NSW GOVERNMENT

West Nowra Landfill Extension

State Significant Development Assessment (SSD 7187)

April 2020

West Nowra Landfill Extension, 2020

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Glossary

Abbreviation	Definition
AHD	Australian Height Datum
BAR	Biodiversity Offset Strategy
CIV	Capital Investment Value
Consent	Development Consent
Council	Shoalhaven City Council
Department	Department of Planning, Industry and Environment
EES	Environment Energy and Science (formerly Office of Environment and Heritage)
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
FBA	Framework for Biodiversity
Garden and Wood Waste	As defined in the Protection of the Environment Operations Act, 1997
General solid waste (putrescible)	As defined in the *Protection of the Environment Operations Act, 1997*
General solid waste (non-putrescible)	As defined in the *Protection of the Environment Operations Act, 1997*
LEP	Local Environmental Plan
LEMP	Landfill Environmental Management Plan
LP	Landfill Plan
Minister	Minister for Planning and Public Spaces
OU	Odour Unit
POEO Act	*Protection of the Environment Operations Act, 1997*
RFS	Rural Fire Service
RRP	Resource Recovery Park
RtS	Response to Submissions
SEARs	Secretary's Environmental Assessment Requirements
Secretary	Secretary of the Department of Planning, Industry and Environment
SEPP	State Environmental Planning Policy

Abbreviation	Definition
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SSD	State Significant Development
TfNSW	Transport for New South Wales
VMP	Vegetation Management Plan
WNRWF	West Nowra Recycling and Waste Facility

Executive Summary

Introduction

This report details the Department of Planning, Industry and Environment's (the Department) assessment of a State significant development application (SSD-7187) for the extension of the West Nowra Recycling and Waste Facility (WNRWF) (the development). Shoalhaven City Council (the Applicant) proposes to expand its existing landfill and construct and operate an additional landfill cell (Stage 4 landfill), comprising of six sub-cells, within the WNRWF. The WNRWF is located at 120 Flatrock Road, Mundamia in the Shoalhaven local government area (LGA) and is approximately 4.5 kilometres (km) west of the township of Nowra.

The Stage 4 landfill extension area (the site) covers approximately 18.6 hectares (ha) (including approximately 1.4 ha for the proposed new leachate irrigation area) of SP2 Infrastructure – Waste and Resource Management Facilities zoned land.

The WNRWF currently includes three landfill stages (Stages 1, 2 and 3). Stage 1 commenced in 1979 and in 1991 development consent issued by Shoalhaven City Council (DA 90/3061) approved the extension and increase in landfill life expectancy of Stage 1 as well as approval to construct and operate Stages 2 and Stage 3 of the landfill. The Stage 1 and 2 landfill cells were filled and capped in approximately 1993 and 2000 respectively. Landfilling in the current landfill cell (Stage 3) commenced in 1998 and is expected to reach capacity in approximately 2026.

The WNRWF is situated on the eastern side of a ridge line and drains to Cabbage Tree Creek approximately 300 metres (m) to the east, which then drains northward to join the Shoalhaven River. The WNRWF is surrounded by native vegetation to the north, east and west. The southern boundary is bordered by rural residential properties, with the closest residential receiver located approximately 100 m from the WNRWF. Immediately to the northeast is the National Parks and Wildlife Service (NPWS) Nowra Area Office and Depot and a proposed Resource Recovery Park (RRP). The RRP was approved as a concept proposal and Stage 1 (SSD 7015) on 25 August 2016. The proposed construction and operation of the RRP is subject to a Stage 2 development application (SSD 9887) which has not been lodged at this stage. The proposed RRP is located adjacent to, but outside the footprint of, the broader WNWRF.

Current Proposal

The Applicant seeks approval to progressively excavate, landfill and rehabilitate six new landfill sub-cells to receive up to 1.38 million cubic metres (m^3) of additional material and extend the life of the landfill operations at WNRWF. As each sub-cell nears capacity, the Applicant would commence construction of the adjacent sub-cell and progressively close and rehabilitate the completed landfill sub-cell.

The development would receive general solid waste, including putrescible and non-putrescible waste and asbestos, from collections in the Shoalhaven LGA. The Applicant proposes to receive approximately 65,000 tonnes per annum (tpa) of waste initially and then progressively increase up to a maximum of 160,000 tpa under a 'worst case' scenario.

The WNRWF currently operates under a development consent (DA 90/3061) issued by Council and an Environment Protection Licence (EPL) 5877 from the Environment Protection Authority (EPA). The Applicant does not propose any changes to the existing waste infrastructure at the WNRWF and will continue to operate the WNRWF under its existing approvals. However, the development will utilise some of the WNRWF's existing infrastructure including waste transfer station, weigh bridges and offices. In addition, the Applicant proposes to

divert Stage 4 leachate to the existing leachate dam located on the Stage 1 landfill and will develop a new leachate irrigation area over the completed Stage 2 landfill.

The development has a capital investment value of $19,000,000 and is expected to generate four to eight construction jobs.

Statutory Context

The development is classified as State significant development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it involves construction and operation of a putrescible landfill that meets the criteria in Clause 23 of Schedule 1 in State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). Consequently, the Minister for Planning and Public Spaces (Minister) is the consent authority for the development for the proposed development under section 4.5(1) of the EP&A Act.

Engagement

The Department publicly exhibited the Environmental Impact Statement (EIS) from 28 June 2019 until 29 July 2019. A total of seven submissions were received including six from government agencies and one public submission. The public submission objected to the development and its impact on future residents located in the Mundamia and Cabbage Tree Lane Urban Release Areas. Key issues raised included odour, noise and traffic. Government agencies requested clarification on odour, leachate generation, groundwater management and aboriginal cultural heritage. The Applicant provided a response to submissions (RTS) in October 2019 and clarified aspects of the RTS with key agencies. Subsequent information was provided in January 2020 and March 2020, including an addendum to the Air Quality Impact Assessment (AQIA) and additional leachate information. The RTS was referred to relevant key agencies for comment and advice on recommended conditions.

Assessment

The Department's assessment of the application has fully considered all relevant matters under section 4.15 of the *Environmental Planning and Assessment Act 1979* (EP&A Act, the objects of the EP& Act and the principles of ecological sustainable development. The Department has considered the strategic and statutory context of the development, including the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021 (WARR Strategy). The Department has identified the key issues for assessment are the landfill lifespan, leachate, surface water and groundwater, air quality and odour and biodiversity.

The Applicant's assessment of the proposal was based on a 'worst case' scenario of operating the facility over an eight year period. The Department's assessment found the impacts arising from the development operating under a 'worst case' scenario could be suitably managed and mitigated to an acceptable level of environmental performance, subject to conditions.

However, the Department notes the Applicant sought approval to operate the Stage 4 landfill for up to 30 years. Under a 30 year approval, the Applicant has assumed the proposed RRP is approved, constructed and operational by 2021. It also assumes potential future improvements in waste diversion rates, government policy and operational and technological improvements would occur. In the EIS, the Applicant suggested landfill operations for longer than eight years would result in lower impacts for certain issues. Longer-term impacts (18 or 30 year scenarios) and the cumulative impacts with the future RRP were not assessed in sufficient detail in the EIS, however due to the conservative nature of the modelling provided, the Department is satisfied the development could be managed with minimal impacts for up to 10 years.

The Department is mindful of the waste disposal requirements of the Shoalhaven community and the need for the Applicant to provide ongoing landfill security to its residents. The Department acknowledges the Applicant has operated the WNRWF (Stages 1-3) since 1979 and while it is satisfied the development's impacts could be

adequately managed for up to 10 years, there is still a level of uncertainty about impacts to surrounding sensitive receivers beyond 10 years.

To address this uncertainty, the Department has recommended a 'partial approval' under the EP&A Act be granted. The approval would provide development consent for the Stage 4 landfill extension to be provided for a 10 year period, with the opportunity to further increase the landfill lifespan subject to the approval of the Minister. As part of seeking this further approval, the Applicant would be required to prepare a Landfill Plan (LP) to demonstrate the impacts of the Stage 4 landfill can be managed in the long-term, in particular the future traffic, noise and air quality impacts as well as the cumulative impacts from the operation of the RRP, to the satisfaction of the Planning Secretary.

Summary

The Department's assessment of the application concluded the development would be appropriately designed and managed to ensure leachate is appropriately managed, surface water and groundwater is not contaminated, biodiversity impacts are offset, and aboriginal cultural heritage and bushfire risk impacts are minimised. Odour and noise impacts would be minor and below relevant criteria at residential receivers. The development would not substantially increase traffic and would not require any road or intersection upgrades.

The Department has recommended a range of conditions to ensure optimal management of the expanded landfill and minimise residual impacts. The conditions include annual waste limits and daily cover requirements, leachate system design, surface and groundwater management plans, biodiversity offsets and bushfire risk management.

Overall the Department's assessment has concluded the development:

- would ensure continued landfill capacity for the Shoalhaven LGA, avoiding disruptions to municipal waste collection
- would utilise an existing waste disposal facility and associated infrastructure, that is co-located with diversion facilities
- is consistent with the objectives of the WARR Strategy 2014-21
- would not result in any significant adverse environmental or amenity impacts.

Consequently, the Department considers the development is in the public interest and should be approved, through a partial consent, subject to conditions.

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1. Introduction

1.1 The Department's Assessment

This report details the Department of Planning, Industry and Environment's (the Department) assessment of the State significant development (SSD 7187) for the staged extension, landfilling and rehabilitation of the West Nowra Recycling and Waste Facility (WNRWF) (the proposed development) by Shoalhaven City Council (the Applicant). The WNRWF is located at Mundamia approximately 4.5 kilometres (km) west of the township of Nowra in the Shoalhaven local government area (LGA) (see **Figure 1**).

The Department's assessment considers all the documentation submitted by the Applicant, including the Environmental Impact Statement (EIS), Response to Submissions (RTS) and submissions received from government authorities, stakeholders and the public. The Department's assessment also considers the legislation and planning instruments relevant to the WNRWF and the development.

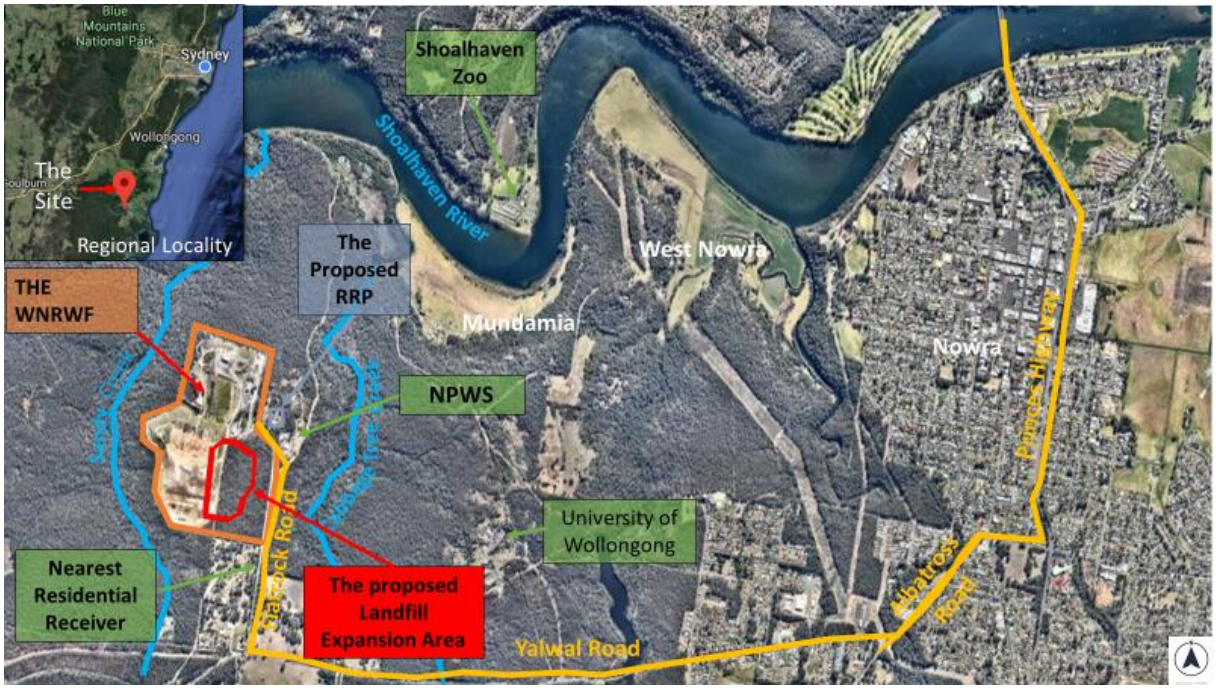

Figure 1 | Site Location

This report describes the development, surrounding environment, relevant strategic and statutory planning provisions and the issues raised in the submissions. The report also evaluates the key issues associated with the development and provides recommendations for managing any impacts during construction and operation. The Department's assessment of the development has concluded it is in the public intertest and should be approved, subject to conditions.

1.2 Development Background

The Applicant is seeking development consent to increase the existing landfill's capacity by constructing an additional six landfill sub-cells to provide a further 1.38 million cubic metres (Mm^3) of landfill capacity. The current landfill is expected to reach capacity in 2026 and additional waste disposal capacity will be required for the Shoalhaven LGA after that date for general solid waste (putrescible), general solid waste (non-putrescible) and asbestos waste.

The Applicant has owned and operated the WNRWF since 1979. The WNRWF currently receives waste from nine waste transfer stations, a domestic waste collection service in the Shoalhaven LGA, and from public and commercial drop-off to the onsite waste transfer station. The WNRWF is the only licenced waste facility in the Shoalhaven LGA that can accept both putrescible and non-putrescible general solid waste.

1.3 Site Description

The WNRWF comprises 73 hectares (ha) of SP2 Infrastructure – Waste and Resource Management Facilities zoned land located at 120 Flatrock Road, Mundamia and includes four lots: Lot 1 in Deposited Plan (DP) 1104402, Lot 1 in DP 870268, Lot 1 in DP 847203 and Lot 1 in DP 1018193.

The proposed landfill extension and associated areas (including access roads, sediment dams, fire trails and a conservation area) (the site) would occur on Lot 1 DP 1104402, Part Lot 1 DP 870268 and Part Lot 1 DP 847203, with the leachate management system extending into Lot 1 DP 1018193.

The site sits within the boundaries of the WNRWF and currently consists of undeveloped native bushland containing mainly Red Bloodwood and Hard-leaved Scribbly Gum trees. The site has an area of approximately 18.6 ha (including approximately 1.4 ha for the proposed new leachate irrigation area) and its topography is relatively flat.

The WNRWF currently includes a landfill (Stages 1 to 3), waste transfer station, garden and wood stockpile and processing area (including shredding and composting) waste stockpile and processing area, small vehicles and community recycling area, weighbridge and offices (see **Figure 2**). Stages 1 and 2 of the landfill have already been filled and capped. The existing, active Stage 3 landfill is currently active and receives approximately 65,000 tonnes per annum (tpa) of waste.

The proposed development (the development), also known as the proposed Stage 4 landfill extension, would be located to the east of the current Stage 3 landfilling area (see **Figure 2**). The Applicant does not propose any changes to the existing waste receival area, waste transfer station, weighbridge and offices, and as such, these do not form part of the SSD application. However, operation of the development (filling the cells with waste) is reliant on the continued use of the existing infrastructure, which is operated in accordance with Council's development consent (DA 90/3061) and the Environment Protection Authority's (EPA) Environment Protection Licence (EPL 5877).

The site is situated on the eastern side of a ridge line and drains to Cabbage Tree Creek approximately 300 metres (m) to the east. Cabbage Tree Creek then drains to join the Shoalhaven River 1.5 km to the north (see **Figure 1**). There is an unnamed ephemeral drainage channel in the south east of the site which has been excluded from the landfill footprint to protect a threatened flora species (the Nowra Heath-Myrtle) located in the vicinity of the drainage channel.

