Premise

Proposed Interim Wastewater Treatment System, Chelsea Gardens, Moss Vale

STATEMENT OF ENVIRONMENTAL EFFECTS

Report No: 321042/SEE01

27 October 2020

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DOCUMENT AUTHORISATION					
Revision	**Revision Date**	**Proposal Details**			
Final	22/10/20	SEE for Interim Wastewater Treatment System			
Prepared By		**Reviewed By**		**Authorised By**	
Paul Hume			27/10/2020		27/10/2020

CONTENTS

1. INTRODUCTION

Premise has been commissioned by Prime Moss Vale Pty Ltd to prepare a Statement of Environmental Effects (SEE) to accompany a Development Application (DA) for a proposed interim wastewater treatment system ('IWTS') at *Chelsea* Gardens, 32 Lovelle Street, Moss Vale. The purpose of the IWTS is to provide temporary wastewater management Stage 1 of a proposed residential subdivision of the aforementioned property and *Coomungie Lands*, which comprises the adjoining land at 141 Yarrawa Road (total site are of approximately 126ha). The proposed residential subdivision is the subject of a development application submitted but not yet determined (application ref: 20/0227).

This SEE has been prepared pursuant to Clause 50 and Part 1 of Schedule 1 of the *Environmental Planning and Assessment Regulation 2000* and is provided in the following format.

- **Section 2** of this report provides a description of the subject site and its locality.
- **Section 3** outlines the proposed development.
- **Section 4** details the planning framework applicable to the proposed development and an .
- **Section 5** identifies the impacts of the proposed development.
- **Section 6** provides a conclusion to the SEE.

This SEE should be read in conjunction with the plans and reports also accompanying the DA and listed in **Table 1** below.

Table 1 – Plans & Reports

Plans: Context Plan for Temporary Onsite Wastewater System	
Consultant	**Drawing Ref:**
JMD	18001S1 Sheet 1
Plans: Sight Lines from H1 & H2 to STP	
Consultant	**Drawing Ref:**
JMD	18001S1 Sheet 2
Plans: Detail Plan & Elevation of Proposed Temporary Onsite Wastewater Treatment Plant	
Consultant	**Drawing Ref:**
JMD	18001S1 Sheet 3
Plans Survey	
Consultant	**Drawing Ref:**
Cardno	8201822101-01-S-001 Sheets 1 to 17
Plans & Report: Chelsea Gardens PWTS Assessment	
Consultant	**Report Ref:**
Aerofloat	V02 15th October 2020
Report: Land Capability Assessment	
Consultant	**Report Ref:**
SEEC	20000305-LC-0A
Report: Flora & Fauna Assessment	
Consultant	**Report Ref:**
Ecoplanning	2018-112
Report: Aboriginal Cultural Heritage Assessment	
Consultant	**Report Ref:**
Biosis	28907

Table 1 – Plans & Reports contd.

Report: Soils, Groundwater, Agricultural Capability, Geotechnical classification, Minerals Potential & Preliminary Contamination Report	
Consultant	**Report Ref:**
Harvest Scientific Services	200677
Report: Estimated Cost of Development	
Consultant	**Report Ref:**
JMD	18001 stp cost estimate for da
Report: Waste Management Plan	
JMD	

2. THE SITE & ITS LOCALITY

2.1 The Site

The site the subject of the proposed IWTS is known as *Chelsea Gardens* and is located on the southern edge of the Moss Vale township, approximately 2km south east of the Moss Vale Town Centre. The legal description of the land is Lot 12 DP 866036, no. 32 Lovelle Street, Moss Vale.

The site, in combination with the Coomungie Lands (141 Yarrawa Road, Lot 3 DP 706194) is the subject of a development application (Council ref: 20/0227) seeking approval for:

- A Concept Development Application for residential subdivision plan (Master plan) for approximately 1,200 lots; and
- A detailed Stage 1 Development comprising Torrens Title subdivision for the creation of 173 residential lots, two (2) lots for open space or drainage and two (2) Residue Lots, with associated works including site clearing, tree removal, bulk earthworks and construction of new roads and public infrastructure, open space and restoration of a section of the Whites Creek.

Further site particulars relevant to this proposal are set out in **Table 2** below:

Table 2 – Site Particulars

Improvements	A single storey dwelling house is located in the north-west portion of the site previously known as "Coomungie". It's location is well away from the limit of works and activities associated with this proposal.
Access	Vehicle Access to the site is currently available from Lovelle Street to the north-west and Hill Road the north.
Topography	Areas within the limit of works and activities associated with this proposal is, gently undulating with slopes being generally less than 10%.
Vegetation	Overall mostly cleared land with small scattered patches of exotic vegetation. Small patches of Southern Highlands Shale Woodland are along the lot's boundary and within the adjoining golf course property to the north and north-west). A small patch of Tableland Basalt Forest is also in the golf course property to the north-west of the lot. These areas are well removed from the limit of works and activities associated with this proposal.
Watercourses	Four (4) sections of 1st order streams traverse the lot, with two of these streams in the vicinity of limit of works and activities associated with this proposal.

Flooding	According to Wingecarribee Shire Council's 'Whites Creek Flood Study' (Wingecarribee Shire Council, 2007) there is a low risk of flooding over the areas within the limit of works and activities associated with this proposal.
Heritage	The site is unaffected by any Heritage Items identified within the WLEP 2010. An archaeological assessment of the Site (Biosis, 2019), identified three (3) potential archaeological deposit ('PAD') sites on the lot, with two of these PAD sites within the area of where this proposal is located.
Bushfire	The site is largely unaffected from bushfire impact, aside from a very small portion of the northern boundary along a creek corridor.

Figure 1 – The Site (Lot 12 DP 866036) and Lot 3 DP 706194

2.2 The Locality

In general terms, the site is bounded by Yarrawa Road to the west and south, Moss Vale Golf Club and residential subdivisions to the north and north-west and largely rural pastoral and farming land to the east and south.

