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1. Purpose

This Water Monitoring and Management Sub-Plan (WMMP) responds to the specific requirements of the Consent Conditions of for Development Application DA-318-12-2004-I, as modified by Modification 3 approved on 30 November 2017.

The WMMP forms part of the Operational Environmental Management Plan (OEMP) for the Allied Pinnacle grain milling facility at Picton, NSW and supersedes the document formerly known as the Soil and Water Management Plan, July 2015.

The on-site activities specifically relating to this plan include:

- Water supply
- Milling operations and process wastewater
- Domestic wastewater
- Effluent irrigation
- Laboratory operations
- Stormwater management

1.1 Requirements for this plan


The purpose of this plan is to minimise the potential impacts of the milling facility on the local surface and groundwater bodies.

The controls documented in this management plan seek to address the requirements of the Department of Planning and Environment (DPE), the Australian Rail and Track Corporation (ARTC), Wollondilly Shire Council and the Environment Protection Authority (EPA).

Consent condition 5.4(b) requires the WMMP to specifically address the requirements outlined in Table 1. Table 1 also provides a reference to where the requirements have been addressed in this plan.

Table 1 - Requirements of consent condition 5.4(b)

Requirement	Reference to this Plan
Consideration of all reasonable and feasible options to avoid discharge to ground and/or ambient waters including methods to minimise the volume of contaminated water and effluent generated	Section 2
Description of the criteria for nomination of areas as clean or dirty and identification of clean and dirty surface water areas on site maps	Section 3.1
Details of water management and monitoring measures to be implemented, including measures to ensure the continued integrity of the culverts under the Great Southern Railway Line (GSRL).	Section 3
Characterisation of wastewater qualities and quantities for reuse on-site and specification of wastewater reuse areas on site maps for the development	Section 4.2
Details of irrigation management practices to ensure there is no off-site impact through the use of treated effluent for irrigation	Section 5.2
A program for monitoring effluent and receiving soil and waters to ensure the suitable operation of the sewage treatment plant, and the ongoing viability of the land and waters receiving the effluent under the irrigation scheme	Section 4.3 Section 5.3
Details of the remedial actions to be taken in response to an exceedance of concentration limits or other performance criteria for the treated water, or if there	Section 6


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are predicted or actual adverse weather conditions, or complaints received regarding irrigation activities	
Specific details shall be provided in relation to the times, locations, volumes, and qualities of the water to be irrigated, including how the quality of water to be used for irrigation will be assessed	Section 4.3


In addition the plan must also address the consent conditions outlined in Table 2.

Table 2 – Consent conditions for water quality

Condition		Requirements	Reference to this Plan
2.11	General	The milling operations development shall be carried out to minimise adverse impacts to aquatic/riparian environments and to not cause erosion/sedimentation or increase in flood levels of protected waters.	Section 3 Section 4 Section 5
2.13	General	Section 120 of the Protection of the Environment Operations Act 1997 must be complied in the carrying out of the development, except as expressly provided by a licence under the act for the development.	Section 3 Section 4 Section 5
2.24	Rehabilitation: Maintain the riparian zone	The rehabilitated riparian zones shall be maintained and monitored for a period of at least two years after final planting, or where other revegetation methods are used, two years after plants are of tube stock size and are at the densities specified in the Vegetation Management Plan. Maintenance shall include sediment and erosion control, watering, weed control, replacement of plant losses, disease and insect control, protection from any mowing or slashing of adjacent land, mulching and any other requirements necessary for achieving successful vegetation establishment.	Not applicable. Two years has expired after final planting
2.25	Rehabilitation: Maintain the riparian zone	Immediately after completion of initial planting/seeding and every six months thereafter for the duration of the maintenance period Allied Pinnacle shall submit to DWE a monitoring report addressing the performance criteria specified in the Vegetation Management Plan, and comment on the stability and condition of any stream works. With each monitoring report, the person responsible for implementing the Vegetation Management Plan must certify in writing that plantings (including follow-up plantings) have been carried out using stock propagated from seed or plant material collected only from native plants from the local botanical provenance	Not applicable. The maintenance period has expired
2.26	Salinity management	The applicant shall implement the recommendations of the Report prepared by the Environmental Investigation Services dated December 2004 in Volume 2 of the EIS	Section 5.4
2.30	Culvert under the GSRL	The applicant shall not disturb the original fabric of the culvert under the Great Southern Railway Line in the carrying out of the development	Section 3.2

