and prior to moving to weed free areas. • Prior to the commencement of works on pipeline construction each morning, all open trenches should be inspected for wildlife, such as lizards and domestic animals, which should be removed from the trench. • Sow all disturbed areas with an appropriate mix of species (e.g. native seed in road reserve areas).
Monitoring	• Monitoring of clearing activities against biodiversity management plan. • Monitoring against weed management plan. • Weed monitoring. • Daily monitoring for native fauna, and domestic animals and stock. • Rehabilitation monitoring to be undertaken as per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan. • Maintain a training register. • Record details of complaint(s) and incident(s) in the Complaints and Incident Register.
Corrective Action	• Provision of additional training to staff and contractors regarding the content of the EMP. • Rehabilitation activities to be undertaken in areas where unplanned damage to vegetation or landforms result from construction activities. • Weed eradication program if required.
Responsibility	• Construction contractor.
Reporting	• Training records. • Complaints and Incident Register. • Appropriate reporting to be undertaken throughout construction period.

OPERATION AND MAINTENANCE	
Actions/Controls	• The pipeline route to be maintained with groundcover vegetation to allow ease of access to the pipeline in case of emergency repair. • Vegetation to be managed as appropriate for the vegetation type (e.g. native grasses should be managed differently to domestic grasses). • Weed management to be undertaken as necessary.
Monitoring	• Rehabilitation monitoring will be conducted in accordance with Section 27C.3.2 Site Preparation and Rehabilitation Action Plan. • Periodic (e.g. 6 monthly) weed monitoring at the WWTP and along the pipeline route.
Corrective Action	• As per Section 27C.3.2 Site Preparation and Rehabilitation Action Plan. • Undertake weed management in accordance with the Weed Management Plan if weed infestation are observed.
Responsibility	• WWTP operator.
Reporting	• Complaints and Incident Register.
Proposed new/changed development permit condition	• Not applicable.

27C.3.8 WASTE MANAGEMENT ACTION PLAN

Objectives	• To minimise waste generation on site. • To minimise the impacts of waste materials on the environmental values of the surrounding environment.
Performance Criteria	• No deterioration in the visual amenity in the vicinity of the WWTP and associated infrastructure areas caused by waste materials. • No deterioration in surface water or groundwater quality in the vicinity of the WWTP and associated infrastructure areas caused by waste generation, effluent release or sludge disposal. • Implementation of a waste tracking system that complies with DERM waste tracking requirements.
Environmental Aspects	• Visual amenity of the WWTP and associated infrastructure areas from nearby residences, roads and public areas. • Air, surface water, groundwater and soil quality in the vicinity of the WWTP and associated infrastructure areas. • Sludge from the wastewater treatment plant. The WWTP is expected to produce approximately 33.9 tonnes wet sludge per annum.
EARLY WORKS	
Actions/Controls	• Preparation of a Waste Management Plan that identifies waste streams and relevant storage/disposal requirements.
Monitoring	• None required.
Corrective Action	• None required.
Responsibility	• Proponent.
Reporting	• None required.
CONSTRUCTION	

Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • Retain and mulch vegetation on site for use in erosion control and site rehabilitation purposes. • Reuse soil and green waste for rehabilitation works. • Remove all other waste materials from site. • Waste materials reused or recycled where possible. • All hazardous materials disposed of to an appropriately licensed facility. • Make chemical spill kits available on site in case of fuel spills. • Capture and reuse water generated by pipeline testing for commissioning. • Conduct any major equipment maintenance and repairs off site. • All regulated wastes to be handled in accordance with waste tracking requirements under the EP Act.
Monitoring	• Waste tracking. • Waste audits. • Visual inspections. • Maintain a training register. • Record details of complaint(s) and incident(s) in the Complaints and Incident Register.
Corrective Action	• Review waste management procedures and amend to further minimise wastes (waste avoidance and additional opportunities for re-use/recycling).
Responsibility	• Construction contractor.
Reporting	• Waste records throughout duration of construction phase including types, quantity and disposal records. • Training records. • Complaints and Incidents Register.
OPERATION AND MAINTENANCE	
Actions/Controls	• All waste materials removed from site. • Waste materials reused or recycled where possible. • WWTP sludge will be dried and then disposed of at an appropriately licensed facility. • All hazardous materials disposed of to an appropriately licenced facility. • No waste products to be discharged to stormwater.
Monitoring	• Waste tracking. • Waste audits. • Visual inspections.
Corrective Action	• Review waste procedures and amend to further minimise wastes (waste avoidance and additional opportunities for re-use/recycling). • review staff training.
Responsibility	• WWTP operator.
Reporting	• Waste records throughout duration of operational phase including types, quantity and disposal records. • Waste tracking reports.
Proposed new/changed development permit condition	• Waste management will occur under the conditions as contained in Schedule G Waste Management of Development Permit no. ENDC00610406.