3. THE DEVELOPMENT

3.1 Background to the Proposal

Chelsea Gardens and Coomungie are identified as within an Urban Release Area under *Wingecarribee Local Environmental Plan 2010.*

Chelsea Gardens and Coomungie were rezoned for urban development purposes in 2017. The rezoning incorporated predominantly R2 - Low Density Residential, a portion of R5 - Large Lot Residential, a small area of B1 - Neighbourhood Centre, and RE1 - Public Recreation.

A Concept Development Application (DA20/0227) has been lodged for a residential subdivision at Chelsea Gardens into approximately 1,200 residential lots. The development is proposed to be delivered in seven (7) stages. The application includes a detailed proposal for the first stage of the subdivision comprising 173 future residential lots, together with associated works including site clearing, tree removal, bulk earthworks and construction of roads and public infrastructure and open space. Figure 2 below sets out the proposed staging plan.

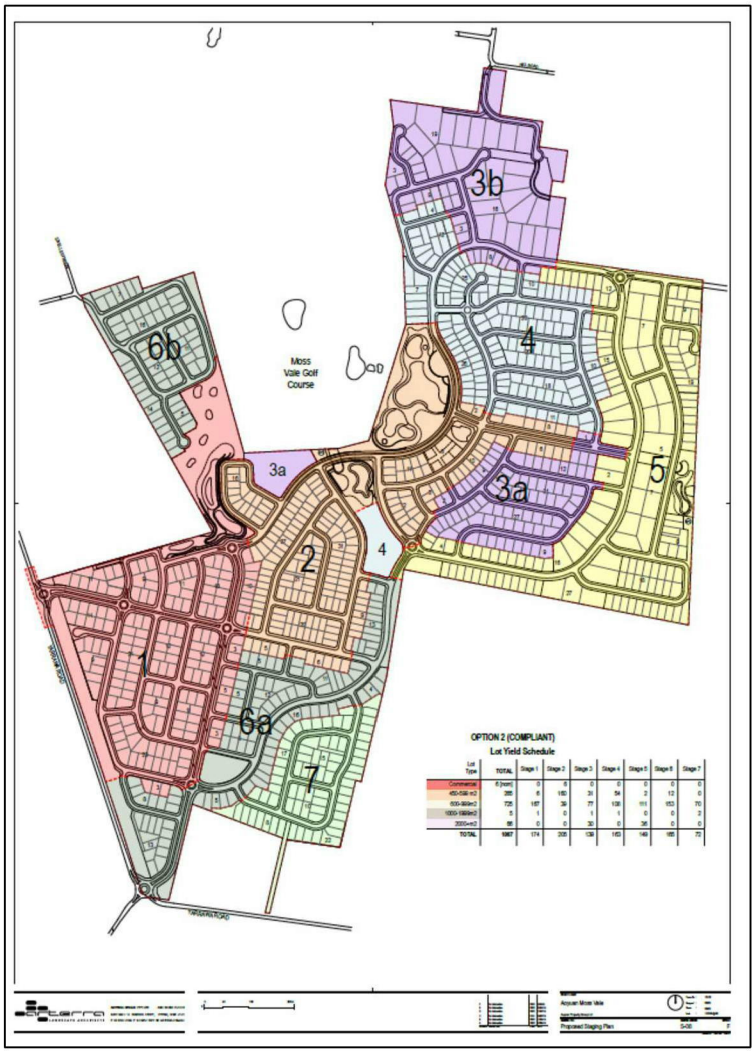

Figure 2 - Proposed Staging Plan

The provision of sewerage services to the Chelsea Gardens development site was reviewed by Urban Water Solutions (UWS) and the adopted strategy described in their report titled "Aoyuan International – Aoyuan Moss Vale Subdivision Sewer Servicing Strategy" dated 8 November 2019.

The majority of the subdivision development falls to a low point located at the south-eastern corner of the Moss Vale Golf Course. The UWS Strategy proposed to locate a receiving pump station (denoted as SPS1 in this report) in this corner of the site with all but the eastern portion of stage 5 and western portion of stage 6 being drained by gravity to the receiving pump station. It was proposed for the initial stages of the development that the discharge from SPS1 would be directed to the existing reticulation system located in the western portion of the site and serviced by Council's Moss Vale Sewerage Treatment Plant ('MVSTP'). The UWS Strategy proposes the installation of a small pump station (denoted SPS2 in this report) which will collect the flows discharged by a gravity reticulation system to service the eastern portion of Stage 5 and pump the flows to SPS1 via a rising main.

At the time of the preparation of the UWS Strategy, the limitation on the capacity of the MVSTP was unknown. The Council has since advised that there will be insufficient capacity in the MVSTP for any flows from the subdivision development until an upgrade of the MVSTP, scheduled for completion in 2024, is operational.

In order to provide management of wastewater for the initial Stage 1 of the subdivision development, until such time as the upgraded MVSTP is available to receive and treat wastewater, it is proposed to construct and operate an IWTS on part of the development site.

3.2 Development Description

The proposed development the subject of this SEE is for the construction and operation of an IWTS on part of the subdivision development site, within the existing Lot 12 DP 866036. The IWTS is proposed to be located adjacent to the eastern boundary of Lot 12, within the nominated Stage 5 of the subdivision development scheme.

The IWTS consists of a number of components including anoxic reactor tanks, activated sludge reactor tanks, sequence batch reactor tanks, a chlorine contact tank, an equipment shed and wet weather storage tanks. The design and operation of these components is fully described in the accompanying documentation provided by Aerofloat Wastewater treatment Specialists. The proposed SPS1 will also be constructed at its ultimate location as part of the works.