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5.4 (b)	WMMP	As part of the Environmental Management Plan for the development required under condition 5.3 of this consent, Allied Pinnacle shall prepare and implement water monitoring and management plans	Refer to Table 1
5.6	Effluent Irrigation area	<p>When applying effluent to land, Allied Pinnacle must ensure:</p> <ul style="list-style-type: none"> • There is no surface water runoff beyond the irrigation area • Spray does not drift beyond the boundary of the site • The quantities of nutrients, salt, hydraulic load, and organic material are effectively absorbed through plant or crop production or within the soil, as outlined in MOD 3 and confirmed through annual soil monitoring 	Section 5.2
5.7	Effluent Irrigation area	<p>Within 2 months of the approval of MOD 3, Allied Pinnacle must ensure the irrigation area is managed and maintained as follows:</p> <p>A diversion bank of no higher than 200 mm must be constructed between the road and the irrigation area to divert runoff into the tree row</p> <p>Any depressions capable of ponding water in the irrigation area must be regularly removed by levelling with top soil</p> <p>The irrigation area must be regularly mowed to a length of 100mm</p> <p>Pasture or fodder crops must only be harvested when dry</p>	Section 5.2
5.8	AWTS maintenance and monitoring requirements	<p>Within 2 months of approval of MOD3, Allied Pinnacle must ensure the AWTS is serviced prior to irrigation recommencing. The service report, together with records of those measurements are to be submitted to the Department prior to any irrigation recommencing and then on a quarterly basis. Before commencing each service, measurements are to be taken to demonstrate that the following target requirements have been met:</p> <ul style="list-style-type: none"> • faecal coliforms, or E.coli (thermotolerant coliforms) must be less than 100 colony forming units per 100 ml in the irrigation chamber; • dissolved oxygen in the irrigation chamber is more than 5 mg O₂/L at 20 degrees Celsius; and • free available chlorine in the irrigation chamber is between 0.01 and 2.0 mg/L 	Section 4.3
5.9	AWTS maintenance and monitoring requirements	<p>Within two months of the determination of MOD 3, the Applicant must update and implement the Water Monitoring and Management Plan, as required by Condition 5.4 b), to the satisfaction of the Secretary, to include:</p>	Section 4.3 Section 5.3

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	<ul style="list-style-type: none"> • an annual soil monitoring program for the irrigation area in accordance with the DEC Guideline; and • the management and monitoring requirements detailed in conditions 5.6 to 5.8 inclusive.
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1.2 Legislative requirements and guidelines

Key legislation and guidelines relevant to water management is provided in Table 3.

Table 3 - Key legislation and guidelines


Legislation/Guidelines	Applicability
Protection of the Environment Operations Act, 1997 (POEO Act)	Provides for the control of polluting activities in NSW to prevent pollution of the environment. This relates specifically to water pollution for this project.
Environmental Protection Licence (EPL), under Section 55 of the POEO Act, 1997	Operational environmental licence for Allied Pinnacle Picton Grain Milling facility. The EPL does not include conditions for monitoring of surface or groundwater quality.
DoP Section 76A Environmental Planning and Assessment Act 1979, Schedule 1 Application DA- 318-12-2004-i.	Consent Conditions of the Grain Milling Facility, Picton road, Maldon. The Consent Conditions specify the operating conditions for the mill.
DoP Section 75W Approval under Environmental Planning and Assessment Act 1979, DA-318-12-2004-i	Modification of Consent Conditions dated 30 November 2017 (known as MOD 3). The modified Consent Conditions detail modified conditions for operation of the mill
Wollondilly Shire: On-Site Sewerage Management Strategy	Aims to manage on-site effluent disposal within the Wollondilly LGA whilst reducing the impact of sewerage pollution and minimising the risk to the environment. This includes AWTS units like installed at the mill facility.
Environmental Guideline Use of Effluent by Irrigation (DEC 2004)	Provides the framework, principles and objectives that should be considered when establishing an irrigation system that uses effluent (effluent irrigation system). The guidelines have been used in the development of this WMMP.
Australian Guidelines for Water Recycling Managing Health and Environmental Risks Phase 1 (NHMRC 2006)	Provides a generic framework for management of recycled water quality and use that applies to all combinations of recycled water and end uses. It also provides specific guidance on the use of treated sewage and greywater for purposes other than drinking and environmental flows. The guidelines have been used in the development of this WMMP.