27C.3.9 CULTURAL HERITAGE (INDIGENOUS AND NON INDIGENOUS) ACTION PLAN

Objectives	• To avoid adverse impacts to indigenous cultural heritage sites, places, artefacts or materials. • To avoid adverse impacts to cultural and historic heritage sites.
Performance Criteria	• No impacts to cultural sites, artefacts, places or materials. • No impacts to cultural and historic heritage sites.
Environmental Aspects	• Indigenous cultural heritage. • Non-Indigenous cultural heritage. • The works are occurring on existing disturbed sites and cleared road reserves, and as such there is expected to be limited potential for items of cultural heritage significance.
EARLY WORKS	
Actions/Controls	• Undertake surveys in consultation with the Traditional Owner Field Officers of the Iman People #2. • Prepare a Cultural Heritage Management Plan (CHMP) (as per s.87 of the *Aboriginal Cultural Heritage Act 2003*). • Develop the necessary procedures to ensure implementation of the CHMP. • Identification of any items or areas of potential non-indigenous cultural heritage significance.
Monitoring	• Monitoring to be undertaken in accordance with the CHMP.
Corrective Action	• None required
Responsibility	• WDRC.
Reporting	• Cultural Heritage Management Plan.
CONSTRUCTION	
Actions/Controls	• The contents of this plan will be communicated to all contractors and staff via the site induction. • Exclusion zones in relation to culturally significant areas, if identified, will be established and communicated to all staff and contractors. • All contractors and staff are to be provided with a Cultural Heritage induction (indigenous and non-indigenous). • At all times, construction associated with the WTP will be conducted in accordance with the Duty of Care Guidelines (2004), pursuant to s.28 of the Aboriginal Cultural Heritage Act 2003 (DNRW, 2008b). • Adhere to the requirements of the Cultural Heritage Management Plan where applicable. • If any artefacts are found, work will cease immediately and advice sought from the Cultural Heritage Coordination Unit – DERM (formerly the Department of Natural Resources and Water). • If surface or buried material of archaeological or cultural significance is uncovered during construction: ‣ all work at the location must cease and reasonable efforts to secure the site should be made. Work can continue at an agreed distance from the site. Note that the material will not be removed or disturbed further, but barriers or temporary fences may be erected as a buffer around the material if required ‣ notify the Cultural Heritage Coordination Unit – Department of Environment and Resource Management or police, as appropriate.
Monitoring	• Monitoring to be undertaken in accordance with the CHMP. • Monitoring during clearing activities to identify items or places likely to be of non-indigenous cultural heritage significance. • Maintain a training register.

	• Record details of complaint(s) and incident(s) in the Complaints and Incident Register.
Corrective Action	• The treatment of any discovered cultural resources will be made in consultation with the relevant traditional owners and the Department of Natural Resources and Water.
Responsibility	• Construction contractor.
Reporting	• A detailed report of any artefacts located during construction will be provided to DERM (formerly the Department of Natural Resources and Water). • Report any archaeological artefacts uncovered during works that are deemed significant to the DERM (formerly the Environmental Protection Agency). • Reporting to be undertaken in accordance with the CHMP. • Training register. • Complaints and Incidents Register.
OPERATION AND MAINTENANCE	
Actions/Controls	• Maintenance crews should be aware of the potential for artefacts during patrols. • If any artefacts are found, work will cease immediately and advice sought from the Cultural Heritage Coordination Unit – DERM. • Adhere to the requirements of the Cultural Heritage Management Plan where applicable.
Monitoring	• None required.
Corrective Action	• Corrective action will be determined by the maintenance contractor in conjunction with DERM (formerly NRW).
Responsibility	• Operations contractor.
Reporting	• Reporting will be prepared in accordance with the CHMP and directions from DERM (formerly NRW).
Proposed new/changed development permit condition	• Not applicable.