Whilst approval is being sought here to service Stage 1 of the subdivision development under DA 20/0227, the IWTS has a capability of treating sewage flows from up to 385 residential lots assuming an EP of 3.5 persons per lot and a flow rate of 180L per person per day as identified in Council's design specifications. This spare capacity provides a potential capability to service Stage 2 of the subdivision development should there be delays beyond the planned 2024 upgrade of MVSTP. It is proposed that the IWTS would be installed in three stages with each stage capable of treating the flow volumes from approximately 128 lots.
The sewer reticulation system for the Stage 1 subdivision will discharge to the proposed SPS1, which will then pump wastewater to the IWTS via a 125mm PE rising main.

The Assessment Report for the Packaged Wastewater Treatment System, prepared by Aerofloat, describes the treatment process of the IWTS in the following terms.

On receipt, sewage is pumped to an inlet rotating drum screen, which will remove screenings in the incoming sewage. Screenings will fall into a covered screenings bin via an enclosed Shute.

Screened Sewage will gravitate to an Anoxic Reactor ('An-R') and will be mixed (using a top down mixer) with nitrified recycled mixed liquor from an Activated Sludge Reactor ('ASR'). Nitrate in the Anoxic return activated sludge stream will be reduced to nitrogen gas in the An-R. Mixed liquor from the An-R will gravitate to the ASR to undergo aeration using a diffused air aeration system. The BOD in the sewage will be converted to new cells and carbon dioxide and the ammonia will be oxidised to Nitrate. Mixed liquor from the ASR will overflow to only one of the 2 x Sequence Batch Reactors ('SBR's) at any one time. Aeration in the SBRs will be by use of surface aeration. Aluminium Chloro-Hydrate ('ACH') will be dosed into the SBRs during the aeration phase for phosphorus reduction in the effluent. The SBRs will operate on a mix/aerate/settle/decant cycle. Aeration in both the ASR and the SBRs will be controlled by automatic DO control as well as time control. The contents will then be settled and treated effluent will be decanted to the chlorine contact tank. Excess biosolids from the SBR will be pumped to a 10,000-litre hopper bottom sludge holding tank for thickening. Thickened biosolids will be dewatered 3-4 days per week using a screw press to produce a dewatered cake with a solids content of ~15%. Treated effluent from the SBRs will then be chlorinated using liquid sodium hypochlorite while decanting into a 46,000-litre chlorine contact tank (CCT). After 30-60 minutes of contact time and further filtration using a sand filter the contents of the CCT will be transferred to the wet weather storage tank and then to disposal by irrigation when ground conditions permit.

The treated wastewater from the IWTS will be irrigated over the stage 5 development area (available irrigation area of 96,800m2). This rising main will be installed, where possible, on the future alignment and level of the Ultimate Stage 5 rising main serving SPS2 and be retained in place after decommissioning of the STP for reuse in conjunction with SPS2.

While the reticulation pipes to be installed as part of the Stage 1 residential subdivision DA will be built to Council's standards to facilitate ultimate connection to the upgraded MVSTP, the IWTS will be a privately owned facility maintained by the developer.
For maintenance of and access to SPS1 and the IWTS a 3m wide gravel access track is to be constructed from the end of the stage 1 development and through the stage 2 development area.

Please refer to the Context Plan by JMD ref: 18001S1 Sheet 1 accompanying this application which illustrates the location of the IWTS, SPS1, the connecting reticulation and gravel access road. A reduced copy of the plan is provided at **Figure 3**.

Chemicals used for the IWTS operation will be stored in a locked and fully enclosed and ventilated shed and comprise the following:-

- 2 x 100L IBC's of 30% caustic soda solution for alkalinity control
- 2 x 100L IBC's of 23% Aluminium Hydrochloride coagulant solution for Phosphorus removal
- 2 x 100L IBC's of 12.5% Liquid chlorine for disinfection of the treated effluent