1.4 Surrounding Land Uses

The WNWRF is surrounded by vegetation to the north, east and west. The southern boundary is bordered by rural residential properties, with the closest residential receiver located less than 100 m from the boundary. Approximately 450 m further south is land zoned R1 General Residential. This land is earmarked for the future Cabbage Tree Urban Release Area under Council's Local Environmental Plan (LEP) (see **Figure 3**).

Immediately to the northeast of the site is the National Parks and Wildlife Service (NPWS) Nowra Area Office and Depot. The Applicant's proposed future Resource Recovery Park (RRP) is located just outside and to the north of the WNWRF. Concept Approval for the RRP was approved in 2016 (SSD 7015), however no approval has yet been sought for the construction and operation of the RRP.

1.5 Surrounding Road Network

The site is located on Flatrock Road, a two-lane dead-end road which commences at the intersection of Yalwal Road and terminates at the WNRWF. Flatrock Road connects to the collector roads (low-to-moderate-capacity roads) Yalwal Road, Albatross Road and Kalandar Street which further connect to the Princes Highway at Nowra (see **Figure 3**).

1.6 Other Development Approvals

The existing WNRWF (incorporating Stages 1, 2 and 3 landfills), operates under six Council consents, which are summarised in **Table 1** below:

Table 1 | Summary of Council Consents

DA No.	DA Description	Date Approved
DA 90/3061	The extension and increase in landfill life and capacity of Stage 1, Stage 2, and Stage 3 of the WNRWF.	24 May 1991
DA 90/3061 (Amendment 1)	Amendment to the rehabilitation plan, leachate collection system and location of Stage 1 of the Waste Depot	14 December 1994
DA 90/3061 (Amendment 2)	Amendment to Stage 2 landfill area and the rehabilitation and revegetation plan	17 September 1996
DA08/2388	Construction of a staff amenities building on Lot 1 DP 847203 within the WNRWF	5 November 2008
DA16/1511	Construction of a cover over the existing weighbridge office on Lot 1 DP 1018193 within the WNRWF	14 July 2016
DA16/1432	Approval to construct and operate a Waste Transfer Station on Lot 436 DP 808415 within the WNRWF	16 September 2016

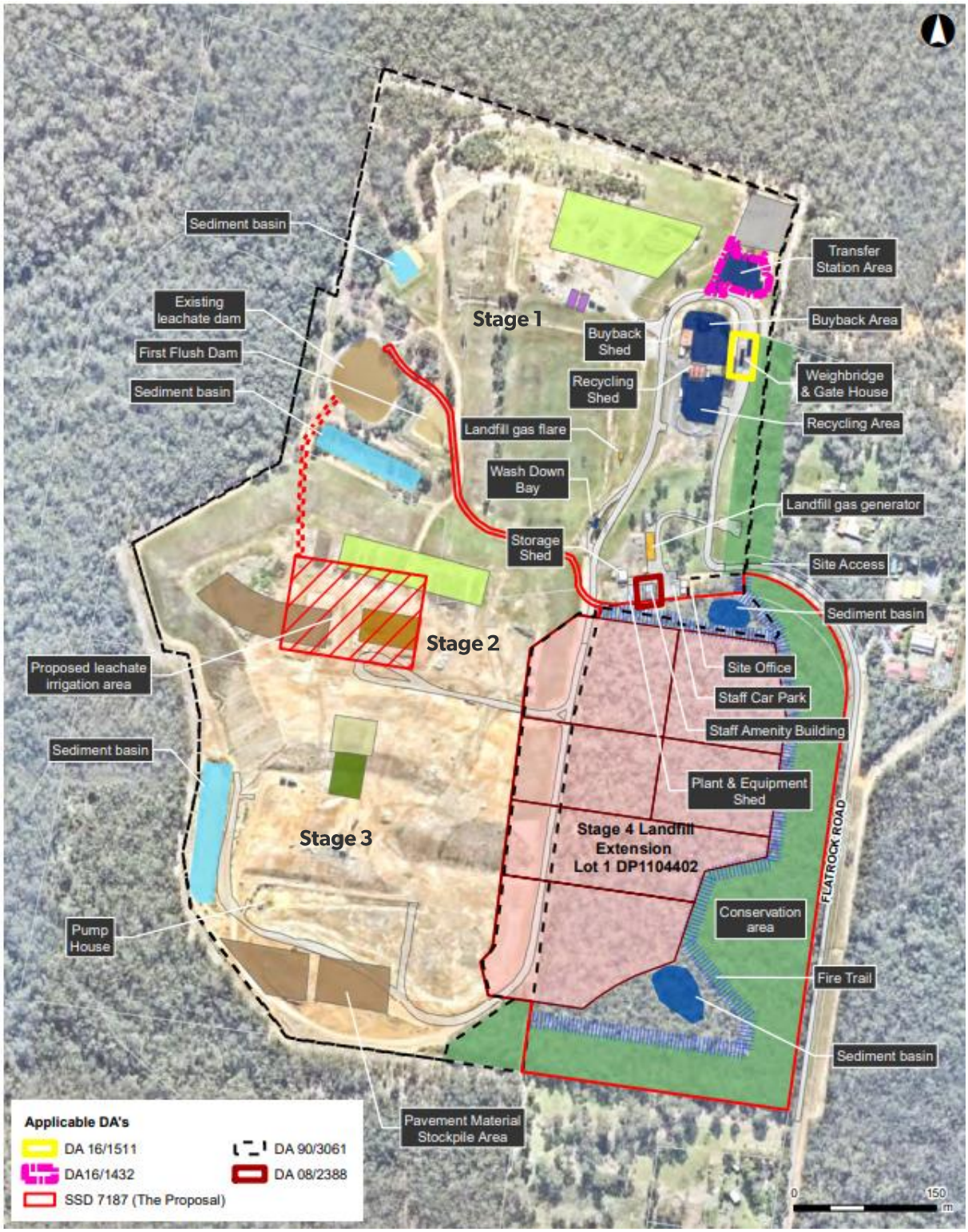

Figure 2 | Layout of the existing WNRWF, showing the location of the proposed development

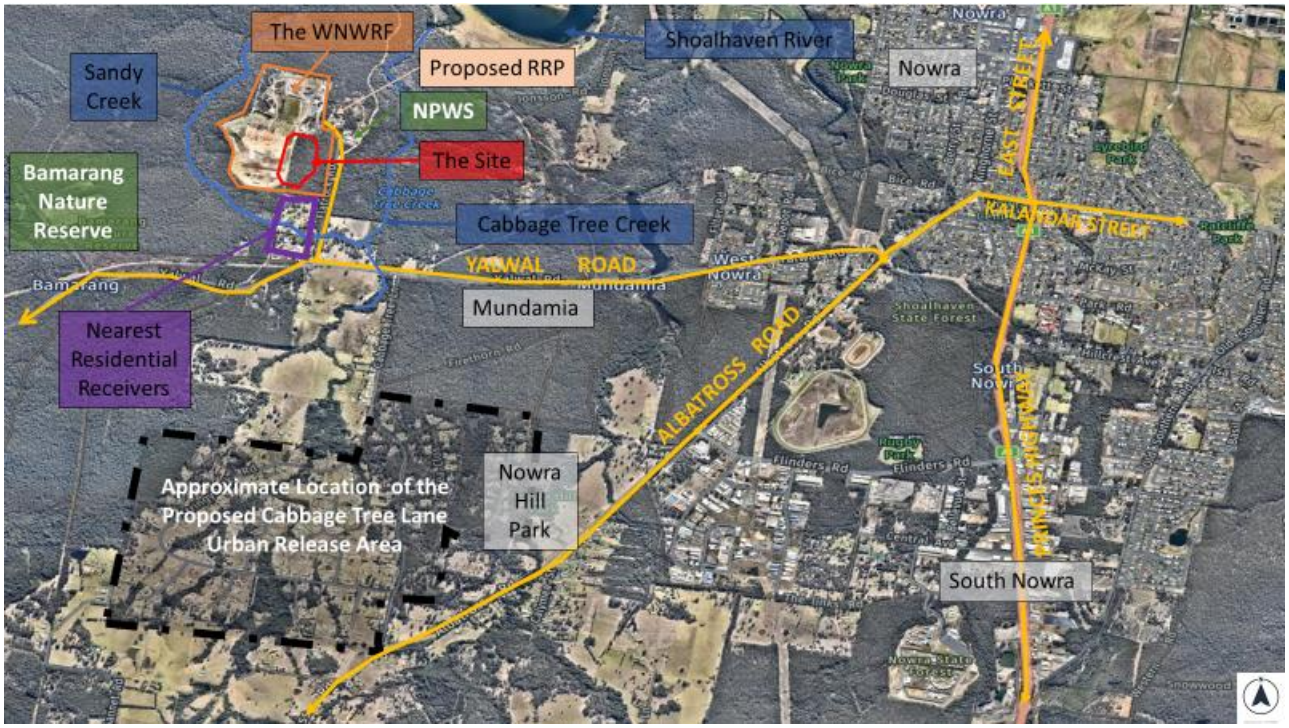

Figure 3 | Surrounding Land Uses

1.7 Resource Recovery Park

The proposed RRP Project would be undertaken over two stages. Firstly, a concept proposal and Stage 1 process which would allow for land clearing, installation of services and site formation. This was approved by the then Minister for Planning on 25 August 2016 (SSD 7015).

Stage 2 involves the construction and operation of the RRP which would be undertaken by an alternative waste technology provider selected through a tendering process to provide the specialised resource recovery facilities. The proposed RRP would process and recycle up to 130,000 tpa of waste, consisting of organic and inorganic wastes from municipal, commercial and construction and demolition sources.

For Stage 2, Secretary's Environmental Assessment Requirements (SEARs) (SSD 9887) were issued on 18 March 2019. In its request for SEARs, the Applicant for SSD 9887 is Bioelektra Australia Pty Ltd (Bioelektra). Bioelektra has indicated the DA for SSD 9887 will be lodged with the Department in August or September 2020. If SSD 9887 is approved, construction of the RRP would take approximately 12-15 months following approval.

2. Project

2.1 Description of the Development

The Applicant proposes to expand the existing landfill at the WNRWF. The major components of the development are summarised in **Table 2**, shown in Error! Reference source not found. and described in the Environmental Impact Statement (EIS) and Response to Submissions (RTS) in **Appendix A**.

Table 2 | Main Components of the Project

Aspect	Description
Summary	• **Expand the landfill capacity at the WNRWF by 1.38 Mm^3**
Landfill Cells (see **Figure 4**)	• Progressively construct, landfill and rehabilitate six landfill cell sub-stages (sub-cell 1 to 6) which would be sequentially filled from south (sub-cell 1) to north (sub-cell 6) • Receive and landfill general solid waste (putrescible) and general solid waste (non-putrescible), waste tyres, and asbestos waste from domestic, commercial and industrial sources in the Shoalhaven LGA
Landfill Capacity and Life Expectancy	• Increase the total capacity of the landfill at WNWRF by 1.38 Mm^3, with a progressive increase in the annual waste acceptance rate up to 160,000 tpa • Stage 4 landfill life: o Step 1 – 10 years o Step 2 – further extending operational lifespan of the landfill, as required
Land Clearing	• 9.87 ha of undeveloped native bushland to be cleared consisting of Red Bloodwood and Hard-leaved Scribbly Gum trees • Progressive clearing during the construction and operation of the development
Leachate Management	• Installation of a new leachate management system collecting and temporarily storing leachate within a leachate drainage blanket graded to leachate collection sumps • From the leachate collection sumps, leachate to be pumped to the existing leachate dam for storage prior to being pumped to and sprayed on a new leachate irrigation area over Stage 2 of the existing landfill
Groundwater Management	• Installation of a leachate barrier layer within the landfill sub-cells to contain leachate and prevent the contamination of groundwater • Installation of additional groundwater wells and the implementation of an environmental monitoring program to monitor any potential impacts to groundwater
Surface Water Management	• Installation of a surface water management system – sediment dams to manage runoff from the open and closed landfill cells, sediment erosion control measures, and surface diversion bunds and swale drains around open excavations (unfilled) and active landfill cells
Landfill Gas Management	• LFG generated from Stage 4 would to be managed by the existing system, with no further additions required
Bushfire Protection	• Construction of: o a 10 m-wide fire trail around the southern and eastern boundary of the Stage 4 landfill cells

Aspect	Description
	○ a 20 m-wide fire break extending to the northern boundary of the development between the existing site office, staff amenity and plant and equipment buildings ○ a 6 m-wide fire trail extending east of the site office to Flatrock Road to surround the site
Rehabilitation and Final Landform	• Final landform concept designed to complement Stage 3 and facilitate draining of surface water in an easterly direction to discharge to the existing ephemeral watercourse • Final landform to include side batter slopes with gradients no greater than 33.3 % and a maximum height of RL 59 m at the western boundary (equivalent to the maximum height of the existing landfill) • Progressive capping and revegetation of landfill cells as they are completed, including post closure monitoring
Habitat Protection	• Establishment of a conservation area in the eastern portion of the site • Installation of three fauna rope bridges to enhance connectivity to the east of the site • Securing of biodiversity offsets in accordance with the requirements of the NSW Biodiversity Offsets Policy for Major Projects
Hours of Work	• Monday to Sunday (8 am to 5 pm) • Closed Public Holidays (except Easter Monday)
Employment	• 4 to 8 construction jobs • No additional operational jobs (ongoing use of existing staff from current operations)
Capital investment Value	• $19,000,000

2.2 Landfill Operation

Currently, the existing Stage 3 landfill receives up to 65,000 tpa of waste. Under Stage 4, the Applicant proposes to continue receiving up to 65,000 tpa of waste initially and then progressively increase up to approximately 160,000 tpa under a 'worst case' scenario.

The Stage 4 landfill would operate in the same manner as Stage 3. Waste collection trucks would enter the WNRWF from Flatrock Road via the gatehouse and weighbridge. The WNRWF operates two weighbridges one for the entering vehicles and one for exiting vehicles. Waste would be inspected and screened at the weighbridge by Council staff to ensure non-conforming waste is not disposed of at the WNRWF. Vehicles would have entry and exit time, vehicle registration, waste type and classification, vehicle type and waste disposal location recorded in the Applicant's electronic waste tracking system.

Waste collection trucks would tip their load at the active tipping face and leave the WNRWF via the exit weighbridge. During wet periods, specific wet weather tipping areas would be used. Large, bulky wastes would be broken up and compacted by a landfill compactor. At the end of each working day, the active tip face would be covered with a minimum 150 millimetres (mm) thick layer of Virgin Excavated Natural Material (VENM) or an alternative daily or intermediate cover material(s) approved by the EPA.

2.3 Staging

The Applicant proposes to stage the development by gradually expanding the landfill into six sub-cells, which would be sequentially constructed and filled from the south to the north. As each sub-cell nears capacity, the Applicant would commence construction of the adjacent sub-cell and progressively close and rehabilitate the

filled landfill sub-cell. This method of construction and operation would provide continuity of waste disposal, operational efficiencies and minimise disturbed areas. Excavated material would be stockpiled and used for cell capping and to meet waste cover requirements. **Figure 4** shows the extent of the sub-cells.

Access to each sub-cell is proposed via access ramps from road infrastructure between Stages 2 and 3 and Stage 4. The base of each sub-cell would be overlaid with a lining system to prevent leachate entering the groundwater, as well as preventing groundwater from rising into the waste.