27C.3.10 SOCIAL ACTION PLAN

Objectives	• To minimise disruption to landholders and third parties.
Performance Criteria	• No significant impacts on social values due to WWTP and associated infrastructure construction.
Environmental Aspects	• Nearby residences and the general public.
EARLY WORKS	
Actions/Controls	• Conduct consultation with adjacent landowners and the surrounding community relating to project activities, particularly in relation to potential interruptions to farming activities and changes to property access requirements.
Monitoring	• None required.
Corrective Action	• Potential for modifications to proposed construction activities/times based on community feedback.
Responsibility	• WDRC and the Construction contractor.
Reporting	• Letters and communication with adjacent landowners. • Community notification of project works, such as through community newsletters or similar.
CONSTRUCTION	
Actions/Controls	• Consultation with adjacent landowners and the surrounding community in relation to

	construction activities, particularly in relation to potential interruptions and changes to property access requirements. • Keep local communities informed of work in progress.
Monitoring	• Feedback from local residents. • Monitoring/auditing as detailed under various other action plans for construction monitoring. • Record details of complaint(s) and incident(s) in the Complaints and Incident Register.
Corrective Action	• Potential for modifications to construction activities/times based on monitoring results and community feedback.
Responsibility	• Construction contractor.
Reporting	• Community notification of project works. • Complaints and Incident Register.
OPERATION AND MAINTENANCE	
Actions/Controls	• Provide residents with information regarding planned maintenance activities where required.
Monitoring	• Complaints and Incident Register. • Inspections in response to a complaint.
Corrective Action	• To be determined based on inspection results and resultant investigation.
Responsibility	• WTP operator.
Reporting	• Community notification of project works. • Record details of incident(s) in Complaints and Incident Register.
Proposed new/changed development permit condition	• Not applicable.

27C.3.11 HAZARD AND RISK ACTION PLAN

Objectives	• To minimise risks posed to the human, social and biophysical environment in the locality by all activities associated with the construction of the WWTP and associated infrastructure.
Performance Criteria	• No incidents involving the construction and/or operational workforce. • No incidents involving the general public. • No land or water contamination within or adjacent to the WWTP and associated infrastructure areas. • Any incidents responded to in prompt and efficient method.
Environmental Aspects	• Construction and operation workers and the general public. • Air, surface water, groundwater and soil quality in the vicinity of the WWTP and associated infrastructure areas. • Native and domestic animals in the vicinity of worksites.
EARLY WORKS	
Actions/Controls	• Develop awareness program of the importance of safe road use behaviours, and training programs for construction personnel. • Provide workforce with awareness training regarding venomous snakes and biting insects, areas and times they are most likely to be encountered, and how to react and provide first aid treatment. Provide work teams with appropriate first aid equipment to treat bites.
Monitoring	• Maintain a training register for all employees.

Corrective Action	• None required.
Responsibility	• Construction contractor. • Proponent.
Reporting	• Training register. • Emergency Response and Action Plan submitted to Proponent for approval.
CONSTRUCTION	
Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • Prevent unauthorised access to excavations and any other hazardous areas during construction. • Provide awareness training of the importance of safe road use behaviours, and training programs for construction personnel. • Provide workforce with awareness training regarding venomous snakes and biting insects, areas and times they are most likely to be encountered, and how to react and provide first aid treatment. Provide work teams with appropriate first aid equipment to treat bites. • Provide awareness training of the health hazards associated with sewage and structure construction activities to minimise potentially hazardous activities such as live tie ins to existing infrastructure etc. • Keep any works that can not be secured easily in a safe state with appropriate signage and/or fencing or guarding. • Transport all dangerous goods during construction in accordance with the current Australian Code for the Transport of Dangerous Goods. • Maintain appropriate procedures and equipment to manage leaks and spills of all dangerous goods used during construction.
	• Provide adequate fencing to the site to prevent public access.
Monitoring	• Auditing. • Maintain a training register. • Record details of complaint(s) and incident(s) in the Complaints and Incidents Register.
Corrective Action	• Review incident and near miss response, to identify and manage hazards/risks and update training/procedures.
Responsibility	• Construction contractor.
Reporting	• Training register. • Complaints and Incidents Register.
OPERATION AND MAINTENANCE	
Actions/Controls	• Wastewater treatment plant to be operated in accordance with Operator's Manual. • Ensure the effective operation of the WWTP and associated infrastructure is maintained, and shut down if a major failure occurs. • Ensure emergency procedures are documented in the operating manual.
Monitoring	• Auditing.
Corrective Action	• Incident and near miss response plan to identify and manage hazards risks and update training/procedures.
Responsibility	• WWTP operator.