2. Summary of water processes on-site

This section provides an overview of the water processes on site and the controls applied to avoid discharge to ground and/or ambient waters and methods to minimise the volume of contaminated water and effluent generated.

2.1 Water supply

Water supply to the site is provided via a Sydney Water Mains connection. Total process and domestic water supply is estimated at around 115kL/d.

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2.2 Milling operations and process waste water

The mill is capable of processing up to 300,000 tonnes a year of wheat and maize. The flour and maize operations at the mill will involve intake of wheat or maize (grain) into the bulk storage facility, followed by a cleaning process and finally a milling process.

A small amount of water is added to the milling process.

The milling process is described as a 'zero-waste process'.

The process water added during the milling process is wholly consumed, and no liquid process waste streams are discharged from the mill.

2.3 Domestic waste water

Domestic wastewater is generated from the on-site staff amenities. Domestic wastewater is treated via an Econocycle Aerated Wastewater Treatment System (AWTS).

The design capacity of the AWTS is a maximum of 3,000 L / day, based on the predicted wastewater generation of nine office staff, three sets of six shift workers and eight visitors a day.

The 2016 Review reports that while the patronage of the wastewater system has risen from an estimated 35 to 45 persons per day (+29%), the volume of wastewater has fallen from 3000 L/day to a measured average 2000 L/day.

The AWTS provides a reliable and low maintenance system to prevent offensive odours, and to comply with the determining authorities' requirements.

Maintenance, monitoring and performance standards for the AWTS have been set by consent condition 5.8.

2.4 Effluent irrigation

Treated effluent from the AWTS is applied to land via an effluent irrigation system after chlorination.

The principal objective of the effluent irrigation system is to use or immobilise the nutrients quickly, to prevent potential contamination of ground and surface water.

Maintenance, monitoring, and performance standards for the effluent irrigation area have been set by consent conditions 5.6 and 5.9.


2.5 Laboratory operations

A small laboratory is located within the mill buildings and although minimal waste is generated through the laboratory processes, it is viewed as a potential source for pollutants within the mill operation.

Any chemicals used are stored in an appropriately sealed, banded and labelled container, with a Safety Data Sheet (SDS) register in place. Spent chemicals are removed from the site by a licensed waste removal contractor.

2.6 Stormwater management

The objectives of the stormwater drainage system near the mill buildings is to quickly and efficiently move stormwater runoff away from the mill building and to ensure standing water is eliminated. Standing water in the vicinity of the plant would be a significant operational issue.

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A system of bio-swales downstream of the access road passively treats stormwater runoff while conveying it to the reservoir.

The on-site reservoir holds the stormwater runoff from the site, providing further opportunity to contain pollutants and allow any sediment to settle. The reservoir also receives stormwater flows from upstream locations and adjacent properties.

When the reservoir spills, it discharges runoff to Carriage Creek via one of two culverts underneath the railway embankment, which in turn discharges to the Nepean River.

Site activities and stormwater runoff do not have negative impacts on the surface water reservoir and creek systems.

3. Stormwater management

The EPL does not set any stormwater discharge limits hence the site must comply with Section 120 of the POEO Act.

This section considers potential stormwater pollution sources from the site.

The EIS stated that the total unmitigated increase in water pollution from this catchment due to the development would be minimal for most pollutants except for total suspended solids (TSS).

However with engineered controls in place, the likelihood of TSS as a pollutant from the site is also low.

The site is situated in a grassed rural setting, and the developed site includes 3 ha of hard stand (roads and plant) drains to the on-site reservoir via a system of bio-swales.