2.4 Landfill Cell Design

The concept design for the development was undertaken by SLR Consulting Australia Pty Ltd in accordance with the EPA's Environmental Guidelines: Solid Waste Landfills 2016 (Landfill Guidelines). The proposed Stage 4 landfill layout was developed to maximise the available space within the WNRWF, while also considering the constraints from the surrounding area (see **Figure 4**) including:

- the western boundary, which includes the current (Stage 3) and closed (Stage 2) landfills
- the northern boundary, which includes the existing WNRWF, WTS and staff amenities
- the south eastern boundary, which includes the proposed environmental conservation area to protect the endangered Nowra Heath Myrtle
- the southern boundary – the Stage 4 landfill has been designed so that its edge is more than 250 m from the nearest residential receiver.

In addition to site constraints, the key design considerations for the development include requirements for:

- leachate management
- groundwater monitoring
- surface water management
- landfill gas extraction and treatment.

Further details of these systems and their control of environmental impacts are discussed in **Section 6**.

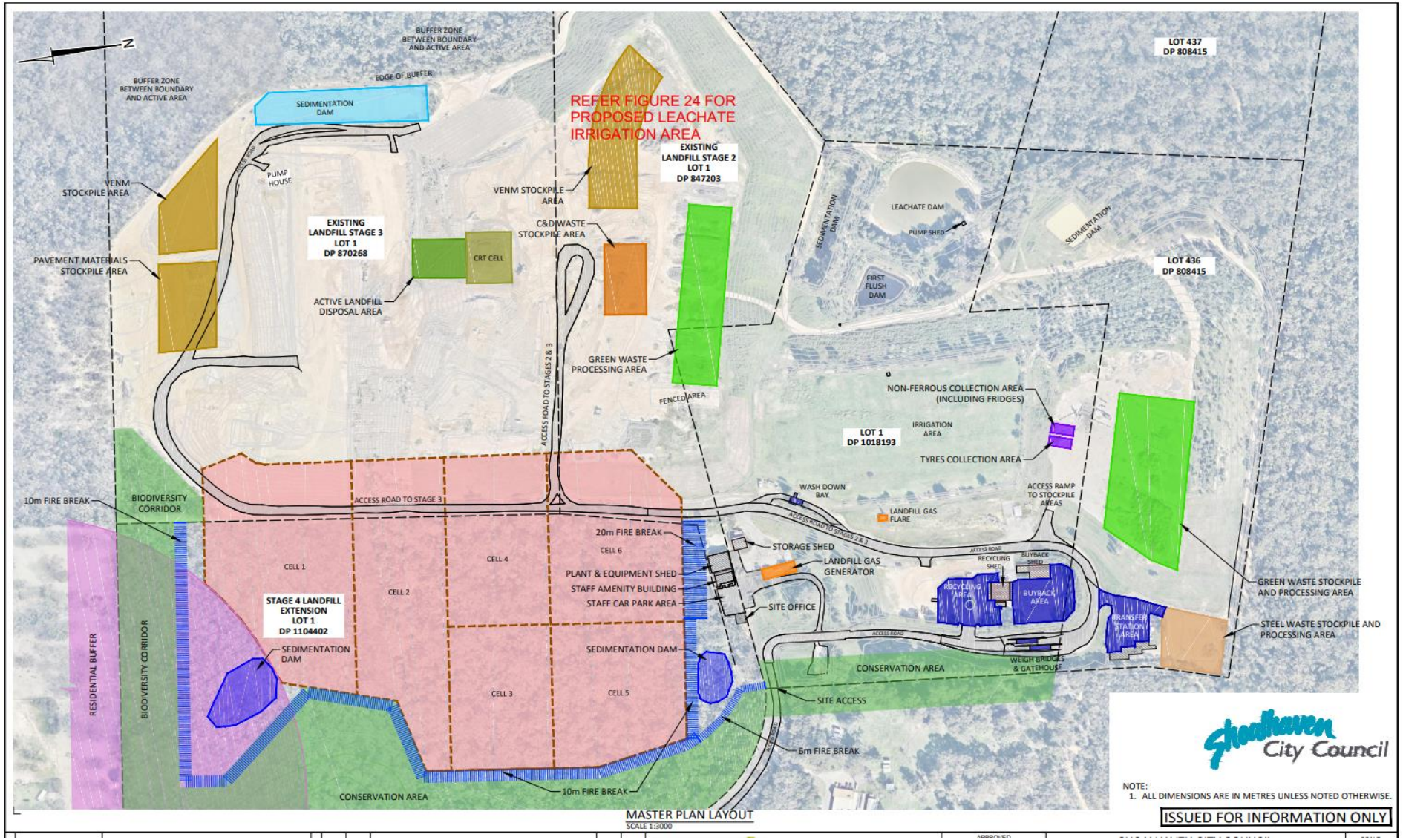

Figure 4 | Master Plan Layout

2.5 Capping and Closure

Each sub-cell would be filled with compacted waste, daily cover and intermediate cover up to the final design contour level. The sub-cell would then be capped in accordance with the Landfill Guidelines, using stockpiled material. Following capping, a revegetation layer of clay and topsoil would be installed to support planting of grass cover of a suitable native species.

2.6 Applicant's Need and Justification for the Development

In 2015, Shoalhaven City Council approved its Waste Reduction Management Strategy 2017-2022 (the Strategy). The key objective of the Strategy was to reduce domestic waste to landfill, increase the recycling rate (Shoalhaven LGA waste diversion rates are currently 41 %) and improve resource recovery across the Shoalhaven region. The Applicant stated while there is a push to improve the diversion rates across the LGA, there still remains the ongoing need for landfill capacity for putrescible and non-putrescible wastes as well as for other wastes, such as asbestos, for which there is no current reuse, recycling or treatment option available. The existing Stage 3 landfill is projected to reach capacity by 2026.

The Strategy considered long-term waste management in the Shoalhaven LGA and considered a range of scenarios to estimate future waste disposal rates and landfill life expectancy. The Applicant's analysis considered population growth and waste generation growth over time, resulting in an estimated 65,000 tpa of waste being generated by 2026 and the need for approximately 1.38 Mm^3 of additional landfill capacity.

In determining the need for the landfill extension, the Applicant undertook landfill life expectancy modelling under four different scenarios, including a worst case scenario The Applicant estimated under a worst case scenario where Stage 4 landfill would operate from 2026 to 2034 and the proposed RRP does not proceed, landfill disposal rates continue to increase in line with the projected growth rates.

The Applicant notes the extension of the existing landfill provides a significant opportunity to utilise an existing, well managed waste disposal location that offers a potential waste diversion facility (RRP) and therefore a coordinated and efficient waste management solution to the area.

3. Strategic Context

3.1 Illawarra Shoalhaven Regional Plan

The Shoalhaven LGA is located within the Illawarra Shoalhaven Subregion and development within the LGA is guided by the Illawarra Shoalhaven Regional Plan (the Regional Plan). The Regional Plan seeks to provide for long term prosperity in the region by ensuring future developments provide a variety of housing choice to meet the needs and lifestyles of local communities, communities are strong, healthy and well connected, the region makes appropriate use of its agricultural and resource lands and the natural environment is enhanced and protected.

The Department considers the development aligns with the objectives and strategies of the Regional Plan. Goal 5 (Direction 5.3) of the Regional Plan seeks to improve the environmental outcomes for waste management as it would provide waste disposal services to support the growing populations predicted in the Shoalhaven region. The proposed landfill extension has also been designed in accordance with the Landfill Guidelines which would ensure the development is constructed and operated to minimise impacts to the environment, human health and amenity.

Additionally, in relation to Goal 5, the Regional Plan seeks to protect the region's environmental values by focussing development in locations with the capacity to absorb it. The development involves the extension of a pre-identified landfill site which is appropriately separated from sensitive receivers and avoids impact on threatened ecological communities and key habitats. The Application seeks to support the protection of the endangered Nowra Heath Myrtle through the provision of a 50 m wide vegetation buffer.

3.2 Waste Avoidance and Resource Recovery Strategy 2014-21 (WARR Strategy)

Reducing waste and keeping materials circulating within the economy are priorities for the NSW Government, as set out in NSW 2021. To meet this important challenge, the government developed the state-wide WARR Strategy. The key result areas of the WARR Strategy are:

1. avoid and reduce waste generation
2. increase recycling
3. divert more waste from landfill
4. manage problem wastes better
5. reduce litter
6. reduce illegal dumping.

The development would contribute to the key result areas, two through to six, through the provision of a best practice landfill within the WNRWF with operational procedures that support the diversion of reusable materials from the landfill.

The Applicant implements measures to prevent illegal dumping and reduce litter (both within the site and adjacent areas) and would continue these measures for the expanded landfill.

4. Statutory Context

4.1 State Significant Development

The development is State significant development (SSD) pursuant to Clause 2, Section 4.36 of the EP&A Act because it involves an extension to a putrescible landfill that meets the criteria in Clause 23 of Schedule 1 in State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). Consequently, the Minister for Planning and Public Spaces (the Minister) is the consent authority for the development.

4.2 Permissibility

The development is located on land zoned SP2 – Infrastructure (Waste and Resource Management Facilities), under the Shoalhaven Local Environmental Plan 2014. The development is permissible with consent in the SP2 zone and is consistent with the objectives of the zone.

4.3 Consent Authority

On 9 March 2020, the Minister delegated the functions to determine SSD applications to the Executive Director Regions, Industry and Key Sites where:

- the relevant local council has not made an objection and
- there are fewer than 50 public submissions in the nature of unique objections and
- a political disclosure statement has not been made.

The Department received seven submissions, including six from public authorities and one from the public. No reportable political donations were made by the Applicant in the last two years and no reportable political donations were made by any persons who lodged a submission.

Accordingly, the application can be determined by the Executive Director, Regions, Industry and Key Sites under delegation.

4.4 Other Approvals

Under Section 4.42 of the EP&A Act, other approvals may be required and must be approved in a manner that is consistent with any Part 4 consent for SSD under the EP& A Act.

The WNRWF currently operates under an Environment Protection Licence (EPL 5877). The EPA has advised the development would require a variation to the EPL under the *Protection of the Environment Operations Act*, 1997 POEO Act and has provided recommended conditions consistent with those that would be included in the EPL for the development, should it be approved.

4.5 Considerations under Section 4.15 of the EP&A Act

Section 4.15 of the EP&A Act sets out matters to be considered by a consent authority when determining a development application. The Department's consideration of these matters is presented throughout **Section 6** and summarised in **Appendix B**. In summary, the Department is satisfied the development is consistent with the requirements of section 4.15 of the EP&A Act.

4.6 Environmental Planning Instruments

Under section 4.15 of the EP&A Act, the consent authority, when determining a development application, must take into consideration the provisions of any environmental planning instrument (EPI) and draft EPI (that has been subject to public consultation and notified under the EP&A Act) that apply to the development.

The Department has considered the development against the relevant provisions of several EPIs including:

- State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP)
- State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)
- State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)
- State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)
- State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)
- State Environmental Planning Policy No. 64 – Advertising and Signage (SEPP 64)
- Shoalhaven Local Environmental Plan 2014 (SLEP)

Development Control Plans (DCPs) do not apply to SSD under Clause 11 of the SRD SEPP. However, the Department has considered the relevant provisions of the Shoalhaven City Council Development Control Plan 2013 (SCCDCP) in its assessment of the development in Section 6 of this report.

Detailed consideration of the provisions of all EPIs that apply to the development is provided in **Appendix C**. The Department is satisfied the development generally complies with the relevant provisions of these EPIs.

4.7 Public Exhibition and Notification

In accordance with Section 2.22 and Schedule 1 to the EP&A Act, the development application and any information accompanying an SSD application are required to be publicly exhibited for at least 28 days. The application was placed on public exhibition from 28 June 2019 until 29 July 2019 (31 days). Details of the exhibition process and notifications are provided in **Section 5** of this report.

4.8 Objects of the EP&A Act

In determining the application, the consent authority should consider whether the development is consistent with the relevant Objects of the EP&A Act. These objects are detailed in Section 1.3 of the Act. The Department's consideration of the relevant Objects of the EP&A Act is provided in **Table 3** | Considerations of the Objects of the EP&A Act.

Table 3 | Considerations of the Objects of the EP&A Act

Object	Consideration
(a) *to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources*	The development would ensure the proper management and conservation of natural resources, including native vegetation on the site. The Applicant has committed to implementing a biodiversity offset strategy (BOS) prior to clearing for Stage 4 to ensure biodiversity impacts are adequately offset. The Applicant would provide and maintain a 50 m wide buffer to protect the endangered Nowra Heath Myrtle as part of the development.
(b) *to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment*	The development is consistent with the principles of ESD as it would utilise an existing landfill for continued waste disposal of the region's waste without adverse impacts on the environment.
(c) *to promote the orderly and economic use and development of land*	The development would ensure the orderly and economic use of the land, as the development would use existing

Object	Consideration
	waste infrastructure for on-going waste disposal for the Shoalhaven LGA.
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats	The development has been designed to avoid impacts on native animals and plants, with the remaining impacts to be offset through implementation of a BOS. The Applicant has also designed the development to incorporate a fauna rope bridge to enhance connectivity to the bushland east of the development where Squirrel Gliders have been detected.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State	The Department has assessed the development in consultation with, and giving due consideration to, the technical expertise and comments provided by other government authorities, consistent with the object of sharing the responsibility for environmental planning.
(j) to provide increased opportunity for community participation in environmental planning and assessment	The application was exhibited in accordance with Schedule 1 of the EP&A Act to provide opportunity for public involvement and participation in the assessment. Section 5 provides further details of the public participation process.

4.9 Ecologically Sustainable Development

The EP&A Act adopts the definition of ESD found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) the precautionary principle
(b) inter-generational equity
(c) conservation of biological diversity and ecological integrity
(d) improved valuation, pricing and incentive mechanisms.

The potential environmental impacts of the development have been assessed and, where potential impacts have been identified, mitigation measures and environmental safeguards have been recommended.

As such, the Department considers that the development would not adversely impact on the environment and is consistent with the objectives of the EP&A Act and the principles of ESD.

4.10 *Environment Protection and Biodiversity Conservation Act 1999*

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), assessment and approval is required from the Commonwealth Government if a development is likely to impact on a matter of national environmental significance (MNES), as it is considered a 'controlled action'. The EIS included a preliminary assessment of the MNES checklist and concluded the development would not impact on any of these matters and is therefore not a 'controlled action'. As such, the Applicant determined a referral to the Commonwealth Government was not required.

5. Engagement

5.1 Consultation

The Applicant, as required by the SEARs, undertook consultation with relevant local and State authorities as well as the community and affected landowners. The Department undertook further consultation with these stakeholders during the exhibition of the EIS and throughout the assessment of the application. These consultation activities are described in detail in the following sections.

Consultation by the Applicant

The Applicant prepared a Consultation Plan to raise awareness of the development in the local community, to ensure a transparent and accountable community involvement process, document community input and manage community expectations. This included:

- letterbox drop undertaken in October 2015; a letter was also was sent via mail to account card customers of the WNRWF
- a dedicated webpage on the Applicant's website
- advertisements placed in the public notices section of the South Coast Register and Milton Ulladulla Times on 14 October 2015
- public information sessions which were held on Tuesday 13 October 2015 and Wednesday 14 October 2015 with a site tour conducted on 15 October 2015.

From Applicant's consultation process, the Applicant received three community submissions, the submissions raised concerns regarding traffic, litter, leachate, noise, air quality and odour and flora and fauna. The Applicant responded directly to these stakeholders in writing, notifying each community member how their concerns would be addressed in the EIS process.

Consultation by the Department

After accepting the EIS for the application, the Department:

- made it publicly available from **28 June 2019** until **29 July 2019** (31 days):
  - on the Department's website
  - at NSW Service Centers
  - at the Department's Sydney office
  - at Shoalhaven City Council offices
- notified landowners in the vicinity of the site about the exhibition period, by letter
- notified relevant State government agencies and Council, by letter
- advertised the exhibition in the Shoalhaven and Nowra News and the Nowra South Coast Register.