Reporting	• In the event of an incident causing material or serious environmental harm, DERM must be notified in accordance with Section 320 of the EP Act. • Maintenance records. • Inspection records. • Incident and near miss reporting. • Ensure emergency contacts are included in the operating manual so necessary authorities may be contacted in the occurrence of an event (e.g. chemical spillage on site).
Proposed new/changed development permit condition	• Not applicable.

27C.3.12 HEALTH AND SAFETY ACTION PLAN

Objectives	• To identify and minimise the health and safety risks associated with construction, operation and maintenance of the WWTP and associated infrastructure.
Performance Criteria	• No health and safety impacts to workers or general public due to construction, operation and maintenance of the WWTP and associated infrastructure.
Aspects	• Construction and operation workers and the general public.
EARLY WORKS	
Actions/Controls	• None required.
Monitoring	• None required.
Corrective Action	• None required.
Responsibility	• Not applicable.
Reporting	• None required.
CONSTRUCTION	

Actions/Controls	• The contents of this EMP will be communicated to all contractors and staff via the site induction. • Include the following items in the Health and Safety Plan prepared under Occupational Health and Safety legislation requirements. ‣ induction training for all staff in health and safety policies and procedures ‣ minimise dust exposure of project personnel by promptly rehabilitating disturbed areas once construction is complete, watering disturbed areas, roads and stockpiles and, if required, providing employees with personal protective equipment (PPE) to limit dust inhalation ‣ manage the effects of heat by providing suitable working environments, equipment and protective clothing and training workers in the signs and symptoms of heat effects/dehydration ‣ limit exposure of workers to noise by using equipment that complies with relevant emission standards, and encouraging the use of suitable PPE where high noise levels can not be prevented ‣ store dangerous goods in accordance with relevant standards ‣ training of employees in the risk of snakes and first aid equipment with which to deal with snake bite ‣ keep local residents aware of any changes expected in traffic during the construction period ‣ implement procedures and rules for use of machinery and equipment ‣ site induction programs to ensure vehicles are driven in a safe manner and that site driving rules are understood ‣ undertake machinery and equipment inspection checks as part of the construction phase regular maintenance program ‣ implement confined space procedures to be followed by anyone entering a confined space ‣ limit exposure of workers to exposure to sewage during construction and commissioning activities, and encouraging the use of suitable PPE where contact can not be prevented.
Monitoring	• Auditing. • Maintain a training register. • Record details of complaint(s) and incident(s) in Complaints and Incident Register.
Corrective Action	• Incident and near miss response plan to identify and manage hazards / risks and update training / procedures.
Responsibility	• Construction contractor.
Reporting	• Incident and near miss reporting. • Training register.
OPERATION AND MAINTENANCE	
Actions/Controls	• WWTP to be operated in accordance with Operator's Manual. • Store dangerous goods in accordance with relevant standards. • Implement procedures and rules for use of machinery and equipment. • Site induction programs to ensure vehicles are driven in a safe manner and that site driving rules are understood. • In the event of an incident causing material or serious environmental harm, notify DERM as soon as practicable after becoming aware of the emergency or incident in accordance with Section 320 of the EP Act. Notification should be via telephone or facsimile. • In the event of an incident causing material or serious environmental harm, that is not notified in accordance with Section 320 of the EP Act, DERM should be notified as soon as practicable in accordance with development permit conditions.
Monitoring	• Auditing as per Health and Safety Plan to be prepared to address OH&S legislative requirements.

Corrective Action	• Review incident and near miss response plan to identify and manage hazards/risks and update training/procedures.
Responsibility	• WWTP operator.
Reporting	• Incident and near miss reporting. • Records of incidents in accordance with development permit conditions. • As required by DERM development permit conditions. • In the event of an incident causing material or serious environmental harm, DERM must be notified in accordance with Section 320 of the EP Act.
Proposed new/changed development permit condition	Release of water will occur under the conditions as contained in Schedule H Self Monitoring and Reporting of Development Permit no. ENDC00610406. The following amendments are proposed for Schedule H Self Monitoring and Reporting of Development Permit no. ENDC00610406: • Condition (H1) to (H6): Not relevant to health and safety. • Condition (H7): No change. • Condition (H8): No change. • Condition (H9): No change. • Condition (H10): No change. • Condition (H11): No change. • Condition (H12): No change.

27C.4 REFERENCES

Environmental Protection Agency 2005, Queensland Water Recycling Guidelines, Waterwise Queensland, Queensland Government, December 2005.

AS 1940-2004

EPA Noise Measurement Manual 2000