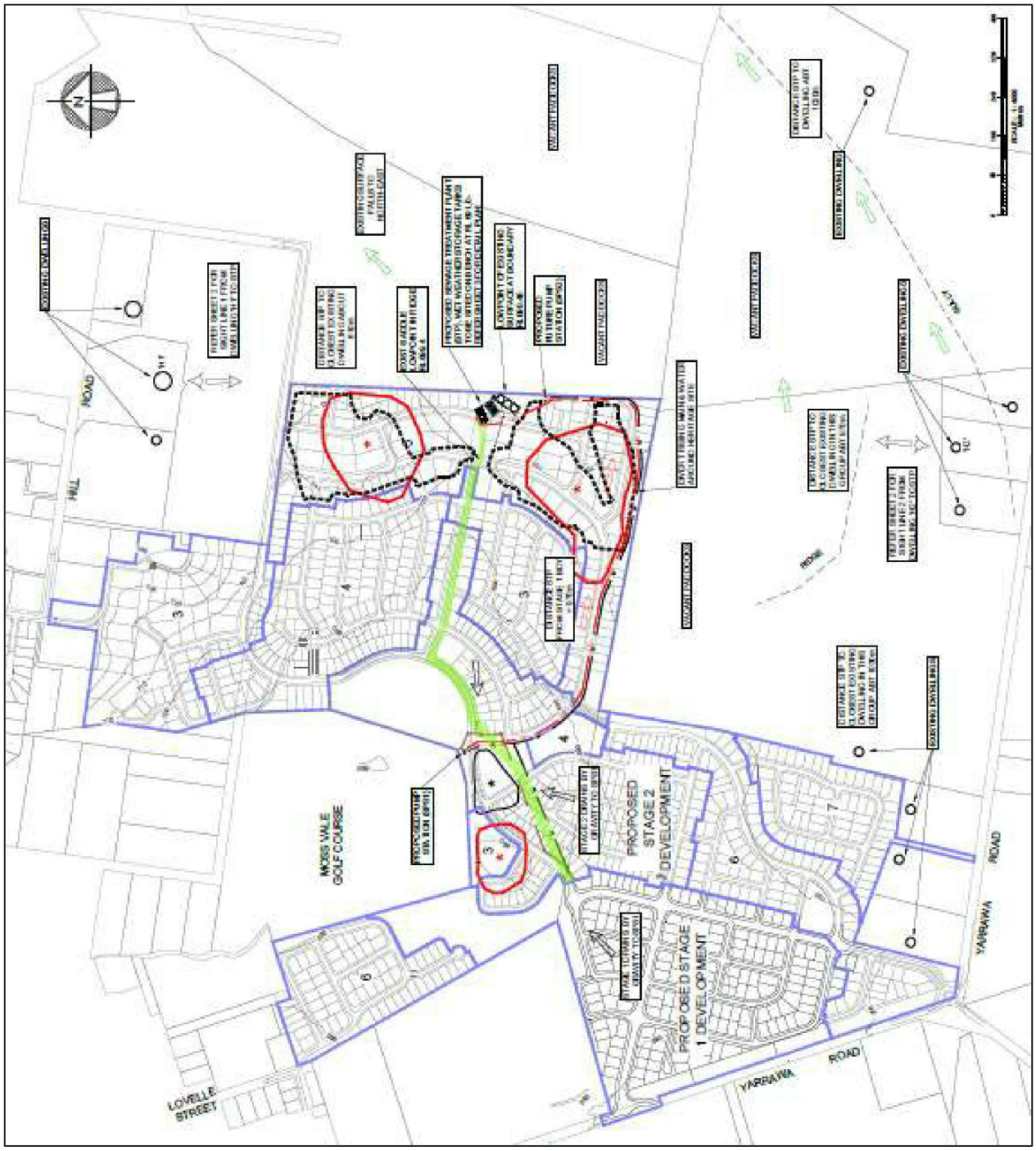

Figure 3 – Context Plan

4. SECTION 4.15 ASSESSMENT

This section provides an assessment of the proposal against the relevant matters for consideration under Section 4.15 of the EP&A Act, including the following Acts, Regulations, Environment Planning Instruments and Development Control Plans:

Acts:

- *NSW Environmental Planning & Assessment ('EP&A') Act 1979*
- *Commonwealth Environment Protection and Biodiversity Conservation ('EPBC') Act 1999*
- *Water Management Act 2000*

Environmental Planning Instruments:

- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development ('SEPP 33')*
- *State Environmental Planning Policy No.55 - Remediation of Land ('SEPP 55')*
- *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 ('Drinking Water Catchment SEPP')*
- *State Environmental Planning Policy (State and Regional Development) 2011 ('State & Regional Development SEPP')*
- *Wingecarribee Local Environmental Plan 2010 ('WLEP 2010')*

Development Control Plans

- *Moss Vale Township Development Control Plan, Section 22: Chelsea Gardens Coomungie Precinct ('Chelsea Gardens Coomungie Precinct DCP').*

4.1 EP&A Act

Objects

The EP&A Act instituted a system of environmental planning and assessment in NSW and is administered by the Department of Planning, Industry & Environment. In 2017, the Act was amended to provide a range of updated objects. The objects of the EP&A Act are:

(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,

(b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,

(c) To promote the orderly and economic use and development of land,

(d) To promote the delivery and maintenance of affordable housing,

(e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,

(f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

(g) To promote good design and amenity of the built environment,

(h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,

(i) To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,

(j) *To provide increased opportunity for community participation in environmental planning and assessment.*

The proposed development is not considered to be antipathetic to the above objects. It is consistent with facilitating the intended development outcomes for the Chelsea Gardens Coomungie Urban Release Area.

Section 1.7 – Application of Biodiversity Conservation Act 2016

Section 1.7 of the EP&A Act requires consideration of Part 7 of the *Biodiversity Conservation Act 2016* (BC Act). Part 7 of the BC Act relates to an obligation to determine whether a proposal is likely to significantly affect threatened species or ecological communities or their habitats. The matters to be taken into account and an assessment against those matters is provided in **Table 3** below:

Table 3 – BC Act Part 7 Matters

Matter	Assessment
(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	Having regard to the findings of the flora & fauna assessment accompanying the Concept DA 20/0227 (copy also accompanying this application), the proposed development will not have an adverse effect on threatened species.
(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity— (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	Having regard to the findings of the flora & fauna assessment accompanying the Concept DA 20/0227 (copy also accompanying this application), the proposed development will not have an adverse effect on endangered or critically endangered ecological communities..
(c) in relation to the habitat of a threatened species or ecological community— (i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and	Having regard to the findings of the flora & fauna assessment accompanying the Concept DA 20/0227 (copy also accompanying this application), the proposed development will not have an adverse effect on the habitat of threatened species or endangered ecological communityies.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	
(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	Having regard to the findings of the flora & fauna assessment accompanying the Concept DA 20/0227 (copy also accompanying, the site does not contain any declared area of outstanding biodiversity value.
(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	Having regard to the findings of the flora & fauna assessment accompanying the Concept DA 20/0227 (copy also accompanying, the proposed development would not be a key threatening process.

Section 4.10 – Designated Development

Section 4.10 defines *designated development* as development that is declared to be designated development by an environmental planning instrument or the regulations.

Schedule 3 of the *Environmental Planning and Assessment Regulation 2000* ('the Regulation') defines the types of development that are *designated development.* Part 1 of Schedule 3 identifies what is designated development. Clause 29 at Part 1 deals with *sewerage systems and sewer mining systems*.

29 Sewerage systems and sewer mining systems

(1) Sewerage systems or works (not being development for the purpose of sewer mining systems or works)—

(a) that have an intended processing capacity of more than 2,500 persons equivalent capacity or 750 kilolitres per day, or

(b) that have an intended processing capacity of more than 20 persons equivalent capacity or 6 kilolitres per day and are located—

(i) on a flood plain, or

(ii) within a coastal dune field, or

(iii) within a drinking water catchment, or

(iv) within 100 metres of a natural waterbody or wetland, or

(v) within 250 metres of a dwelling not associated with the development.

(2) Sewerage systems or works that incinerate sewage or sewage products.