All notification and public participation statutory obligations have been satisfied.

The Applicant provided a Response to Submissions (RTS) in October 2019 and a revised Air Quality Impact Assessment (AQIA) in January 2020, which was provided to government authorities for review and published on the Department's website (see **Appendix A**).

5.2 Summary of Submissions

During the exhibition period, a total of seven submissions were received, including six from government agencies and one from the public. Of the seven submissions received, one objected to the development. A link to each submission is included in **Appendix D**.

Key Issues – Government Agencies

Council noted the traffic impact assessment (TIA) did not consider the potential urban land releases fronting Flatrock Road and requested that all biodiversity credits be retired on a like-for-like basis within the Shoalhaven LGA.

The **EPA** did not object to the development, however, did request additional assessment information in relation to the following:

- the site water balance, including all calculations and assumptions for the sizing of the proposed surface water and leachate management structures and average groundwater depths
- landfill gas accumulation monitoring data
- a revised AQIA to demonstrate the odour emission rates adopted within the assessment are representative of the current and proposed operations
- project specific odour assessment criteria that consider the population (including commercial receptors) of people affected by 2 OU or greater
- investigation of options to achieve compliance with the project odour impact assessment criteria and identify contingency measures that can be implemented to reduce the modelled risk of offsite odour impacts.

The **Department of Planning Industry and Environment** (DPIE) (Environment Energy and Science) (EES) (formerly OEH) identified Aboriginal community consultation was not conducted in accordance with *National Parks and Wildlife Regulation 2009* and requested this be undertaken. In addition, EES requested the Applicant:

- prepare a Biodiversity Offset Strategy (BOS) outlining how the offsets for the development will be delivered
- engage an archaeologist to inspect the location of the proposed six poles for the fauna rope bridge crossings
- develop a protocol in consultation with the Aboriginal community, if unanticipated Aboriginal objects are discovered
- prepare an Aboriginal Heritage Management Plan (AHMP).

Rural Fire Service (RFS) did not object to the to the development and requested the Applicant comply with the requirements outlined in a letter to the Applicant dated 6 December 2017, including several requirements relating to asset protection zones, water and utilities, access to the site and emergency and evacuation planning.

DPIE (Water and the NSW Natural Resource Regulator (NRAR)) and (Agriculture) did not object to the development and requested the Applicant to:

- conduct ongoing monitoring and reporting of groundwater
- prepare a contingency response plan should groundwater levels rise above a nominated threshold
- consider management measures for any potential biosecurity and amenity issues that landfill developments could pose on agriculture.

Transport for NSW (TfNSW) did not object to the development and noted the development would not have a significant impact on Princes Highway.

The Department also raised several issues regarding, noise, traffic, independent audit requirements, odour exceedances, fire and incident management.

Community Key Issues

The Department received one submission from the public during the exhibition period. The submission objected to the development and its potential traffic, noise and air quality impacts on the future residents located in the Mundamia and Cabbage Tree Lane Urban Release Areas (see **Figure 3**). The Department has considered these issues in its assessment of the application (see **Section 6)**.

5.3 Response to Submissions (RTS)

In October 2019, the Applicant provided an RTS report to address the issues raised. The RTS was accompanied by a Landfill Environmental Management Plan (LEMP), Pollution Incident Response Management Plan (PIRMP), independent environmental audit, a BOS and additional water data including water balances, leachate dilution assessment and a groundwater elevation review (**Appendix A**). The RTS was provided to key government authorities to consider whether it adequately addressed the issues raised in their respective submissions. Further responses to the RTS are discussed below:

DPIE (EES) was satisfied with the BOS and recommended a condition of consent requiring the retirement of the requisite credits as outlined in the BOS.

Council was satisfied with the RTS and provided no further comment in relation to the development.

DPIE (NRAR and Agriculture) was satisfied with the RTS and provided no further comment in relation to the development.

The **EPA** was generally satisfied noise, groundwater and landfill gas were addressed by the Applicant in the RTS report, however noted ongoing concerns relating to the odour modelling and leachate management. The EPA requested the odour modelling be revised as discrepancies identified in the AQIA were causing exceedances in the predicted odour impacts at residential and commercial receivers.

On 11 December 2019, the Department, the Applicant and the EPA met to discuss the ongoing concerns relating to the odour modelling. It was agreed the Applicant would provide additional odour modelling to address the EPA's concerns.

On 23 January 2020, the Applicant submitted a revised AQIA to address the EPA's concerns in relation to the odour modelling. In February 2020, the EPA indicated it was satisfied with the revised AQIA and recommended conditions of consent.

During its detailed assessment of the application, the Department raised concerns with the EPA regarding the proposed leachate irrigation system and whether there were adequate controls in place to prevent any potential offsite discharges. In response, the Department and EPA requested clarification from the Applicant (on 2 March 2020) on the proposed leachate irrigation system, leachate production rates and management contingencies. On 16 March 2020, the Applicant provided a response. On 24 March 2020, the EPA provided additional recommended conditions of consent.

6. Assessment

The Department has considered the EIS, issues raised in submissions and the RTS in its assessment of the development.

- landfill lifespan
- leachate
- surface water and groundwater
- air quality and odour
- biodiversity

Several other issues have also been assessed including waste management operations, odour, noise, landfill gas, traffic, rehabilitation, final landform and heritage, see **Section 6.6**.

6.1 Landfill Lifespan

The Applicant is seeking approval to expand the landfilling area at the WNRWF. The current landfill is expected to reach capacity in 2026 and without additional waste disposal capacity, the WNRWF would be unable to meet the future waste disposal requirements of the Shoalhaven LGA. In determining the need for the landfill extension, the Applicant undertook landfill life expectancy modelling under four different scenarios (see **Table 4**).

Table 4 | Landfill Life Expectancy Modelling Scenarios

Scenario	Scenario Description	Outcomes
Scenario 1 ('do nothing scenario')	• existing landfill at WNRWF only (no extension)	• current landfill would reach capacity in approximately 2026 • not considered suitable as there would be no waste disposal options for the LGA after 2026
Scenario 2	• the existing landfill at WNRWF only (no extension) • RRP proceeds and opens in 2021	• the RRP would extend the life expectancy of the existing landfill (Stage 3 landfill), however additional landfill space would still be required in 2029
Scenario 3	• the existing landfill at WNRWF with the addition of the Stage 4 landfill extension • RRP proceeds and opens in 2021	• the RRP would increase the life expectancy of both the existing landfill and Stage 4 landfill through waste diversion and decreased waste to landfill. • the Stage 4 landfill would commence in 2026 then reach capacity in 2044 (18 year lifespan) • could operate for a much longer timespan (30 years)
Scenario 4 ('worst case scenario')	• existing landfill at WNRWF with the addition of the Stage 4 landfill extension and the RRP does not proceed	• without waste diversion from the RRP, the Stage 4 landfill would have capacity from 2026 until approximately 2034 (eight year lifespan).

The Applicant's landfill capacity modelling took into consideration the life expectancy of the existing landfill at the WNRWF, population growth rate, waste generation growth rate and the interaction with the future RRP. All four scenarios simulated future circumstances using conservative parameters, such as future population growth (2 % per annum) and growth in the waste generation rate of 3 % per annum.

The Applicant considers Scenario 4 to be the worst case scenario. Scenario 4 adopts 'business as usual' waste disposal and assumes that additional diversion of waste from landfill by the RRP would not occur. In this case, the Stage 3 landfill would reach capacity in 2026 and the Stage 4 landfill would then fill with waste at the projected rate and reach capacity within eight years of opening (2034). Additionally, Scenario 4 is considered to represent a worst case because up to 1.38 million m^3 of waste would be landfilled in a more compressed timeframe of eight years rather than over 18 years. This has the potential to increase the intensity of offsite impacts to air, noise and traffic compared to landfilling over a longer timeframe. The Applicant adopted Scenario 4 (worst case) as the basis of the EIS and noted the technical studies assess the environmental impacts of the development in a very conservative manner.

In the EIS, the Applicant seeks approval for the Stage 4 landfill for up to 30 years, which represents operation of the RRP from 2021 with the addition of future potential improvements in waste diversion rates, government policy and operational and technological improvements. However, the Department notes the RRP is now unlikely to commence operation in 2021 and the future waste diversion improvements were not further justified or quantified in the EIS.

Environmental impacts were modelled under the eight year 'worst case' scenario, however the Department is aware the landfill could operate for a much longer timespan if it was filled more slowly with waste. The Applicant has advised that a lower annual filling rate would be more realistic than the 'worst case' scenario and would most likely result in lower impacts for certain issues as landfilling would be less intense.

The Department is conscious of the waste disposal requirements of the Shoalhaven community and the need for the Applicant to provide ongoing landfill security to its residents. It also acknowledges the Applicant has operated the landfill (Stages 1-3) since 1979 and provides waste management infrastructure for the Shoalhaven LGA. Based on the information provided regarding the 'worst case' scenario, the Department is satisfied the development's impacts could be appropriately managed for eight years, subject to conditions. However, even though it appears longer-term impacts (18 or 30 year scenarios) have not been clearly modelled or assessed beyond eight years, the Department notes the environmental impact modelling undertaken was undertaken using conservative assumptions. For this reason, based on information provided about more realistic landfilling rates, the Department is satisfied the conservative nature of the modelling demonstrates the development could be operated with minimal impacts for up to 10 years.

While the Department is satisfied the development can operate with minimal impacts for 10 years, there is still some level of uncertainty about impacts to surrounding sensitive receivers beyond 10 years, especially considering potential cumulative impacts with the future RRP. To address this, the Department has recommended a number of conditions concerning management of impacts, including the development consent be issued as a 'partial consent' under section 4.16(4) and section 4.16(5) of the EP&A Act.

The 'partial consent' grants consent for the development (being construction of the Stage 4 landfill, as described in **Table 2**), except for one aspect of the development, being lifespan. The Department has recommended the aspect of lifespan be limited to 10 years until further approval has been obtained from the Minister (referred to as Step 2).

In seeking the further approval under the partial consent, the Applicant will be required to demonstrate the impacts of the development can be appropriately mitigated and managed beyond 10 years. To this end, the Department has recommended that to obtain approval for Step 2 (longer lifespan), the Applicant must prepare a Landfill Plan

(LP) that would justify the increased lifespan and demonstrate the impacts of the Stage 4 landfill can be managed in the long-term, in particular the future traffic, noise and air quality impacts as well as the cumulative impacts from the operation of the RRP (if constructed), to the satisfaction of the Planning Secretary.

While this 'partial consent' limits the extension of the landfill initially for 10 years, the Department is confident this framework will provide Council the opportunity to continue landfilling operations at the site subject to further verification. The approach also provides a balance by both ensuring the future landfill needs of Council and the Shoalhaven LGA can be met while potential impacts on off-site receivers can be safeguarded. The Department's assessment concludes that impacts can be managed while ensuring the short and long-term waste management needs of the Applicant can be met.

6.2 Leachate

Leachate is liquid waste generated by waste decomposition and from water passing through waste and extracting contaminants from it. The volume of leachate is influenced by the amount of rainfall that infiltrates the landfill cell.

The development has the potential to produce leachate that, if not properly managed, can enter groundwater or surface water on or near the WNRWF. A key aspect of landfill management is the minimisation and management of leachate. The Applicant notes there is no sewer connection at the WNWMF and therefore the leachate must be managed onsite.

Leachate Management Strategy

The Applicant's overall leachate management strategy includes:

- a leachate management system including a leachate barrier within the landfill cell liner, collection pipes, the existing leachate dam located on Stage 1 landfill and onsite disposal via spray irrigation over the closed Stage 2 landfill
- prevention of surface water infiltration through daily and intermediate landfill cover, progressive capping and final capping design
- profiling of the landform to facilitate runoff and minimise ponding and leachate generation
- groundwater monitoring to detect any failures of the leachate management system (further discussed in **Section 6.3**).

Leachate Management System

The proposed leachate barrier system (landfill cell liner) incorporates a network of slotted leachate pipes with a 200 mm central (spine) leachate pipe and 150 mm spur pipes within a 300 mm thick gravel layer. The maximum spacing of leachate collection pipes would be 25 m, laid at longitudinal grades of between >1 % and >3 % to promote the flow of leachate to the leachate sumps (see **Figure 5**). A geotextile layer would be placed over the leachate collection layer to minimise fines migration.

From the sumps, a series of leachate extraction pipes would draw leachate from the base of the landfill cell to the surface by a series of submersible pumps. The pumped leachate would be directed to the existing leachate dam on the capped Stage 1 landfill for storage prior to being pumped to a 14,000 m^2 new irrigation area for controlled disposal via spray irrigation (see **Figure 6**). The Applicant proposes to remove the clay cap of the Stage 2 landfill where the irrigation system is to be located. The cap would then be replaced with 1,400 mm silty sand and 200 mm of topsoil to allow for infiltration. In addition to receiving Stage 4 landfill leachate, the existing leachate dam would continue to receive leachate from the Stages 1, 2 and 3 landfill cells. The quality of leachate generated is expected to be similar to that generated by the existing Stage 2 and Stage 3 landfills.

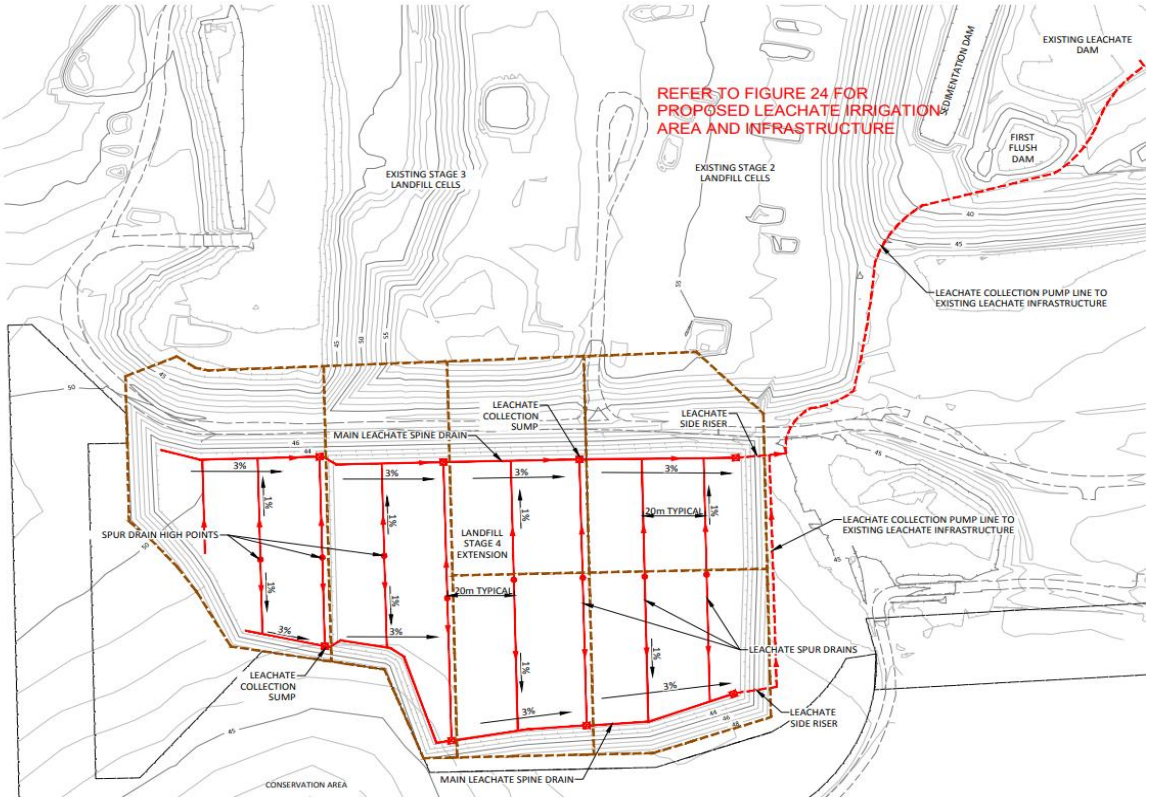

Figure 5 | Proposed Leachate Drainage Layout

The Applicant noted the existing irrigation area at the WNRWF is situated above the unlined Stage 1 landfill cell, whereas the new irrigation area would be situated above the lined Stage 2 landfill. This would reduce the likelihood of leachate migrating into the groundwater compared to the existing situation and represents an improved environmental outcome.