3.1 Clean and dirty catchments


The presence of pollutants on the ground, coinciding with a rainfall event, poses a potential risk to surface water becoming polluted by the transportation of pollutants into the reservoir via the drainage system.

Extreme rainfall events could see the pollutants transferred to Carriage Creek and further downstream towards the Nepean River.

To mitigate these impacts, clean and dirty areas have been determined using a risk assessment approach consistent with the OEMP. A summary of the assessment is provided in Table 4.

Table 4 - Stormwater risk assessment

Area Description	Pollutant sources	Risk of contaminated runoff(with no controls)	Controls	Residual risk of contaminated runoff (with controls)
Hardstand areas most likely to be impacted by spilled material during loading and unloading of bulk product	Sediment Grain spillage Oil leakage	Minor/possible CAT 3	Regular clean up to prevent vermin	Negligible/possible CAT 4

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Other hardstand areas which convey vehicular traffic	Sediment Oil leakage	Negligible/rare CAT 4	Regular cleanup Bioswales Reservoir	Negligible/possible CAT 4
Roof areas	Nil	Negligible/possible CAT 4	N/A	Negligible/possible CAT 4
Grassed areas not used for operational purposes	Nil	Negligible/possible CAT 4	N/A	Negligible/possible CAT 4
Irrigation area	Sewage effluent	Minor/possible CAT 3	Effluent quality Monitoring Operational controls	Negligible/possible CAT 4
Fuel and chemical storage areas	Fuel and chemicals	Minor/possible CAT 3	Stored within buildings and contained within bunds. Regular clean up	Negligible/possible CAT 4

External areas with a risk of contaminated runoff (with no controls) greater than “CAT 4”, are considered to be “dirty areas”.

Figure 1 illustrates the area considered to be “dirty”, for the purposes of this plan. The nominated controls are incorporated into the inspection check sheet.

Figure 1 – Site plan



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3.2 Culverts under the Great Southern Railway Line

The development is located in the lower end of a 254ha catchment which discharges into Carriage Creek.

The Carriage Creek tributary within the site consists of a storage reservoir opening to a spillway.

This reservoir represents the main storage on site.

The catchment drains to Carriage Creek, via two railway culverts. Culvert 1 receives flow from a catchment area of 229 ha when the reservoir is full and spilling.

Culvert 2 receives flow from a catchment area of 25 ha which includes the site of the Allied Pinnacle milling facility.

Development of the Allied Pinnacle milling facility has resulted in changes to the land cover of the site to include increased hard-stand on the site.

Additionally, regrading of the site area to enable stormwater from the mill site to pass through the reservoir has increased the catchment area of railway culvert 1.

Consequently a greater volume of runoff passes through Culvert 1, when compared to its undeveloped state.

The EIS presented the results of hydrological modelling for changes to catchment areas and land cover.

Hydrological modelling determined that an additional 14m³ of water would pass through Culvert 1 during a 100 year ARI storm event, largely due to the diversion of stormwater flow from Culvert 2 to Culvert 1, as well as the increased hardstand on the site which would result in 1m³ of additional flow through Culvert 1.

To ensure the continued integrity of the culverts under the Great Southern Railway Line, and at the request of ARTC, the facility will monitor the culverts for scouring, erosion or sediment build-up.. The nominated controls are incorporated into the mitigation measures of this plan.

Due to the heritage value of the culvert under the Great Southern Railway Line, Allied Pinnacle shall not disturb the original fabric of the culvert during any maintenance around the culvert.

3.3 Maintenance and monitoring of the stormwater system


The EIS specifies that an EMP would be prepared for water quality management, to include:

- a schedule for maintenance of the drainage system, in particular keeping grass short in the vicinity of the mill buildings so that drainage is efficient and standing water is eliminated
- a schedule for maintaining and cleaning culverts and trash racks
- a program of quarterly sampling from the reservoir to monitor reservoir water quality

It is noted that the reservoir also receives stormwater flows from adjacent properties and upstream locations including Picton Road.

The contribution of pollutants such as TSS and oil and grease from Picton Road are likely to be more significant than from the site hence monitoring the reservoir may not be representative of stormwater discharge from the site. For this reason, monitoring water quality from the reservoir has been excluded from this monitoring plan.