(3) Sewer mining systems or works that extract and treat more than 1,500 kilolitres of sewage per day.

(4) This clause does not apply to—

(a) the pumping out of sewage from recreational vessels, or

(b) sewer mining systems or works that distribute treated water that is intended to be used solely for industrial purposes

Without considering the exception provisions at Schedule 3 Part 3, the proposed IWTS would be designated development by reason of it being a sewerage system or works exceeding the threshold at clause 29(1)(b), i.e. processing capacity of more than 20 persons equivalent capacity or 6 kilolitres per day and located within a drinking water catchment.

As mentioned above, Part 3 of Schedule 3 of the EP&A Regulation outlines what is excepted from designated development. Clause 37A at Part 3 provides:

37A. Ancillary development

(1) Development of a kind specified in Part 1 is not designated development if—

(a) it is ancillary to other development, and

(b) it is not proposed to be carried out independently of that other development.

(2) Subclause (1) does not apply to development of a kind specified in clause 29(1)(a).

As outlined above the proposed IWTS, being inextricably linked to Stage 1 of the Development, can be considered ancillary to that development. It therefore meets the criteria at clause 37A(1). A condition can be imposed on any approval to ensure that the development consent for the IWTS cannot be activated until the Stage 1 DA is granted.

The proposed IWTS has a processing capacity of approximately 1,348 EP (385 lots x 3.5 persons) or 243 kilolitres per day (1,348 x 180 litres per day). This is below the thresholds at Clause 29(1)(a) of processing more than 2,500 persons equivalent capacity or 750 kilolitres per day. It therefore meets the criteria at clause 37A(2).

We therefore consider that the proposed IWTS satisfies the qualifications of clause 37A as *ancillary development*. On this basis the proposed development is not *designated development*.

Section 4.47 – Integrated Development

For the purposes of the EP&A Act, Integrated development is development that, in order for it to be carried out, requires development consent and one or more of the approvals listed at Section 4.46.

Having reviewed Section 4.46 we provide the following comments:

- The development will not cause disturbance to any areas of potential aboriginal heritage significance as identified by the archaeological assessment of the Site (Biosis, 2019) submitted with the DA 02/0227 and also accompanying this submission. PAD site Areas 2 & 3 will only, in part, be used and maintained for surface irrigation. A s90 Permit under the *National Parks & Wildlife Act 1979* is therefore not required for this development.
- The proposed temporary gravel access road will cross an identified 1st Order Stream (tributary of Whites Creek). It is understood that this tributary, along with other identified 1st Order streams within the subdivision development site, have been authorised for removal through Precinct Planning for the rezoning of Chelsea Gardens and Coomungie. Having said this, construction of the temporary access road necessitates the obtaining of a Controlled Activity Approval ('CAA') under the *Water Management Act 2000* ('WM Act'). Consistent with the recommendations of the SEEC Land Capability Assessment accompanying this submission, no application of recycled water is proposed to occur within 40m of drainage depressions (1st Order streams) or dams.
- The development does not trigger the requirement for a s100B Authority under the Rural Fires Act 1991.
- The development does not require a license under the Protection of the Environment Operations Act 1997 as it does not exceed the scheduled activity thresholds.

In conclusion, the development can be defined as integrated development by reason of it requiring a CAA under the WM Act in respect to the construction of the temporary gravel access road.

4.2 EPBC Act 1991

A Flora & Fauna Assessment prepared by Ecoplanning was submitted with DA 20/0227 and accompanies this submission. In summary the assessment found the subdivision development site contains small patches of Southern Highlands Shale Woodland, a Critically Endangered Ecological Community (CEEC) under the EPBC Act 1991, along the lot's boundary and within the adjoining golf course property to the north and north-west). These areas are well removed from the limit of works and activities associated with this proposal. Therefore, assessment according to the Significant Impact Criteria (DoE 2013) was not required and has not been undertaken.

4.3 Water Management Act 2000 ('WM Act')

As detailed at Section 4.1 of this SEE, the proposed temporary gravel access road for service access to the IWTS will cross an identified 1st Order Stream (tributary of Whites Creek). It is understood that this tributary, along with other identified 1st Order streams within the subdivision development site, have been authorised for removal through Precinct Planning for the rezoning of Chelsea Gardens and Coomungie. Having said this, construction of the temporary access road necessitates the obtaining of a Controlled Activity Approval ('CAA') under the WM Act. It is considered that the temporary access road, given the above circumstances, would have minimal environmental impact subject to appropriate construction mitigation measures, i.e. sediment and erosion control measures being implemented. It is therefore considered that a CAA can be obtained for these works.

4.4 SEPP 33

SEPP 33 applies to any proposal which falls under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'. If not controlled appropriately, some activities within these industries may create an offsite risk or offence to people, property or the environment thereby making them potentially hazardous or potentially offensive.

Table 4 below sets out a summary of the quantities of dangerous goods (DG) that are proposed to be handled and/or stored at the site as a result of the development as well as SEPP 33 screening thresholds for 'potentially hazardous industry' or 'potentially offensive industry'.

Table 4 - SEPP 33 Screening

Chemical & DG class	Quantity stored	SEPP 33 DG combined storage thresholds
30% Caustic Soda Solution Class 8 II	200L	2,500 kgs or litres
12.5% Liquid Chlorine	200L	2,500 kgs or litres
23% Aluminium Chlorohydrate	200L	n/a

The quantity of storage would not exceed SEPP 33 thresholds. The DG materials would be stored within a bunded area.

4.5 SEPP 55

The suitability of the overall subdivision development site, from a contamination perspective, has been assessed and considered in the *Soils, Groundwater, Agricultural Capability, Geotechnical Classification, Minerals Potential and Preliminary Contamination Report* by consultants Harvest Scientific Services (Job ref: 200677, date 11/10/2006). The report accompanies this application and outlines:

A preliminary soil contamination assessment found that whilst some soil contamination is possible, its extent would be likely to be limited to discrete areas (associated with existing buildings, stock handling facilities etc) and easily remediated. Thus, provided further (focused) assessments are carried out and the site is appropriately remediated at the appropriate time, soil contamination is not considered to present a major impediment to the re-zoning of this site.