In the event the pumps fail, the Applicant's contingency plan involves maintaining the leachate dam at low level to ensure it can accommodate additional leachate in the event of heavy rainfall while the pump is being replaced.

Leachate Generation

The EIS included an assessment to evaluate the capacity of the proposed leachate management system to collect, treat and dispose of leachate from the Stage 4 landfill.

To predict the volume of leachate that would be generated, the Hydrological Evaluation of Landfill Performance (HELP) model was used The Applicant modelled a worst case scenario based on historically wetter years to estimate the existing leachate dam's capacity to accommodate the additional leachate that would be generated from the proposed Stage 4 landfill. The water balance confirmed the current leachate storage pond has sufficient capacity to accommodate 7,390.6 m^3 of leachate generated by Stages 1-4 if a new irrigation area of 14,000 m^2 is established.

The Department and the EPA raised concerns regarding the leachate irrigation system. The Department requested additional information about the existing leachate and surface water management system and the connection between the proposed and existing management infrastructure. The EPA noted only a summary of the water balance had been provided in the EIS and therefore could not verify if the proposed leachate management system could achieve the performance required by the Landfill Guidelines. The EPA requested the Applicant provide a full copy of the of the water balance including calculations and justifications for the proposed leachate management system.

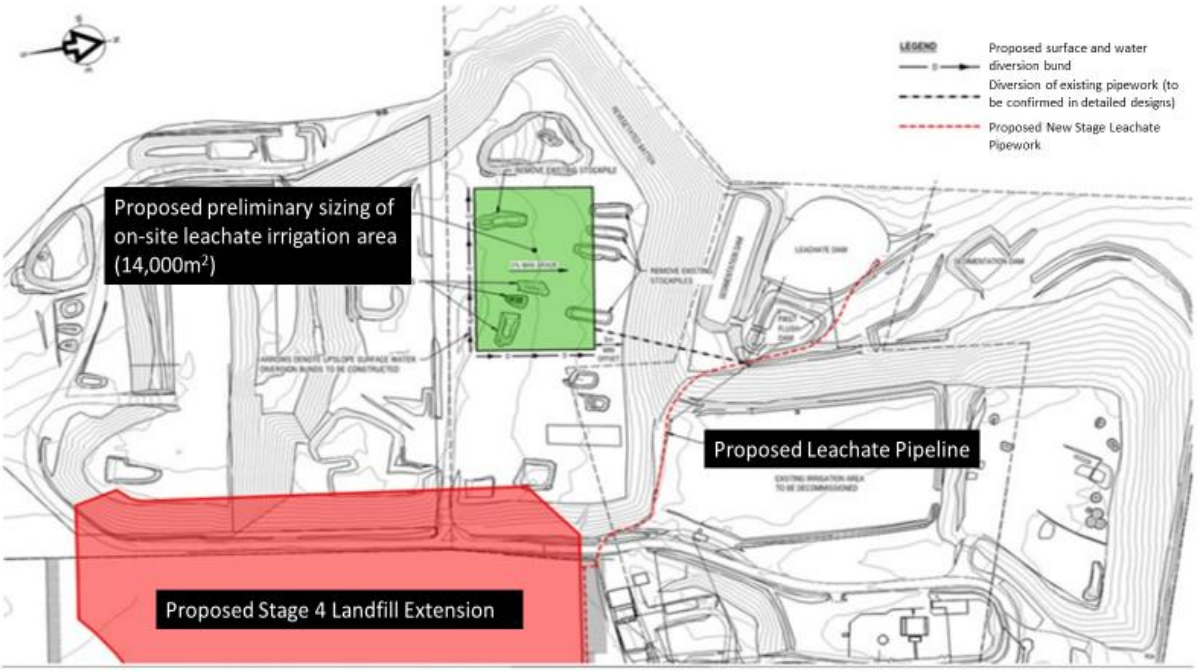

Figure 6 | Proposed Stage 4 Irrigation Area

In the RTS, the Applicant responded to the Department and EPA's concerns by providing additional explanation of the existing leachate management system and provided a full copy of leachate management system water balances, including calculations and assumptions used. The EPA was not entirely satisfied with the Applicant's RTS and requested further information on the proposed leachate management system. It was concerned as the Applicant was proposing to remove the clay cap, percolation rates could increase and contribute to increased quantities of leachate being generated from the Stage 2 landfill and it was unclear whether the water balance accounted for the increased infiltration rates. Further details were also requested about contingency measures to be employed in the event that irrigation at the rates assumed in the water balance were not accurate.

The Applicant reiterated the new cells have been designed in accordance with the Landfill Guidelines and the proposed leachate management system presented in the EIS was a concept design and a more detailed design for the development would be prepared in a Landfill Design Report. Following its review of the information presented in the RTS, the EPA had no further comments on the design of the leachate management system and recommended a suite of stringent conditions to manage leachate and verify the performance of the leachate management system against the predictions made in the EIS.

Department's Consideration

The Department has reviewed the proposed leachate management system and advice provided by the EPA. The Department is satisfied the proposed leachate collection system has been designed in accordance with the Landfill Guidelines. The Department considers the existing leachate dam has sufficient capacity to accommodate the additional leachate generated by landfill Stages 1-4 and the leachate disposed by spray irrigation over the Stage 2 landfill would be managed and monitored to ensure there are no offsite impacts on surface water and groundwater.

The Department has incorporated the EPA's recommended conditions (summarised below) to ensure leachate is adequately monitored and managed to minimise potential offsite impacts on surface water, groundwater and soil. The Department requires the Applicant to:

- prepare a landfill design report which details the design, construction, operation and rehabilitation of any new landfill cell
- prepare a Leachate Management Plan prior to construction detailing the specific measures to prevent leachate from contaminating surrounding surface water, groundwater and soils
- commission an independent Leachate and Water Management System Audit to assess the performance of the leachate management system.

The leachate management system would remain in place to capture and treat leachate following final capping and closure of the Stage 4 landfill after 2034. The Department has recommended a condition requiring the Applicant to detail within a Landfill Closure Plan (LCP) the procedures for on-going leachate management after closure.

The Department considers the recommended conditions will ensure leachate from the expanded landfill will be adequately monitored and managed to minimise potential offsite impacts on surface water, groundwater and soils.

The Department's assessment concludes the leachate management system can achieve the performance required by the Landfill Guidelines and can be incorporated into the existing site infrastructure, including development of a proposed new leachate irrigation disposal area located over the existing closed Stage 2 landfill area. To ensure the leachate collection system is performing adequately, the Department has recommended conditions requiring the Applicant to identify specific measures to minimise potential offsite impacts from the expanded landfill, audit the performance of the leachate management system and identify the on-going leachate management required after closure.

6.3 Surface Water and Groundwater

The Stage 4 landfill extension has the potential to impact on surface water in Cabbage Tree Creek and Sandy Creek within the Shoalhaven catchment. The development also has the potential to impact on groundwater by intercepting flows or contaminating groundwater with leachate. The EIS included a surface water and groundwater assessment to determine potential impacts and propose specific management controls.

Surface water

The existing landfill drains towards Sandy Creek which is located 225 m to the west along the western boundary of the existing WNRWF. The proposed Stage 4 landfill would drain towards an ephemeral drainage line located at the eastern side of the proposed Stage 4 landfill, which drains into Cabbage Tree Creek approximately 300 m to the east. Both Cabbage Tree Creek and Sandy Creek flow to the Shoalhaven River. The EIS identified there was no available data on the baseline water quality of Cabbage Tree Creek and there was limited monitoring data collected from Sandy Creek.

Surface water on the WNRWF is currently directed away from waste storage areas and the active landfill and intercepted by a system of cut-off drains which direct water around the site to a first flush dam and stormwater collection dams. Water from the dams is used onsite for dust suppression and discharged following rainfall events (after sediments have settled) to maintain capacity for the next rainfall event. The Applicant has designed the Stage 4 landfill surface water system to both compliment the Stage 3 landfill and facilitate draining of surface water to sediment dams to manage runoff from the open and closed landfill cells during the active life of the Stage 4 landfill. **Figure 7** shows the location of the two final basins, which would remain in place following capping and closure of the Stage 4 landfill. The Applicant currently conducts quarterly monitoring of the sediment basins and monitoring of discharges, in line with the existing EPL.

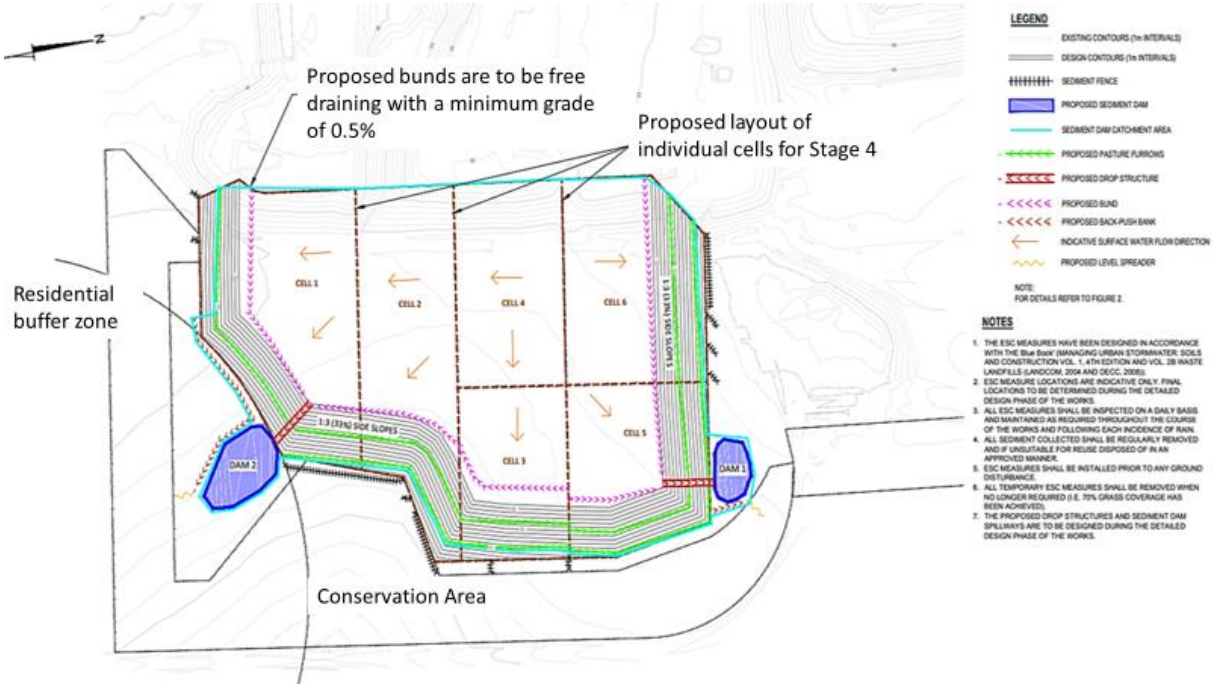

Figure 7 | Proposed Surface Water and Sediment Control

The EPA, NRAR and DPIE Water reviewed the surface water assessment in the EIS. DPIE Water and NRAR did not raise concerns or recommended conditions for surface water management. The EPA provided recommended conditions requiring erosion and sediment control measures to be implemented during construction and the preparation of a Surface Water Management Plan to detail an ongoing surface water monitoring program and establish an agreed site water balance.

The Department has reviewed the surface water assessment and comments provided by the EPA. The Department supports the reuse of captured stormwater on the site for dust suppression and notes the EPL would require regular monitoring of water quality. The Department has recommended conditions that require the Applicant to:

- maintain erosion and sediment controls during the commencement of construction
- ensure the surface water management system is designed, installed and maintained for the life of the development
- ensure surface water quality is monitored and managed in accordance with the EPL
- prepare a SWMP which outlines a program to monitor surface water flows and quality, a water balance, measures to divert clean surface waterways from operational areas

With these conditions in place, the Department concludes the surface water impacts of the development would be adequately monitored and managed to divert clean water away from the operational area and to sufficiently capture and retain flows in sediments basins on site.

Groundwater

The EIS noted groundwater at the site is located between 5.5 m to 12 m below natural ground level (mbgl) and flows to the south west towards Sandy Creek at the existing landfill and flows predominantly east at the Stage 4 landfill site, discharging into Cabbage Tree Creek.

The Applicant maintains 24 monitoring bores across the existing landfill and an additional seven monitoring bores at the Stage 4 landfill site. Monitoring from groundwater bores downgradient of the Stage 2 landfill area has identified ammonia-N, nitrogen and heavy metals below Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2000 (ANZECC Guidelines). The Applicant has attributed this to leachate from the Stage 2

landfill area, however the contaminants are concentrations levels below the ANZECC Guideline trigger levels and don't require further investigation. The Applicant stated, the leachate indicators (such as ammoniacal nitrogen, biological oxygen demand and salinity) are significantly lower downgradient of the Stage 2 landfill than those recorded downgradient of the existing leachate irrigation area on the unlined Stage 1 landfill. The Applicant proposes to divert Stage 4 leachate to the existing leachate dam and develop a new irrigation area over the Stage 2 (closed and lined) landfill. Based on the review of groundwater quality data, the Applicant noted the liner in Stage 2 is performing adequately and relocation of the irrigation area from the Stage 1 landfill area to the Stage 2 landfill area would improve leachate management at the site and, as a result, reduce contaminant levels in the groundwater.

In its submission, the EPA raised concern regarding the influence of the groundwater inflow from the unlined Stage 1 landfill cell. The EPA noted previous studies commissioned by the Applicant had shown the potential for groundwater to enter the leachate storage dam via the unlined Stage 1 landfill and groundwater influence should be considered in the water balance. The EPA also raised concern the buffer distance between the Stage 4 landfill design cell floor elevation and the average groundwater elevation across the site was insufficient. This could allow raised groundwater levels to potentially damage the landfill lining and allow groundwater intrusion into the cell.

In the RTS, the Applicant noted geotechnical investigation of the existing leachate dam clay base liner determined it was suitable to act as a liner and the groundwater quality monitored downgradient does not show any evidence of leakage from the leachate dam. The Applicant concluded there was no evidence the leachate dam is diluted by groundwater and as such amendments to the water balances were not required. The Applicant noted continuous monitoring of groundwater elevations within the bores installed in the proposed Stage 4 extension area have shown minimal fluctuations, particularly in response to a wetter than average periods and therefore groundwater intrusion into the landfill cell was unlikely. The Applicant noted additional groundwater bores will be installed monitor any potential changes to groundwater levels and groundwater quality.

The EPA raised no further concern regarding groundwater levels at the site. NRAR and DPIE Water, however, upon review of the RTS requested a condition requiring the Applicant to monitor groundwater levels across the site including changes to groundwater levels attributed to rainfall.

The EPA also raised further questions in relation to groundwater inflows being excluded from the leachate production model. The Applicant attributed this to the Stage 2 and Stage 3 landfill being lined to prevent infiltration of groundwater into the landfill cells (and leachate into the groundwater table), which is supported by groundwater quality data. In addition, relocation of the existing irrigation area from the Stage 1 landfill area to the Stage 2 landfill area would improve leachate management at the WNRWF. The Applicant also noted it would undertake monitoring at the new irrigation area to identify any groundwater quality fluctuations. The EPA raised no further questions in relation water balance modelling and recommended a condition requiring a Groundwater Management Plan (GMP) that details the program to monitor groundwater levels and quality including trigger levels for investigating any potentially adverse groundwater impacts.