To provide confidence that the site's stormwater discharges are compliant with Section 120 of the POEO Act, and

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monitor the continued integrity of the culverts under the Great Southern Railway Line, the facility shall undertake the following maintenance and inspection regime outlined in Table 5.

Table 5 - Stormwater system maintenance and inspection regime

Frequency	Location	Maintenance and inspections
Quarterly	Hardstand areas most likely to be impacted by spilled material during loading and unloading of bulk product	Inspect for cleanliness; build-up of grain and other product, oil staining and sediment. Maintain as required
Quarterly	Internal drainage system including the bioswales, culverts and trash racks.	Inspect for scouring, erosion sediment build-up Inspect for a good vegetation however it should be kept short. Maintain as required
Six monthly	Upstream of the culverts under the Great Southern Railway Line	Inspect for scouring, erosion or sediment build-up. Maintain as required. Notify ARTC if the embankment is threatened

4. Wastewater management

4.1 Wastewater treatment

The development generates domestic wastewater from the general domestic activities of staff present at the site (washing, showering, toilets & kitchen).

This site is not connected to municipal sewer, therefore all domestic wastewater is treated onsite, by an AWTS, comprising:

- Septic tank
- Primary aeration tanks
- Secondary aeration tank incorporating clarifier and chlorinator

4.2 Effluent quality and quantity


To compare the performance of the waste water management system with the estimated performance in the EIS,

Allied Pinnacle commissioned Landfax Laboratory to undertake a “Review of wastewater treatment and effluent application to land, Allied Mills Pty Ltd – Picton Mill” (2016 Review). The 2016 Review was used to support MOD 3, which was approved by DPE.

The 2016 Review reported that:

The EIS estimated an effluent quantity of 3000L/day. However monitoring of the effluent discharged from the AWTS over the period 26 October 2015 and 6th January 2016 for a total of 73 days, showed the average effluent quantity was 1950 L/day.

The EIS estimated the treated effluent concentrations to be consistent with the NSW EPA target whereas the 2016 Review based its comparison calculations using actual effluent quality data based on samples taken on 12 July 2016 (July 2016 concentrations).

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The EIS calculated load was calculate based on the EIS concentration multiplied by EIS estimated an effluent quantity whereas the July 2016 Load was calculate based on the July 2016 concentration multiplied by the actual average effluent quantity.

The comparisons are presented in Table 6.

The 2016 review demonstrated that, based upon the July 2016 Load, the system is performing well within the EIS calculated load.

The 2016 review concluded that the operation and maintenance of the AWTS are producing an effluent that reflects the high inputs of human wastes and low domestic wastes: high in nitrogen and phosphorus, but low in total alkalinity.

With a suitable irrigation area to assimilate the nitrogen and phosphorus as well as the hydraulic load, the overall system should not be hampered by defined limits on effluent quality, except for those properties that directly relate to system function and public health.

Treated effluent is applied to land adjacent to the mill site, by irrigation. Refer to Section 5 for further detail ion the irrigation area.

Table 6 - Comparison of load based upon EIS values and July 2016 values

Parameter	NSW EPA Target (mg/L)	EIS concentration (mg/L)	EIS calculated load (kg/year)	July 2016 concentration (mg/L)	July 2016 Load (kg/year)
BOD	<40	<40	43.8	17	12.4
Total nitrogen	<50	<50	54.8	63	46.0
Total phosphorus	<10	<10	11.0	8.2	6.0
Total dissolved solids	<500	<500	548	503	367

4.3 AWTS maintenance and monitoring requirements

Maintenance and monitoring requirements for the AWTS have been set by consent condition 5.8 as outlined below.

Refer to Picton WHSE-Form-03 Implementation Checklist for the Soil and Water Management Sub-Plan (WMMP)

4.3.1 Quarterly maintenance and monitoring

Allied Pinnacle shall engage an approved service agent for quarterly servicing of the AWTS. Records of the servicing reports shall be maintained and submitted to DPE and Wollondilly Shire Council.

Before commencing each quarterly service, the facility shall collect samples from within the irrigation chamber of the AWTS for analysis of the parameters in Table 7.