The areas referred to above as possibly having soil contamination are well removed from the limit of works and activities associated with this proposal. It is therefore considered the application satisfactorily demonstrates that the subject site is suitable for the proposed development pursuant to clause 7 of SEPP 55.

4.6 Drinking Water Catchment SEPP

The objectives of the Drinking Water Catchment SEPP are:

a) *to provide for healthy water catchments that will deliver high quality water while permitting development that is compatible with that goal;*

b) *to provide that a consent authority must not grant consent to a proposed development unless it is satisfied that the proposed development will have a neutral or beneficial effect on water quality; and*

c) *to support the maintenance or achievement of the water quality objectives for the Sydney drinking water catchment.*

Section 10 of the SEPP provides that a consent authority must not grant consent to development on land in the Sydney drinking water catchment unless it is satisfied that the carrying out of the proposed development would have a neutral or beneficial effect on water quality (the NorBE test). The concurrence of Water NSW for the purposes of the SEPP must also be obtained prior (Section11).

A land capability assessment for recycled water application has been prepared by SEEC (ref: 20000305) and accompanies this application. Section 2.16 of the assessment (Receiving Environment) outlines the following:

It is required that all new developments within the Sydney drinking water catchment have a Neutral or Beneficial Effect (NorBE) on water quality. This is assessed using the NorBE assessment tool which includes a Wastewater Effluent Model (WEM). SEEC were unable to undertake a WEM as the development is classed as a "Module 5" development (multi-dwelling housing). This (land capability assessment) report must be provided to WaterNSW for concurrence.

Section 5.5 of the SEEC land capability assessment outlines that recycled water ('RW') could feasibly be applied to a 9.68 ha irrigation area positioned within Future Stage 5 of the Chelsea Gardens Estate (Figures 2 and 6 in the assessment), subject to the following mitigation and management measures.

- RW irrigation should only occur within the area nominated in Figure 6;
- No more than 385 Equivalent Tenements (ET) must be serviced by the nominated irrigation area and the PWTS;
- No application of RW is to occur prior to forecast rainfall (>50% chance of 10 mm or more in 24 hours) or during or in the 24 hours after such an event;

- No application of RW is to occur if the total rainfall from the previous 5 days exceeds 50 mm;
- Application of RW must not occur within 40 m of the drainage depressions along the natural slope of the land and 40 m of dams as shown in Figure 6. A vegetation buffer must be provided in these areas as per the *National Guidelines for water recycling: Managing Health and Environmental Risks, November 2006;*
- Existing erosion near N. -34.5671 E. 150.3821 will need to be re-levelled and vegetated if that area is to be used for the application of RW;
- The application of RW must not exceed the maximum monthly applications rates and volumes presented in Table 6 in Section 4.7;
- No RW is to be applied within 15 m of all property boundaries and the Stage 5 boundary;
- Improved pastures are to be retained across all RW irrigation areas and must be periodically slashed to a height of around 100 mm;
- All RW irrigation areas and other wastewater infrastructure must be fenced from the public and stock, and warning sings erected along their fence lines (refer to Section 5.4.2 for details);
- Lime is to be applied to the RW irrigation area at a rate of 250gsm annually.
- Gypsum is to be applied to the RW irrigation area at 0.2 tonnes per hectare annually;
- To reduce the risk of frost damage, all distribution pipes within the RW irrigation field should be well buried, and all irrigation pipes must drain after pumping;
- Weekly visual inspections of the RW irrigation areas are to be carried out to observe if any pooling of RW is occurring at the surface or if any vegetation has begun to brown as a result of RW application, in accordance with the Monitoring Program in Section 5.3.1;
- For at least the first three years of RW application a topsoil and subsoil sample must be sent to the lab for testing annually as detailed in the Monitoring Program in Section 5.3.2;
- To ensure that all plumbing fixtures any new home constructed during Stage 1 and 2 of the development are a minimum four-star rating;
- To provide 4,079.8 m3 of wet weather storage for when wet weather prevents RW irrigation;

The assessment concludes that *providing the above mitigation, management and monitoring measures are implemented we consider that there is a reasonably low risk to the receiving environment of RW application at this site.*

4.7 WLEP 2010

Zoning, Zone Objectives & Permissibility

Chelsea Gardens (Lot 12 DP 866036) is predominantly zoned *R2 – Low Density Residential*, with small portions of land zoned *R5 – Large Lot Residential* and *RE1 – Public Recreation*. The portion of Lot 12 on which the IWTS is proposed to be located is zoned part *R2 – Low Density Residential* and part *R5 – Large Lot Residential.*