The Department reviewed the groundwater and hydrogeological assessments provided and the advice from the EPA NRAR and DPIE Water. The Department is satisfied the Applicant has adequately addressed the issues raised by the EPA by confirming the proposed landfill design is unlikely to be impacted by groundwater intrusion and would undertake monitoring of groundwater quality downstream to identify any changes in groundwater quality from spray irrigation over the Stage 2 landfill. The Department has recommended conditions requiring preparation of a GMP to monitor and identify any changes in groundwater levels or groundwater quality and identify appropriate management and mitigation measures should contaminants be detected in the groundwater.

The Department's assessment concludes the potential groundwater impacts of the development have been adequately considered and addressed through design measures, which would be further managed and monitored through implementation of the GMP.

6.4 Air Quality and Odour

The development has the potential to generate air quality impacts during the construction and operational phases due to land clearing, landfill cell excavation and the landfilling of general solid waste (putrescible).

The EIS included an AQIA prepared by SLR Consulting Australia Pty Ltd in accordance with the 'Approved Methods and for the Modelling and Assessment of Air Pollutants in NSW' (Approved Methods). The AQIA noted the construction phase for landfills differs from other developments where construction precedes the operational phase. Construction of the landfill cell would occur concurrently while operating the active landfill cell and as a result the AQIA assessed the construction and operational activities together.

The AQIA included odour and particulate emissions dispersion modelling using the CALPUFF Dispersion Model to predict the potential impacts of the development on residential receivers from odour emissions, total suspended particulates (TSP), dust deposition and particulate matter ($PM_{2.5}$ and PM_{10}). The main particulate emission sources would be dust from landfill cell excavation, vehicle movements within the excavated landfill cell, unloading excavated material into stockpiles and unloading waste at the tip face. The main odour emission sources would be from the active landfill waste disposal area, and the existing garden and wood waste stockpile, composting windrows and mature compost stockpile located in the Stage 1 landfill area, the leachate irrigation area and leachate dam.

The AQIA modelled the potential air quality impacts of the development at a number of existing residential and commercial receivers as shown in **Figure 8**.

A Level 2 impact assessment with dispersion modelling was conducted using site-specific input data (Level 2 is a greater level of assessment). Ambient background air quality monitoring data was sourced from EES's air quality monitoring station located in Bargo (located approximately 62 km north of the site) and the Bureau of Meteorology (BOM) Nowra Airport Weather Station (located approximately 6.7 km south west of the site). The AQIA noted that while the Bargo air quality monitoring station is located quite some distance from the site, it is situated in a similar setting to the landfill and surrounded by rural residential properties, agricultural operations and national parks.

Dust

The Applicant assessed the worst case scenarios for both construction and operational activities associated with the development. The modelling assumed a worst case scenario including a high growth in waste volumes (3 % per annum waste generation and 2 % per annum population growth rate), no resource recovery and the continuous operation of machinery associated with the landfill cell construction during operating hours. The AQIA noted the worst case scenario was not likely to occur and therefore the predicted off-site impacts were conservative estimates of actual impacts.

Construction and operational activities were assessed based on two scenarios. Scenario 1 assumed concurrent operations of the existing landfill and construction of Stage 4, sub-cell 1 of the proposed landfill extension and Scenario 2 which assumed concurrent operations of landfilling in Stage 4, sub cell 1 and construction of Stage 4, sub cell 2.

Figure 8 | Modelled Sensitive Receiver Locations

TSP, $PM_{2.5}$ and deposited dust were predicted to comply with the EPA criteria, both incrementally (due to the project) and cumulatively (including background level) at all residential and commercial receivers. The maximum 24-hour average cumulative PM_{10} concentrations were predicted to exceed the ambient air quality criterion of 50 $\mu g/m^3$ at all receptors for both scenarios. This is due to background data containing one marginal exceedance of 50.8 $\mu g/m^3$ caused by elevated background PM_{10} concentrations. In the absence of a clear reason for this sample exceedance, the Applicant had to consider this in its assessment of emissions.

However, the assessment showed the predicted incremental increase in PM associated with the development was minimal (ranging between 0.9 $\mu g/m^3$ and 4.5 $\mu g/m^3$) and hence the assessment did not predict any additional exceedances of the impact assessment criteria.

The Applicant proposed a number of mitigation measures to manage fugitive dust emissions including the scheduling of work in stages to minimise land disturbance, regularly water access roads, rehabilitate cleared areas and ensure the active tipping face is as small as practicable.

The EPA reviewed the AQIA and did not raise any additional concerns about dust emissions from the development. The EPA noted TSP, $PM_{2.5}$ and deposited dust were predicted to comply with the EPA criteria and the Applicant proposes appropriate management measures to manage dust from the development. The EPA did not recommend any dust related conditions.

One public submission was concerned the modelling did not assess the dust impacts at the Mundamia and Cabbage Tree Lane Urban Release Areas which could impact the amenity of future residents. The Applicant noted the potential impacts would be less than those identified in the assessment given the Urban Release Areas are located further from the development than the nearest modelled residential and commercial receivers.

The Department is satisfied the AQIA was modelled sufficiently. The Department considers the management measures to be put in place by the Applicant to minimise offsite air quality impacts are appropriate. The Department has incorporated dust mitigation measures proposed by the Applicant into recommended conditions. The Department would also require an Air Quality Management Plan (AQMP) to manage and mitigate particulate emissions for both construction and operations.

With these recommended conditions, the Department concludes air quality impacts arising from the construction and operation of the development can be suitably mitigated and managed to an acceptable level.

Odour

To determine the potential odour impacts, the Applicant conducted dispersion modelling using CALPLUFF to predict the off-site odour levels in accordance with the Approved Methods and the Assessment of Management of Odour from Stationary Sources in NSW, 2006. An odour impact criterion of 5 odour units (OU) at residential and commercials receivers was adopted (low population density and rural nature of the area).

The EPA required additional information upon review of the AQIA and the RTS as exceedances of the odour criterion at residential receiver (R1) and commercial receiver (C2) had not been addressed (see **Section 5.3**). The Applicant identified there was a typographical error in the label and emissions reported for Stage 4 landfill sub-cell 1 – intermediate cover. As a result of the error the surface odour emission rate (SOER) for the intermediate cover area was modelled as the same SOER as daily cover, which was considered to be unrealistically high for intermediate cover areas. The Applicant therefore updated the modelling with correct SOER values, and this is the further focus of this assessment.

The additional modelling assessed two emission scenarios representative of current operations, one using average measured SOERs and the other using the maximum measured SOERs to determine odour emissions. The 'worst case' scenario was modelled to present a conservative assessment and included the following assumptions:

- an active Stage 4 landfill tip face of 100m^2 located at the southern end of landfill sub-cell 1 of Stage 4 (i.e. closest to the nearest residential receivers)
- an active tip face of 200 m^2 to simulate recently disposed waste using the measured odour emission rate for daily cover
- emissions from leachate irrigation area conservatively estimated using the original AQIA SOER for the leachate pond
- fresh garden and wood waste stockpile, composting windrows, mature compost stockpile and associated materials handling activities remain located in the existing Stage 1 area at the current sizes and activity rates
- for the modelling of current operations, the composting emissions were unchanged from the original AQIA, however the active area, daily cover and intermediate cover sources have been moved to be located within the Stage 3 footprint and leachate irrigation was not used in the scenario
- emissions from the active waste disposal area were reduced during night-time hours (between 5 pm and 8 am), to reflect the placement of daily cover in this area.

As shown in **Table 5**, when remodelled with a more realistic SOER for intermediate cover, the odour criterion of 5 OU was not exceeded at residential receiver R1 or commercial receiver C2.

The Applicant proposed several mitigation measures to manage fugitive emissions including:

- postponing shredding and screening activities until favourable meteorological conditions,
- ensuring immediate cover is placed and maintained to minimise odours
- completed cells are covered with final cover.

The EPA reviewed the additional modelling and had no further comment and recommended conditions requiring preparation of a comprehensive Odour Management Plan (OMP) detailing odour emission sources and performance review for continuous improvement. The EPA also recommended the active tip face not exceed an area of 100 m^2 to manage potential fugitive emissions and if a larger active tipping face is required, the Applicant would have to seek written approval from the EPA.

Table 5 | Predicted Odour Concentrations at Residential and Commercial Receivers

Sensitive Receiver	Predicted Odour Concentration (OU 99th percentile)			
	Average SOERs for Landfill Sources		Maximum SOERs for Landfill Sources	
	Current Operations	Proposed Operations	Current Operations	Proposed Operations
R1	0.4	1.1	0.5	1.1
R2	0.3	0.7	0.4	0.7
R3	0.4	0.6	0.4	0.6
R4	0.3	0.5	0.3	0.5
R5	0.2	0.4	0.2	0.4
R6	0.3	0.4	0.3	0.5
R7	0.3	0.4	0.3	0.5
R8	0.3	0.5	0.3	0.6
R9	0.5	0.7	0.5	0.7
C1	1.1	3.9	1.2	3.9
C2	0.8	3.9	0.9	3.9
C3	0.1	3.9	0.1	0.2
Criterion	5.0 OU			

Department's Consideration

The Department has reviewed the revised odour modelling and the comments provided by the EPA. The Department notes the odour modelling has identified three key odour sources including the existing composting operations and intermediate cover areas for the Stage 3 and Stage 4 landfills. The revised modelling predicts odour from the Stage 4 landfill would be below the EPA criteria of 5 OU at the nearest residential and commercial receivers. The Applicant proposes to manage fugitive odour emissions by only undertaking shredding and screening activities during favourable meteorological conditions, ensuring immediate cover is placed and maintained and completed cells are covered with final cover. The Department has recommended the Applicant prepare a AQMP which would incorporate the LEMP and requires the active tip face to not exceed 100 m^2 to manage potential fugitive emissions. With these conditions in place, the Department concludes the odour impacts of the development would be adequately minimised, monitored and managed.

6.5 Biodiversity

Background

The development has the potential to impact on native flora and fauna through the removal of 9.87 ha of native vegetation to construct the additional landfill cells (see **Figure 9**). Clearing would be undertaken progressively during the construction and operation of each landfill sub-cell.

The WNRWF is located adjacent to large patches of native vegetation, identified predominantly as Red Bloodwood and Hard-leaved Scribbly Gum trees, including bushland zoned E3 Environmental Management and E2 Environmental Conservation under the SLEP to the west and south. Further to the west and southwest of the WNRWF is Bamarang Nature Reserve. Immediately to the south of the WNRWF are rural residential properties with Flatrock Road adjoining the eastern and northern boundaries of the site.

The Applicant proposes to clear 9.87 ha of native vegetation at the proposed Stage 4 landfill extension site (see **Figure 9**) to facilitate construction of the six new landfill cells. The Applicant notes clearing would be undertaken progressively during the construction and operation of each sub-cell of the development.

Potential Impacts on Flora and Fauna

The Applicant prepared a Biodiversity Assessment Report (BAR) in accordance with the OEH's Framework for Biodiversity Assessment (FBA) to assess the impacts of clearing the site. The BAR included both a desk top analysis and field surveys to identify flora and fauna species potentially impacted by the development.

The BAR identified one Plant Community Type (PCT) in moderate to good condition: Red Bloodwood – Hard-leaved Scribbly Gum – Silvertop Ash healthy open forest on sandstone plateaux of the lower Shoalhaven Valley, Sydney Basin Bioregion. This PCT is not listed as a threatened ecological community under NSW or Commonwealth legislation. However, the BAR identified one threated flora species, the Nowra Heath Myrtle, which is listed as Endangered under both the *Biodiversity Conservation Act, 2016* and EPBC Act. The BAR noted this species is located outside the development footprint and therefore would not be impacted by the development. The Applicant concluded a referral to the Commonwealth under the EPBC Act was not required.

The assessment found the Eastern Pygmy possum and the Squirrel Glider would be directly affected by the development due to the loss of 9.87 ha of habitat, although the development would not sever connectivity to the other known habitat 2 km to the south west.

The BAR identified a range of measures to manage biodiversity impacts including:

- the immediate installation of three rope bridges with monitoring cameras over Flatrock Road to allow arboreal fauna to become accustomed to the rope bridges prior to commencement of vegetation clearing
- weed management
- and removal of fencing in the south western corner of the site to allow a clear passage of native fauna.

Proposed Conservation Area

The Applicant proposes to retain a portion of the south eastern side of the site as a conservation area. The conservation area, shown in **Figure 9**, has an area of 4.68 ha and would protect the Nowra Heath Myrtle which is located in the shallow drainage line that flows to the east into Cabbage Tree Creek and away from the site. The footings for the rope bridges would be installed outside the road reserve on the eastern side of Flatrock Road and within the conservation area.

A 10 m temporary slashed fire break and access road (see **Figure 2**) on the outer edge of the proposed landfill cells at the edge of the conservation area has also been proposed and would be managed in accordance with the NSW Rural Fire Service's 'Environmental Assessment Code 2006' (further detail provided in **Table 6**).

Offsets

Following the review of the BAR, EES noted the application had been adequately assessed under the FBA and noted under the provisions of the NSW Biodiversity Offsets Policy for Major Projects (major project policy) a biodiversity offset strategy (BOS) must be prepared outlining how offsets for the proposal would be delivered. The RTS included a BOS. The BOS provided a commitment by the Applicant to offset the impacts of clearing through a formal biobanking agreement (or equivalent), prior to clearing the site for the development.

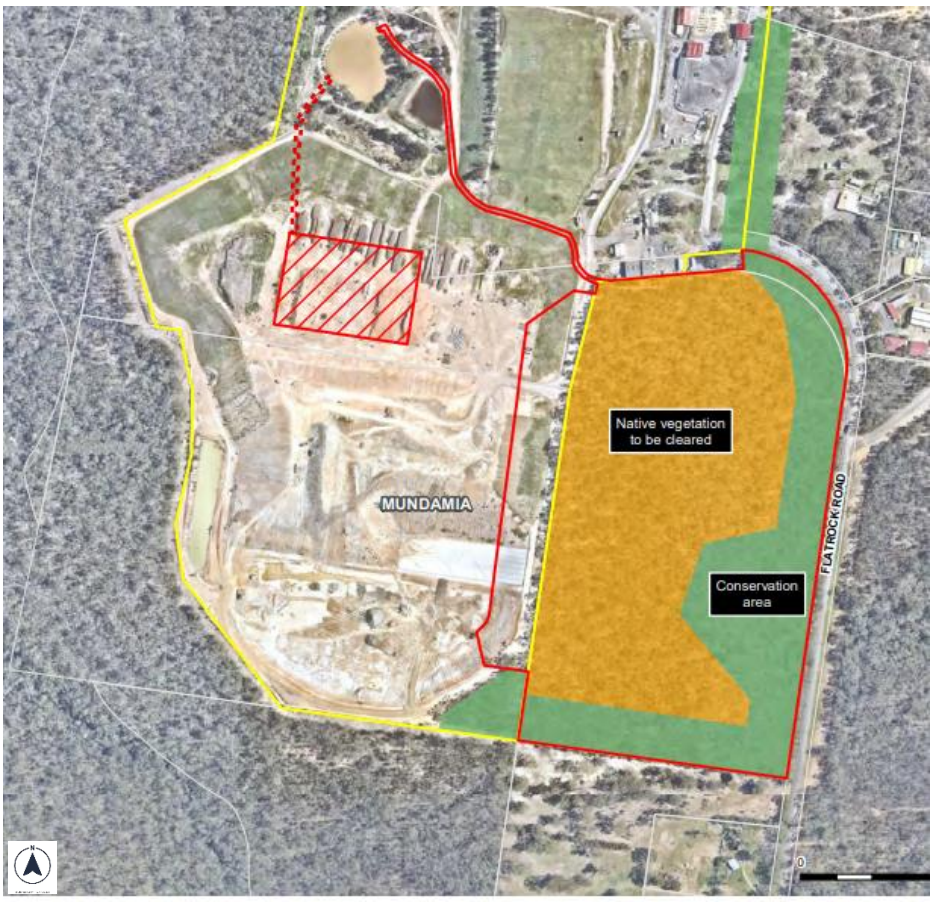

Figure 9 | Native vegetation to be cleared and proposed conservation area

The BOS identified the ecosystem and species credits needed to offset the clearing of 9.87 ha of native vegetation, in accordance with the FBA and the required credits include:

- 719 ecosystem credits to offset the removal of 9.87 ha of Red Bloodwood – Hard-leaved Scribbly Gum – Silvertop Ash
- 197 species credit to offset the removal of the Eastern Pygmy possum habitat
- 217 species credit to offset the removal of the Squirrel Glider habitat.