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Table 7 - Quarterly AWTS monitoring

Parameter	Goal
Faecal coliforms, or E.coli (Thermotolerant coliforms)	<100 colony forming units per 100 mL
Dissolve oxygen	>5 mg O ₂ /L at 20°C
Free available chlorine	0.01 – 2.0 mg/L

Quarterly records of maintenance and monitoring shall be submitted to DPE in accordance with consent condition 5.8.

4.3.2 Six monthly AWTS monitoring

As recommended by the 2016 Review, twice annually (one summer and one winter), the facility shall collect samples from within the irrigation chamber of the AWTS for analysis of the parameters in Table 8.

Table 8 - Six-monthly AWTS monitoring

Parameter	Goal
Ammonia-N	These parameters need to be quantified without limit. These annual results need to be maintained on a progressive spreadsheet where the changes from one year to the next can be evaluated.
Nitrate-N	
Total N (nitrate-N plus Total Kjeldahl nitrogen (TKN))	
pH	
Electrical conductivity	
Orthophosphate-P	
Total phosphorus (TP)	
Major cations (sodium, calcium, potassium, magnesium)	
Calculate sodium adsorption ratio	

5. Effluent irrigation area

5.1 The irrigation area

The 2016 Review calculated the required irrigation area for nutrient assimilation and water balance (based upon the 12th of July 2016 effluent quality and the effluent production of 2000 L/day) to be:

- Hydraulic load 900m²
- Nitrogen load 1270m²
- Phosphorus load 275m²

The effluent irrigation area is shown on Figure 1.

It is gently sloping towards the west and located in a corner of the site between the entrance road and the side road.

The effluent irrigation area is estimated to be 1250m² and consists of two rows of four irrigator risers, roughly parallel to the contour.

5.2 Irrigation management practices

Management requirements for the irrigation area are outlined in Table 9.

The facility shall continuously monitor that the irrigation management practices are being implemented. The monitoring shall be recorded quarterly to provide documentary evidence for the purpose of demonstrating compliance.


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Table 9 – Irrigation management practices