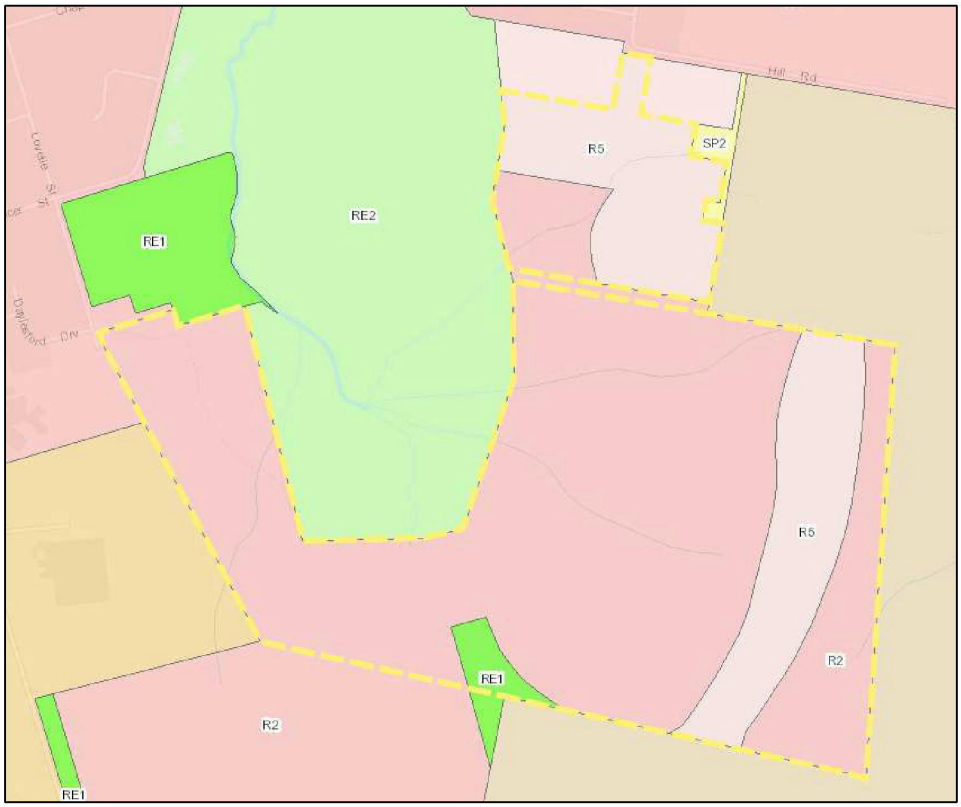

Figure 4 – Land Use Zones

Clause 2.3 of WLEP 2010 requires consideration of the applicable zone objectives when determining a development application. Zone objectives for the *R2 – Low Density Residential* and *R5 – Large Lot Residential* zones are:

R2 Low Density Residential

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

R5 – Large Lot Residential

- To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality.
- To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future.
- To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To provide a restricted range of opportunities for employment development and community facilities and services that do not unreasonably or significantly detract from (a) the primary residential function, character and amenity of the neighbourhood, and (b) the quality of the natural and built environments.

In respect to these objectives, the proposed development will facilitate low density residential housing in the Stage 1 subdivision development. Given its temporary nature, the development will not prevent the attainment of the zone objectives as envisaged by the masterplan for Chelsea Gardens and Coomungie Lands.

Under the WLEP 2010 the proposed IWTS is defined as a *sewage treatment plant*:

sewage treatment plant *means a building or place used for the treatment and disposal of sewage, whether or not the facility supplies recycled water for use as an alternative water supply.*

Sewage treatment plants fall within the 'group' definition of *sewerage system* under the WLEP 2010:

sewerage system *means any of the following—*

(a) biosolids treatment facility,

(b) sewage reticulation system,

(c) sewage treatment plant,

(d) water recycling facility,

(e) a building or place that is a combination of any of the things referred to in paragraphs (a)–(d).

A review of the Land Use Tables for the *R2 Low Density Residential* and *R5 Large Lot Residential,* zones indicates that a *sewage treatment plant*, as separate and independent of other permissible development, is prohibited development in the *R2 Low Density Residential* and *R5 Large Lot Residential* zones.

The purpose of the IWTS is to service the residential allotments under Stage 1 of the Development. The IWTS is ancillary or subordinate to that development. It does not intend to operate independently to it. It is inextricably linked to the Stage 1 subdivision development as it is required to implement the subdivision. On this basis the proposed IWTS is permissible.

Height of Buildings (clause 4.3)

No maximum building height applies to the land under WLEP 2010.

Heritage Conservation (clause 5.10)

The land does not contain any items listed at *Schedule 5 Environmental Heritage* of WLEP 2010. The development will not cause disturbance to any areas of potential aboriginal heritage significance as identified by the archaeological assessment of the Site (Biosis, 2019) submitted with the DA 02/0227 and also accompanying this submission. PAD site Areas 2 & 3 will only, in part, be used and maintained for surface irrigation.

Development Control Plan (clause 6.2)

Clause 6.2 requires that development consent must not be granted for development on land in an urban release area unless a development control plan that provides for the matters specified in clause 6.2(3) has been prepared for the land.

The *Moss Vale Township Development Control Plan, Section 22: Chelsea Gardens Coomungie Precinct ('Chelsea Gardens Coomungie Precinct DCP')* has been prepared and is in force. The relevant provisions of the DCP are addressed at Section 4.7 of this SEE.

Natural Resources Sensitivity - Water (clause 7.5)

The portion of the land subject to the proposed development includes *riparian land* as shown on the *Natural Resources Sensitivity Map* NRS_007 of WLEP 2010, being a 1st Order Stream and tributary of Whites Creek. The proposed temporary gravel access road to the IWTS Plant will cross the *riparian land*. As previously stated it is understood that this tributary has been authorised for removal through Precinct Planning for the rezoning of Chelsea Gardens and Coomungie.

Sub-clause (3) & (4) of clause 7.5 set out matters for consideration and satisfaction before granting development consent. An assessment of these matters for consideration and satisfaction is provided in **Table 5** below.

Table 5 – Clause 7.5(3) & (4) Assessment

Matters for consideration (clause 7.5(3)	
Matters	**Assessment**
(a) Impact on the natural flow regime	Flows, albeit minor, can be maintained through road drainage design.
(b) Impact on water quality of receiving waters	Sediment & erosion control measures to be implemented will manage water quality impacts.
(c) Impact on waterway's natural flow paths	Flows, albeit minor, can be maintained through road drainage design.
(d) Impact on stability of the waterway's bed, shore & banks	Sediment & erosion control measures to be implemented will manage water quality impacts.
(e) Impact on flow, capacity and quality of groundwater systems	Flows, albeit minor, can be maintained through road drainage design. Quality of groundwater systems not impacted.
Matters for consideration (clause 7.5(4)	
Matters	**Assessment**
(a) development is designed, sited and managed to avoid any potential adverse environmental impact, or	See (b) below.
(b) if that impact cannot be avoided—the development is designed, sited and will be managed to minimise that impact, or	Flows, albeit minor, can be maintained through road drainage design. Sediment & erosion control measures to be implemented will manage water quality impacts.
(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.	See (b) above.