The BOS proposed several offset options including:

- a payment to the Biodiversity Conservation Trust (BCT)
- the retirement of ecosystem and species credit for a biodiversity offset site at 235 Huskisson Road, Huskisson
- the purchasing of species credit from biobank sites within the Shoalhaven LGA.

The BOS noted should the sale of the credits not eventuate, for any reason or an alternative source of credits is not available, the Applicant would make a payment to the BCT to meet its offset obligation.

Issue Raised in Submissions

Following its review of BOS, EES noted the BOS was acceptable and recommended a condition of consent requiring the retirement of the requisite credits as outlined in the BOS.

Department's Consideration

The Department reviewed all the relevant assessment information and the EES submission and concludes the impacts of the development could be adequately minimised, managed and offset. The development would result in the staged clearing of 9.87 ha of native vegetation but would not have a significant impact on threatened flora

and fauna. The Applicant provided adequate consideration of the potential impacts on NSW and Commonwealth listed species and devised appropriate mitigation measures for managing the residual impacts. This includes setting aside a 4.68 ha conservation area on south eastern side of the site which would protect the threatened Nowra Heath Myrtle and would also provide connectivity for the Eastern Pygmy possum and the Squirrel Glider to the south west of the site. Additionally, the vegetation would visually screen the landfill from residential receivers located to the south of the site. The Applicant also proposes to install three rope bridges with monitoring cameras prior to construction of Stage 4 landfill to allow the Eastern Pygmy possum and the Squirrel Glider to become accustomed to the rope bridges prior to the commencement of vegetation clearing.

The Applicant has committed to securing the required ecosystem and species credits to offset the loss of vegetation and would retire the credits prior to clearing occurring. The Department has recommended conditions which require biodiversity offsets, maintaining the 4.68 ha conservation area for the life of the development, and implementation of a Vegetation Management Plan to manage and conserve the threatened flora species Nowra Heath Myrtle located in the conservation area. EES reviewed the draft conditions and recommended minor amendments which were incorporated into the final recommended conditions. The Department's assessment concludes the biodiversity impacts of the development would be appropriately minimised, managed and offset with the implementation of the recommended conditions.

6.6 Other Issues

The Department's assessment of other issues in provided in **Table 6** .

Table 6| Assessment of other Issues

Findings	Recommended Conditions
Bushfire Management	
• The development is located on and is predominantly surrounded by Category 1 Bushfire Prone Vegetation. • The EIS included a Bushfire Protection Assessment (BPA) which calculated the bushfire threat level to the development from surrounding vegetation as 'high'. • The Applicant consulted the RFS, during the preparation of the BPA. The RFS required a range of measures including implementation of specific asset protection zones and fuel management of the retained vegetation. • The BPA identified and assessed four likely fire scenarios and recommended a range of measures to reduce risks. • Following exhibition, the RFS advised it had no concerns with the BPA provided the recommendations were executed. • The Department has reviewed the information provided by the Applicant and the advice of RFS and concludes the bushfire risks have been appropriately addressed. The Department recommends a condition requiring the Applicant to implement the bushfire protection measures outlined in Appendix J of the EIS, titled Bushfire Protection Assessment. • With this condition in place the Department's assessment concludes bushfire risks would be appropriately managed.	Require the Applicant to: • implement the bushfire protection measures outlined in Appendix J of the EIS titled Bushfire Protection Assessment.

Findings	Recommended Conditions
Waste Management	
• The Applicant manages the existing WNRWF in accordance with a LEMP and its EPL. A new LEMP for the Stage 4 landfill, prepared in accordance with the Waste Guidelines was included in the EIS. • The Stage 4 LEMP detailed site-specific procedures for waste receipt, classification and tracking, waste compaction and covering, litter and pest control and monitoring to ensure operation and rehabilitation of the Stage 4 landfill is undertaken in accordance with the relevant guidelines. • The EPA did not raise any concerns about waste management procedures in the Stage 4 LEMP. • The Department notes the importance of implementing the most recent operational procedures to minimise the impacts of landfilling and to ensure procedures are formalised, the Department has recommended the update of the Stage 4 LEMP as a condition of consent. • The Department has also recommended several conditions covering waste receipt, classification and tracking, landfill compaction rates, types of cover material, litter, pest control and illegal dumping. • The Department's assessment concludes the above conditions would ensure landfill waste is managed appropriately.	Require the Applicant to • classify waste in accordance with EPA guidelines and develop a waste monitoring program • update the LEMP prior to operation of the development • ensure a specific waste compaction rate and cover all waste in accordance with EPA guidelines • implement measures to control litter, illegal dumping, pests and noxious weeds.
Noise	
• The EIS included a Noise Impact Assessment (NIA) undertaken by SLR in accordance with the EPA's Noise Policy for Industry and the NSW Road Noise Policy (RNP). • Given construction of each sub-cell would occur at the same time as landfilling (operations), the EIS did not consider construction noise, rather it assessed all potential noise as operational. • The most significant noise sources at the site include mobile plant (dozers and compactors) and waste trucks. • The NIA predicted operations would comply with the Noise Trigger Level (NTL) at all receivers except for residential R1 where the NTL would be exceeded by 2dBA. The revised NIA demonstrated if the dozer and excavator were not used concurrently this would reduce noise impacts at R1 by 2dB thereby ensuring the TNL is met.	Require the Applicant to: • comply with operational noise management measures including the maintenance of equipment and implementation of best practice noise mitigation measures • ensure excavators and bulldozers are not operated simultaneously • to ensure excavators and bulldozers are not operated simultaneously during construction and operation • comply with the recommended noise criteria

Findings	Recommended Conditions
• While noise on Flatrock Road would marginally increase in the PM peak by 1.3 dB, being within 2 dB means it complies with the RNP. • Neither the EPA nor Council raised concerns with noise. • The EPA recommended noise limits and a Noise Management Plan be prepared. The Department recommends the timing limitations for operation landfill equipment is included in a Noise Management Plan (NMP) and a Driver Code of Conduct (DCC) be prepared to reduce Traffic Noise. • One public submission raised concerns over the lack of assessment of impacts to the site of the Mundamia or Cabbage Tree Urban Release Areas. However, the RTS noted due to the distance to the urban release areas (1 km and 450 m), and the modelled compliance at the nearest sensitive receivers, noise impacts would not be experienced in these areas. • The Department has considered the information provided, as well as advice from the EPA and concludes potential noise impacts would be low. To ensure minimal impacts, the Department requires the Applicant to not operate excavators and bulldozers simultaneously during construction and operation, comply with noise limits, and prepare a NMP and a DCC to reduce traffic noise. • The Department's assessment concludes that with implementation of the above conditions, potential noise impacts can be mitigated and appropriately managed.	• prepare and implement a NMP prior to the commencement of operations • prepare a Driver Code of Conduct for traffic noise
Traffic	
• Construction and operational traffic associated with the development has the potential to impact on the safety and efficiency of the surrounding road network. • The EIS included a quantitative Traffic Impact Assessment (TIA), including an analysis of the existing conditions (2014 to 2016) and the predicted impacts in the opening year (2026) and the (worst case) closing year (2034). • Based on the 2034 traffic volumes (waste acceptance rate of up to 160,000 tpa), the development would generate 10 and 38 movements in the morning and afternoon peak periods, respectively, in the opening year. • In the closing year, 120 vehicle movements per day are predicted, with 16 and 48 movements in the morning and afternoon peak periods, respectively. • The TIA used SIDRA software to assess the impact of the development on the Level of Service (LoS) of the two key	Require the Applicant to: • ensure the development does not result in any vehicles on the public road network • ensure all vehicles are wholly contained on site before being required to stop • ensure all loading and unloading of material is carried out in the site • ensure all trucks entering or leaving the site have their loads covered

Findings	Recommended Conditions
intersections at Yalwal Road and Flatrock Road and at the Princes Highway and Kalandar Street for their individual peak times. • Yawal Road and Flatrock Road would remain at LoS A at both the opening and closing years whereas the Princes Highway and Kalandar Street intersection LOS would decrease, with a LoS F (fail), by 2026 with or without the development. • The TIA also identified Yawal Road meets the minimum site distance requirements for eastbound vehicles approaching the Yalwal Road and Flatrock Road intersection. • RMS and Council reviewed the application and raised no concerns over traffic impacts. • The Department has reviewed the TIA and the RTS and the advice from the RMS and Council and concludes that, although the Princes Highway and Kalandar Street intersection would operate at a LoS F, the development's traffic contribution to the surrounding road network would be negligible, particularly along the Princes Highway. • The Department's assessment concludes the development would not have an unacceptable impact on the surrounding road network and concludes traffic impacts would be negligible and able to be appropriately managed via standard operating conditions.	
Final Landform, Rehabilitation and Closure	
• The EIS explains the Stage 4 landfill would be progressively capped and rehabilitated as each landfill cell is completed. • The landfill cap would include a gas drainage layer, clay sealing layer, infiltration layer and a final 1 m thick revegetation layer. The Applicant has advised this design would be reviewed closer to the closure of the landfill to ensure it has been designed in consideration of future innovations and technology. Given the closure date is far in the future, the Department considers this approach is appropriate. • The final landform has been designed to complement the Stage 3 landfill and facilitate drainage of surface water in an easterly direction, towards the ephemeral creek, to reduce the generation of leachate. • However, limited information has been provided about the rehabilitation of the landfill as there is no intended final use for the site. The EIS explains the vegetation would primarily be native grasses with some shallow rooting trees and shrubs. • The Applicant has committed to preparing a Landfill Closure Plan (LCP) 12 months before the last load of waste is landfilled.	Require the Applicant to: • progressively cap and rehabilitate the filled landfill cells • achieve a final landform consistent with EPA's Guidelines • prepare an LCP twelve months prior to closure.

Findings	Recommended Conditions
The LCP would detail ongoing management and monitoring requirements to reduce impacts to soil and water. The Department considers the LCP to be an important step in managing the landfill in accordance with the relevant EPA guidelines. • The EPA raised no concerns over the final landform or LCP. • The Department's assessment concludes the proposed final landform is consistent with relevant guidelines and has recommended conditions for progressive rehabilitation and preparation and implementation of a detailed LCP.	
Aboriginal Cultural Heritage	
• The EIS included an Aboriginal Archaeological Survey Report (AASR) and an addendum report. • An archaeological survey undertaken with the Nowra Local Aboriginal Land Council did not identify any Aboriginal sites or objects, however it recognised that vegetation limited visibility. • EES raised concern that formal aboriginal community consultation had not been conducted as set out in the *National Parks and Wildlife Regulation* (NP&W Regulation), 2009 and requested the Applicant provide additional information relating to Aboriginal cultural heritage in the RTS. • In the RTS, the Applicant noted formal Aboriginal community consultation was not a requirement of the SEARs and agreed to update the LEMP to include procedures for unexpected finds and protocols for communication with the Aboriginal community during the construction and operational phases of the development. • EES was satisfied with the information provided in the RTS and recommended conditions to be implemented should Aboriginal objects be recorded on the site. • The Department has recommended the Applicant prepare and implement an unexpected finds protocol for items or objects of Aboriginal heritage • The Department's assessment concludes the development is unlikely to have any significant impact on Aboriginal heritage objects and is satisfied any unexpected find would be managed appropriately subject to the recommended conditions.	Require the Applicant to: • prepare and implement an unexpected finds protocol for items or objects of Aboriginal heritage.
Landfill Gas and Greenhouse Gas	
• The EIS included a Greenhouse Gas Assessment (GHGA), in accordance with relevant guidelines, considering emissions from machinery used onsite and associated downstream fuel	Require the Applicant to:

Findings	Recommended Conditions
production, vegetation clearing, transportation and waste decomposition. • The EIS noted the landfill gas from the existing cells is currently captured via an existing extraction system which is connected to a generator and flare system which has a 70 % capture efficiency. Landfill gas generated from Stage 4 would be managed by the existing system. • The GHGA identified the highest contributor to greenhouse gas would be the decomposition of waste (Scope 1) including 'legacy' emissions. Emissions generated would be highest in 2035, the year after the landfill is closed, however, the landfill would breach the National Greenhouse and Energy Reporting threshold in 2029. • The highest total emissions (calculated using the highest emitting year for each emission source) were estimated at 41,441 tonnes of carbon dioxide equivalent, representing 0.01 % of Australia's total annual GHG emissions. • The Applicant has identified a range of mitigation measures that could be implemented to reduce landfill gas and has also committed to the preparation of a GHG emissions review four years after the commencement of operations. • The EPA provided no comments or recommended conditions in relation to proposed landfill gas management system or the greenhouse gas emissions. • The Department supports the Applicant's measures to reduce its emissions and has recommended conditions requiring the Applicant to install and operate a gas management system to ensure the development complies with gas emission limits and landfill gas monitoring requirements as specified in the EPL. A Landfill Gas Monitoring Plan (LGMP) is also required as part of the LEMP and must detail how the landfill gas management system for Stage 4 will be managed by the existing landfill gas system and identify strategies to optimise landfill gas capture. • The Department's assessment concludes the landfill gas generated from Stage 4 can be managed by the existing landfill gas system and emissions from the expanded landfill would be minor in the context of Australian emissions and notes the emissions would occur irrespective, as the waste would need to be landfilled elsewhere if not at the WNRWF.	• Prepare a LGMP in accordance with the EPA's Landfill Guidelines

7. Evaluation

The Department has assessed the development against the matters listed in section 4.15 of the EP& A Act and the objects listed in section 1.3 of the EP&A Act, including the principle of ESD. The Department has considered the development on its merits, taking into consideration relevant strategic plans, the EPIs that apply to the development and the submissions received from Government agencies and the public.

The Applicant has owned and operated the WNRWF since 1979. The WNRWF currently receives waste from nine waste transfer stations, a domestic waste collection service in the Shoalhaven LGA, and from public and commercial drop-off to the onsite waste transfer station. The WNRWF is the only licenced waste facility in the Shoalhaven LGA that can accept both putrescible and non-putrescible general solid waste. The existing landfill at the WNRWF is expected to reach capacity in 2026 and the Applicant proposes to expand its existing landfill and construct and operate an additional landfill cell (Stage 4 landfill), comprising of six sub-cells, within the WNRWF. The development would utilise existing infrastructure including access roads, weighbridge and offices, which are operated in accordance with the EPL.

The Department's consideration of the application identified landfill lifespan, leachate, surface water, groundwater, air quality and biodiversity as the key assessment issues. Other aspects such bushfire management, landfill gas, aboriginal cultural heritage, noise and traffic were also assessed.