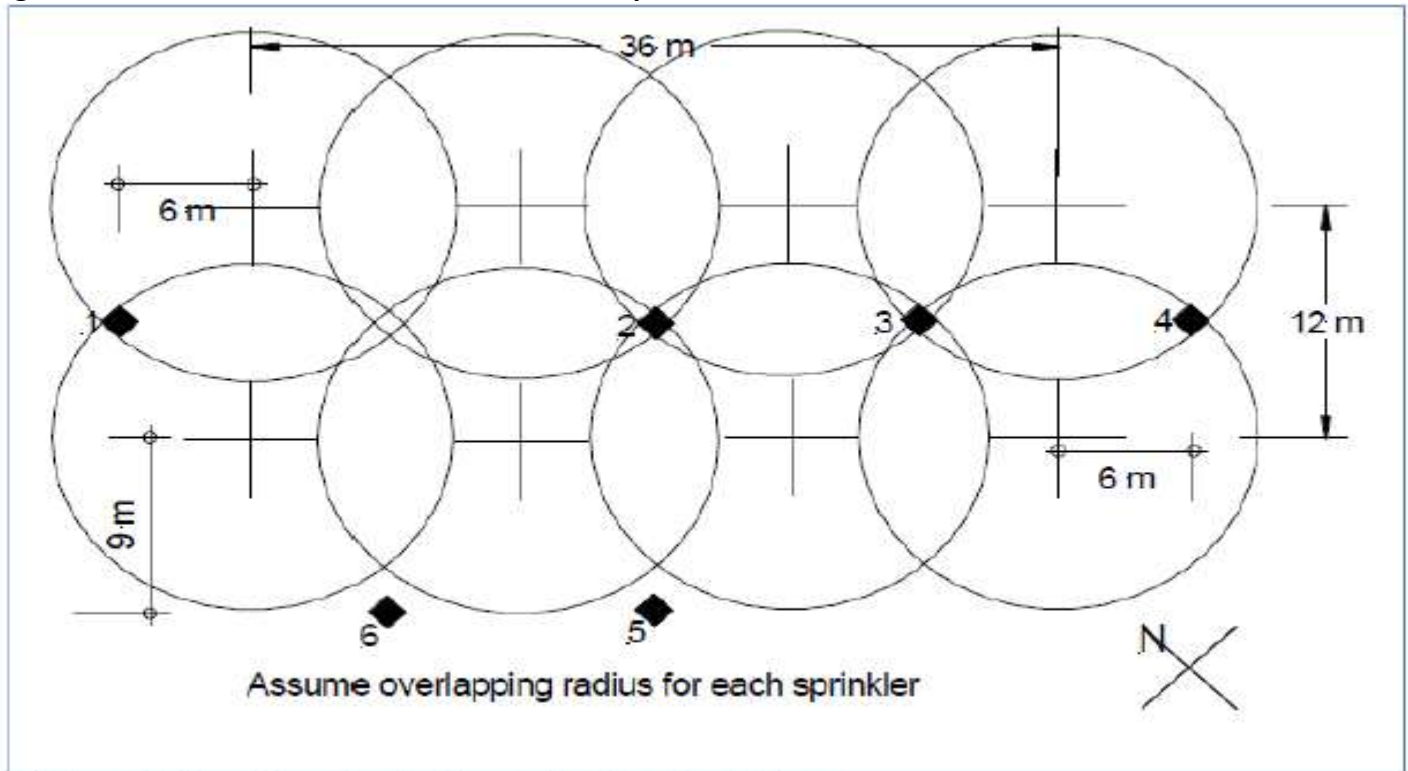
Consent conditions	Requirements	Monitoring
Condition 5.6: When applying effluent to land, the applicant must ensure:	There is no surface water runoff beyond the irrigation area as identified in Figure 1.	Monitor when irrigating. Record quarterly.
	Spray does not drift beyond the boundary of the site	Monitor when irrigating. Record quarterly.
	The quantities of nutrients, salt, hydraulic load and organic material are effectively absorbed through plant or crop production or within the soil as outlined in MOD 3 and conformed through annual soil monitoring	Annually See Section 5.3
Condition 5.7: Manage and maintain the irrigation area as follows:	A diversion bank of no higher than 200 mm is maintained between the road and the irrigation area to divert runoff away from the irrigation area and into the tree row.	Monitor when irrigating. Record quarterly.
	Any depressions capable of ponding water (such as natural depressions or wheel tracks) in the irrigation area must be regularly removed by levelling with topsoil	Monitor when irrigating. Record quarterly.
	The irrigation area must be regularly mowed to a length of 100mm	Monitor when irrigating. Record quarterly.
	Pasture or fodder crops must only be harvested when dry.	Not Applicable. Pasture or fodder crops are not harvested.

5.3 Effluent irrigation area monitoring requirements

An annual soil monitoring program for the irrigation area has been developed following the 2016 Review in accordance with the DEC guideline.

Annually, sample the soil at six designated locations within the irrigation area as illustrated in Figure 2.

Figure 2 – Location of soil boreholes relative to sprinklers



Attachment A, Figure 2 Location of soil boreholes relative to sprinklers

At each of the six sites, take samples from:

- the surface (A horizon 0-100 mm) and
- the top 100 mm of the B horizon (clay horizon) 350-450 mm


The 2016 Review concluded that

- Monitoring total phosphorus in the soil has no merit because of the very high phosphorus sorption capacity. Excess phosphorus is simply locked up in this mechanism and unavailable for export
- Total nitrogen does not require a limit, since increases in organic matter because of root vigour and microbial activity can have a significant effect upon TN values with only positive environmental effects

Soil parameters to monitor on an annual basis are presented in Table 10.

Table 10 - Annual monitoring at designated locations within the irrigation area

Parameter	Goal
Soil pH (1:5 in water) and (1:5 in 0.01M CaCl ₂)	These parameters need to be quantified without limit. These annual results need to be maintained on a progressive spreadsheet where the changes from one year to the next can be evaluated.
Electrical conductivity (1:5 soil:water)	
Major cations (sodium, calcium, potassium, magnesium)	
Exchangeable acidity (measure of hydrogen and aluminium ions in soil solution)	
Calculation of exchangeable sodium percentage (ESP)	
Calculation of cation exchange capacity (CEC)	
Organic carbon (OC) Walkely & Black method	
Extractable phosphorus	
Extractable sulphur	
Nitrate-N (Mineral N)	
Chloride	
Emerson Aggregate Stability Test (performed with simulated effluent)	

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5.4 Salinity management

Consent condition 2.26 required that the applicant shall implement the recommendations of the Report prepared by the Environmental Investigation Services (EIS) dated December 2004 in Volume 2 of the EIS.

However the 2016 review supporting MOD 3 concluded that:

The effluent has a very low salinity and the soil profile has low salinity in each of the three horizons. The effluent has a low SAR, unlikely to exacerbate the increasing ESP in the B and B2 horizons.

As these horizons are not exposed and are not physically disturbed, the increase ESP is a function of landscape and of no environmental consequence.


Therefore the recommendations of the report prepared by EIS report have not been incorporated into this management plan.

6. Corrective actions

Table 11 outlines the proposed corrective actions to be implemented in the event of not meeting concentration goals, adverse trends, adverse observations/weather conditions or complaints related to the scope of this management plan.

Table 11 – Proposed corrective actions to adverse conditions

Condition/event	Corrective Action
Adverse observations related to the internal drainage system inspections	Record the observation and the implemented corrective action on the implementation checklist.
Adverse observations related to the culverts under the Great Southern Railway Line.	Record the observation and the implemented corrective action on the implementation checklist. If undertaking work in the vicinity of the culverts under the Great Southern Railway Line, do not disturb the original fabric of the culvert. Notify ARTC prior to commencing work near the culvert or the rail embankment OR if either have been impacted in some way
Effluent water quality not achieving water quality goals (Refer to Table 7)	Maintain AWTS. Seek advice from AWTS service agent on corrective measures.
Deteriorating trend in effluent water quality (Refer to Table 8)	Investigate potential changes to the influent that may have contributed to the change in effluent quality. Seek advice from soil scientist on the capacity of the irrigation area to assimilate deteriorating effluent water quality.
Adverse observations related to the operation and condition of the irrigation area. Adverse weather conditions impacting the operation and condition of the irrigation area	If there is potential for irrigated effluent to drift or flow from the irrigation area, cease irrigation until the condition has been rectified. Record the observation and the implemented corrective action on the monitoring checklist.
Deteriorating trend in irrigation area soil quality (Refer to Section 10)	Seek advice from soil scientist on corrective measures.
Complaints regarding the irrigation area	Manage the complaint in accordance with the Allied Pinnacle complaints management system. Refer to Section 5.7.1 of Picton WHSE-006 Picton Operational Environment Management Plan (OEMP)

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7. Records to be maintained

The Site shall maintain the following records to demonstrate compliance with this plan:

- Periodic implementation checklists completed as per the agreed schedule.
- Evidence of corrective actions such as photographs and third party service records or reports
- Effluent quality and irrigation area soil quality laboratory analytical data (Laboratory reports)
- Trend analysis of effluent quality and irrigation area soil quality including a progressive spreadsheet where the changes from one year to the next can be evaluated
- AWTS service records

The periodic implementation checklists may be maintained in the form outlined in Appendix A or incorporated into the Allied Pinnacle MEX system.

Related Documents

- **Picton WHSE-006 Picton Operational Environment Management Plan**
- **Picton WHSE-Form-03 Implementation Checklist for the Soil and Water Management Sub-Plan (WMMP)**
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DOCUMENT APPROVAL and CHANGE HISTORY

APPROVAL			
Action	Position Title	Name (s)	Date
New Document Approval Version V01 to update to new format and Control under WHSE System	National WHSE Manager	Maria Hooker	20/7/2023



Picton WHSE-008 Picton Soil and Water Management Sub-Plan (Appendix B)

Version No:	V01
Issued:	20 July 2023
Next Review	July 2026



**Picton WHSE-008 Picton Soil and Water
Management Sub-Plan (Appendix B)**

Version No:	V01
Issued:	20 July 2023
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