The development would extend the life of the of the existing landfill to provide adequate capacity to meet the future waste disposal needs of the Shoalhaven LGA and the Department is aware of the need for the Applicant to provide ongoing landfill security to its residents. While the Department is satisfied the development's impacts could be adequately managed for up to 10 years, there is still a level of uncertainty about impacts to surrounding sensitive receivers beyond 10 years, especially in relation to interaction with the future RRP. Accordingly, the Department has recommended the option to extend landfill lifespan further following provision of additional information. This information would comprise a Landfill Plan to demonstrate the impacts of the extended lifespan can be managed beyond 10 years, particularly for air, noise and traffic.

To manage leachate from Stage 4 landfill, the Applicant proposes to install a leachate barrier, collection, storage and disposal system. This system would remain in place following final capping and closure of the landfill after 2034. The Department has recommended conditions to ensure leachate is adequately managed including the requirement to prepare a LMP detailing the specific measures to prevent leachate from contaminating surrounding surface water, groundwater and soil and to commission an independent audit to assess the performance of the leachate management system every five years. The Department concludes the proposed leachate collection system has been designed in accordance with the Landfill Guidelines and would be managed and monitored to ensure there are no offsite impacts on surface water, groundwater and soil.

The Applicant proposes to divert stormwater around the operational areas of the landfill, capture the stormwater in sediment basins and reuse the stormwater for dust suppression. Leachate would be diverted from Stage 4 leachate to the existing leachate dam located on Stage 1 landfill and a new irrigation area developed over the Stage 2 (closed and lined) landfill. The Department has recommended conditions to manage any unexpected contamination of groundwater and surface water requiring the preparation of a SWMP which would detail surface water monitoring program and trigger levels for investigating contamination in surface water and the preparation of a GMP to analyse groundwater data including changes in groundwater levels and trigger levels to investigate groundwater contamination. The Department concludes the proposed stormwater management design and the

extensive network of groundwater monitoring bores is adequate to manage surface water and to monitor any changes in groundwater quality from potential leachate migration and groundwater levels across the WNRWF

The potential air quality and odour impacts of the development have been appropriately addressed by the Applicant. The AQIA predicted odour and dust would not exceed the impact assessment criteria. The Department recommended conditions requiring an AQMP be prepared which would assess and evaluate the performance of the operation and determine compliance with key performance indicators, ensure shredding and screening activities during favourable meteorological conditions and the active tip face does not to exceed 100 m^2 to manage potential fugitive emissions. With these conditions in place, the Department concludes the dust and odour impacts of the development would adequately minimised, monitored and managed.

The Development would result in clearing of 9.87 ha of native vegetation at the proposed Stage 4 landfill area but would not have a significant impact on threatened flora and fauna species. The Applicant would offset the clearing in accordance with the relevant biodiversity legislation. The Applicant proposes to retain a 4.68 ha portion of the south eastern side of the site as a conservation area to protect the Nowra Heath Myrtle which is located in the shallow drainage line that flows to the east into Cabbage Tree Creek. The Applicant would also implement measures to manage the conservation area, which would be detailed in a VMP.

The Department considers the impacts associated with the development can be managed, mitigated and offset to ensure an acceptable level of environmental performance, subject to recommended conditions of consent including:

- a landfill plan including justification for a further increase in Stage 4 landfill lifespan and demonstration that environmental impacts can be managed in the longer-term
- waste monitoring, cover requirements and a LEMP including litter and pest controls measures
- a leachate management plan
- a leachate and surface water audit
- an air quality and odour management plan
- a surface and groundwater management plan
- a landfill gas management plan
- limits on hours of operation and noise
- biodiversity offset requirements, biodiversity conservation zones and a vegetation management plan
- progressive rehabilitation and a landfill closure plan

The Department considers the development is acceptable and in the public interest as it:

- would ensure continued landfill capacity for the Shoalhaven LGA, avoiding disruptions to municipal waste collection
- would utilise an existing waste disposal facility and associated infrastructure, that is co-located with waste diversion facilities
- is consistent with the objectives of the WARR Strategy
- would not result in any significant adverse environmental or amenity impacts.

The Department concludes the impacts of the development can be appropriately managed through implementation of the recommended conditions of consent. Consequently, the Department considers the development is in the public interest and should be approved, through a partial consent, subject to conditions.

8. Recommendation

It is recommended that the Executive Director, Regions, Industry and Key Sites as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant consent to the application;
- **agrees** with the key reasons for approval listed in the notice of decision;
- **grants consent** for the application in respect of West Nowra Landfill Extension (SSD-7187) as amended, subject to the conditions in the attached development consent; and
- **signs** the attached development consent and recommended conditions of consent (see Appendix E)

Recommended by:

Sheelagh Laguna
Acting Team Leader
Industry Assessments

Recommended by:

Chris Ritchie
Director
Industry Assessments

9. Determination

The recommendation is: **Adopted / Not adopted by:**

Anthea Sargeant
Executive Director
Regions, Industry and Key Sites

Appendices

Appendix A – List of Documents

The Department has relied upon the following key documents during its assessment of the development:

Environmental Impact Statement

- West Nowra Landfill Extension Environmental Impact prepared by Arcadis Australia Pacific Pty Limited dated 31 May 2019

Submissions

- All submissions received from the relevant public authorities and the general public.

Response to Submissions

- West Nowra Landfill Extension Response to Submissions prepared by Arcadis Australia Pacific Pty Limited dated 16 October 2019
- West Nowra Landfill RTS- Further Clarification on Traffic Assessment prepared by Arcadis Australia Pacific Pty Limited dated 12 December 2019
- West Nowra Landfill Extension RTS – Response to Further EPA comments on Air Quality Assessment prepared by Arcadis Australia Pacific Pty Limited dated 23 January 2020

Statutory Documents

- relevant considerations under section 4.15 of the EP&A Act (see Appendix B)
- relevant environmental planning instruments, policies and guidelines (see Appendix C).

All documents relied upon by the Department during its assessment of the development may be

https://www.planningportal.nsw.gov.au/major-projects/project/10891

Appendix B – Considerations under Section 4.15 of the EP&A Act

Section 4.15 of the EP&A Act sets out matters to be considered by a consent authority when determining a DA. The Department's consideration of these matters is set out in **Table 7**. In summary, the Department is satisfied the proposed development is consistent with the requirements of section 4.15 of the EP&A Act.

Table 7| Consideration under Section 4.15 of EP&A Act

Matter	Consideration
a) the provisions of: (i) any environmental planning instrument, and (ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and (iii) any development control plan, and (iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph).	Detailed consideration of the provisions of all environmental planning instruments (including draft instruments subject to public consultation under this Act) that apply to the proposed development is provided below. The Applicant has not entered into any planning agreement under section 7.4. The Department has undertaken its assessment of the proposed development in accordance with all relevant matters as prescribed by the regulations, the findings of which are contained within this report
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	The Department has considered the likely impacts of the development in detail in Section 6 of this report. The Department concludes that environmental impacts can be appropriately managed and mitigated through the recommended conditions of consent.
c) the suitability of the site for the development,	The Department notes the WNWMF location was selected as a waste management facility based on its position remote from residential areas, the lack of surface water flowing through it and its suitable geology. Supporting infrastructure including weighbridge, waste transfer station, gas extraction system are already established on site. The site is therefore considered suitable for the proposed development.
d) any submissions made in accordance with this Act or the regulations	The Department considered all raised in submissions through its assessment of the development.

Matter	Consideration
e) the public interest	The proposed development is in the public interest as it would provide for the continued landfilling operations at an existing waste management facility site. The facility would provide landfill capacity to service all areas of the Shoalhaven LGA from 2026 to 2034. The Stage 4 landfill extension would provide for ongoing disposal and processing of general solid waste (putrescible). General solid waste (non-putrescible) and asbestos waste. Landfilling operations would be undertaken without unacceptable risks to human health and the landfill would be progressively rehabilitated following closure of each cell with the land to be revegetated and landscaped.

Appendix C – Statutory Considerations

Section 4.15 of the EPA and Act requires the consent authority, when determining a development application take into consideration all relevant Environmental Planning Instruments (EPI's).

State Environmental Planning Policy (State and Regional Development) 2011

The SRD SEPP identifies certain classes of development as SSD. The proposal is classified as SSD under Part 4 Section 4.6 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it involves development for the purpose of an extension to a regional putrescible landfill that has capacity to receive more than 650,000 tonnes of putrescible waste over the life of the site, as per the criteria in Clause 23 of Schedule 1 of the SRD SEPP. Consequently, the Minister for Planning is the consent authority for the proposed development.

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)

The ISEPP aims to facilitate the effective delivery of infrastructure across the State by identifying matters for assessment and providing for consultation with relevant public authorities.

Clause 123 of the ISEPP outlines matters a consent authority must take into consideration when determining a development for construction, operation or maintenance of a landfill for the disposal of waste. The Applicant addressed each of these matters in the EIS and the Department has considered these matters in its assessment of the development. The Department notes the development provides a suitable level of waste recovery through operational procedures that support the diversion of unacceptable or reusable materials from the landfill, the design of the landfill would adopt best practices, the site is already utilised for landfill operations, there would be no land use conflicts and there is adequate transport links to the landfill. The Department concludes the development is consistent with the aims of the ISEPP.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)

SEPP 33 aims to identify proposed developments with the potential for significant offsite impacts, in terms of risk and/or offence (e.g. odour, noise). A development is defined as potentially hazardous and/or potentially offensive if, without mitigating measures in place, the development would have a significant risk and/or offence impact on off-site receptors.

As the development has the potential to pose environmental, human health, and amenity hazards (if it were to operate without any measures to reduce or minimise its impact in the locality) a screening assessment was undertaken by the Applicant in line with the DPIE (2011) guideline *Applying SEPP 33*. The assessment found the development would not trigger the need for a Preliminary Hazard Analysis as it would operate below the screening levels set out in the guideline.

State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)

SEPP 44 aims to encourage local councils to conserve and manage areas of natural vegetation that provide habitat for koalas in order to protect existing populations and reverse the current trend of koala population decline. SEPP 44 applies to land in relation to which a development application has been made and that has an area of more than one hectare.

If the land is identified as 'potential koala habitat' under the SEPP 44, further work must be carried out to determine whether the land constitutes 'potential' or 'core' koala habitat. Should core habitat be identified, a plan of management must be prepared prior to consent being granted and the consent must be consistent with the plan of management.

Eucalyptus punctata (Grey Gum), which is listed as a feed tree species under Schedule 2 of SEPP 44, is scattered across the site. However, no Koala scats were recorded during targeted surveys and no Koalas were observed/heard during numerous diurnal and nocturnal surveys of the site. Koalas may occur on the site on occasion when moving between areas of better quality foraging habitat. Koalas are unlikely to reside or breed on

the site due to the lack of primary and secondary feed trees. Given these considerations, the site does not represent core Koala habitat as defined under SEPP 44. No Koalas were detected on the site and if the species does occur in the locality, it is unlikely to be impacted beyond the loss of 9.87 ha of non-core potential foraging habitat.

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)

Clause 7 of SEPP 55 states that a consent authority must not consent to the carrying out of any development on land unless:

(a) it has considered whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

The EIS noted the site commenced landfilling operations in 1979. Monitoring from groundwater bores downgradient of the Stage 2 landfill area identified ammonia, nitrogen and heavy metals at levels below ANZECC Guidelines. The Applicant has attributed this to leachate from the Stage 2 landfill area. The Applicant noted, the leachate indicators (such as ammoniacal nitrogen, biological oxygen demand and salinity) are significantly lower down gradient of Stage 2 landfill than those recorded downgradient of the existing leachate irrigation area located on the unlined Stage 1 landfill area. The Applicant proposes to divert Stage 4 leachate to the existing leachate dam and develop a new irrigation area over the Stage 2 (closed and lined) landfill. Based on the review of groundwater quality data, the Applicant noted the liner in Stage 2 is performing adequately and relocation of the irrigation area from the Stage 1 area to the Stage 2 landfill area will improve leachate management at the site and as a result, contaminate levels in the groundwater.

Environmental management of the proposed Stage 4 landfill extension has included avoidance of contamination, in particular through leachate collection and management, and groundwater monitoring. The Applicant therefore concluded that with the implementation of best practice procedures the potential for contamination is low.

The Department is satisfied that the site is suitable for the purpose of landfilling and has included conditions of consent to manage contamination risk. Leachate management is discussed in Section 6 of this report.

Shoalhaven Local Environment Plan 2011 (Shoalhaven LEP).

The Shoalhaven LEP aims to manage and coordinate the orderly, equitable and economic use and development of land in the Shoalhaven area whilst also protecting and conserving the ecological biodiversity and natural environment of the area.

The development site is located on land zoned SP2 Waste or Resource Management Facility. The objects of the zone are to provide for infrastructure and related uses, and to prevent development that is not compatible or may detract from the provision of infrastructure. Development for the purpose of a waste or resource management facility is permitted with consent.

The Department consulted with Council (who is also the Applicant) throughout the assessment process and considered all relevant provisions of the Shoalhaven LEP. Council was advised of the exhibition of the EIS and invited to provide comments however did not provide a submission. The development is considered to be consistent with the aims of the Shoalhaven LEP.

Appendix D – Community Views for the Draft Notice of Decision

Table 8| Consideration of Community Views on the Development

Issue	Consideration
Traffic Management • increased traffic at Yalwal Road and George Evans Road • intersection upgrades	Assessment • the Department considered the proposed increase in traffic generated by the development. • the TIA considered the Yalwal Road and Flatrock Road intersection and Princes Highway and Kalandar Street intersection as the key intersections for the development. • the TIA determined that traffic generated from the development does not necessitate any road or intersection upgrades in the study area. • RMS and Council reviewed the application and raised no concerns over traffic impacts. • the assessment concluded the development would not have an unacceptable impact on the surrounding road network. Conditions include: • the Applicant is required to comply with operational traffic requirements
Noise • no assessment of noise at Mundamia and Cabbage Tree Lane Urban Release Area	Assessment • the Department has considered the worst case operational noise impacts of the development. The assessment concluded that the development would comply with the Industrial Noise Policy 2000, Interim Construction Noise Guidelines and the Road Noise Policy. Conditions include: • the Applicant is required to comply with construction and operating hours from 8 am to 5pm (Monday to Sunday) • the Applicant is required to ensure noise generated by construction and operation of the development does not exceed the prescribed noise limits in Condition B43. • the Applicant is required to comply with construction and operation noise management requirements • the Applicant is required to prepare an operational noise management plan • the Applicant is required to prepare a Driver Code of Conduct.
Dust • no assessment of dust at Mundamia and Cabbage Tree Lane Urban Release Area	Assessment • the Department considered the potential air quality impacts and the assessment demonstrated the air quality impact assessment criteria would be met at all residential receivers for all emission types. • the assessment concluded that with appropriate measures in place the development would have minimal air quality impacts on surrounding receivers. Conditions include: • the Applicant must prepare an Air Quality Management Plan to manage emissions sources.

Issue	Consideration
	• the implementation of dust management and mitigation measures.
Odour • no assessment of odour at Mundamia and Cabbage Tree Lane Urban Release Area	Assessment • the Department has considered the potential odour impacts. The modelling predicts odour from the expanded landfill would be below the EPA criteria of 5 OU at the nearest residential and commercial receivers. • the assessment concluded with appropriate measures in place the development would have minimal air quality impacts on surrounding receivers. Conditions include: • the Applicant must ensure the development does not cause or permit the emission of offensive odours. • the Applicant must comply with the operational odour minimisation requirements.
Bushfire • proposed site significantly prone to bushfire • the emergency plan is inadequate for the scale of the development	Assessment • the Department considered the fire risk of the development and concluded that with appropriate measures in place the development would not increase fire risk levels. • the RFS advised it had no concerns with the Bushfire Protection Assessment provided the Applicant complied with the recommendations within the BPA. Conditions include • the Applicant must implement the bushfire protection measures outlined in Section 6 Appendix J of the EIS titled Bushfire Protection Assessment.

Appendix E – Recommended Instrument of Consent

Available on the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/10891