The development satisfactorily addresses clause 7.5.

4.8 Chelsea Gardens Coomungie Precinct DCP'

Taking into account that the proposed IWTS is a temporary use of the land pending the availability of sewer capacity at the upgraded MVSTP, the following provisions of the DCP are considered to be relevant.

Indicative Master Plan (section 1.5)

Figure 2 of the DCP (replicated here at **Figure 5** of this SEE) illustrates the indicative master plan layout for the Precinct. The purpose of the indicative master plan is to illustrate a long-term vision of how development is envisaged to evolve at the Precinct.

The DCP acknowledges that due to its scale, development of the Precinct will occur in a staged manner over several years and in the following way:

- Stage 1 of the development will occur on the western portion of the site, with access off a proposed new roundabout at Yarrawa Road north.
- Stage 2 of the development will occur in the south-western portion of the site, with the remainder of the development to be staged progressively from the south-west to the northeast.

The proposed IWTS is located in the eastern portion of the site and within Stage 5 of the Development Concept Plan submitted with DA 20/0227.

Figure 5 – Indicative Master Plan

The construction and operation of the IWTS will not compromise the long term delivery of development in accordance with the Indicative Master Plan for the following reasons:

- It is temporary infrastructure pending the availability of sewer capacity at the upgraded MVSTP.
- Its location in the DCP identified 'Stage 2' sequencing of development does not compromise the anticipated sequencing delivery of development as per the DCP.
- Its location in Stage 5 of the Development Concept Plan in DA 20/0227 does not compromise the anticipated sequencing delivery of development as per the Development Concept Plan. It is well removed from the Stage 1 subdivision development area in the western portion of the Precinct.

Water & Sewer Servicing Strategies (section 2.11)

The DCP requires a water and sewer servicing strategy for development of the Precinct. In respect to sewer servicing, the strategy is required to include:

- The ultimate development potential and be supported by sewerage modelling and consider existing capacity within the reticulation networks and treatment facilities.
- Consider levels of service provisions.
- May include sewage pumping station, sewer trunk and reticulation mains, other sewer network upgrades and STP upgrades.
- Scheme Plans for sewer services are to document the planned provision of sewer infrastructure for the development.
- Identify where trunk and reticulation services (such as sewer mains and man holes, pumping stations) will be provided, and give an indication of likely timing.

A sewer servicing strategy for the overall Precinct development was submitted as part of the supporting information for DA 20/0227.

The proposed IWTS is temporary infrastructure to service the Stage 1 subdivision development under DA 20/0227. Included as part of this application for the IWTS is documentation outlining the level of service to be provided, system capacity / capability, details / location of associated infrastructure including the required pumping station sewer trunk and reticulation mains. Notably, the design of the IWTS works to maximise the construction of supporting infrastructure, such as SPS1 and rising main to the IWTS treatment plant, for utilisation as part of the overall Precinct servicing strategy submitted with DA 20/0227 to avoid sacrificial work as far as practical.

4.9 Environmental Impacts

Context & setting

The Chelsea Gardens and Coomungie Precinct has been zoned to allow for future residential and open space land use. A master plan has been developed to create a contemporary residential development that takes advantage of the existing landscape character of the site and its locality.

The proposed IWTS will not prevent the ultimate achievement of the intended master planned outcomes, given its temporary nature. It is not uncommon as part of the development of urban release areas, depending on the prevailing circumstances, to provide temporary servicing infrastructure to service initial development of these areas until the planned ultimate service infrastructure is completed and available. This is the case here.

The siting of the IWTS has been considered in terms of a number of design parameters, including the following:

- Locating the plant infrastructure so that it can effectively service the Stage 1 development area whilst minimising the extent of sacrificial reticulation work.
- Locating the plant infrastructure as far as practical from residences not associated with the development as well as the Stage 1 development area.
- Locating the plant infrastructure and irrigation areas so that they do not inhibit the intended staging and sequencing of the intended masterplan for Chelsea Gardens and Coomungie.
- Locating irrigation areas in areas of the site environmentally capable of receiving recycled water from the plant.
- Locating the plant buildings in a location as less visually obtrusive as possible, bearing in mind its temporary nature and the above design parameters.

It is considered that the proposed location of the IWTS at achieves all of the above design parameters.

Air Quality

An assessment report for the proposed IWTS has been prepared by Aerofloat, the designer, manufacturer and intended installer of the system. The Assessment report forms part of the development application, with and provides the following discussion at *Section 4.3 Odour Control* on potential air quality impacts and mitigation measures.

Due to the nature of the design, Aerofloat engineers do not anticipate any odour issues with the PWTS. The sewage treatment plant has no primary treatment, is a fully aerobic/anoxic plant and has a long sludge age - as such septicity will not occur in the PWTS. In addition, the biosolids produced and removed from the site and will have negligible odour issues due to the long sludge age.

The main concern for odour is associated with the inlet works, particularly during the early stages of development. This is due to sewage remaining in the rising main for longer periods of time because of the low flowrate with limited dwellings online. In this scenario, there is a potential for septicity in the rising mains which could cause potential odours around the inlet works.

The nearest dwellings (Stage 1) are some 900m away from the sewage treatment plant.

During the initial stages, odour will be closely monitored and if necessary, an odour scrubber will be installed at the inlet works. In addition, there will be an AeroGrid installed on the main pump station, an aeration mechanism which will provide treatment within the pump station. This will overcome septicity potential in the rising main and eliminate odours.

However, once the plant is closer to the design load, odour is not expected to be a problem in the pump station, rising main or sewage treatment plant.

The nearest dwellings not associated with the development are located:

- approximately 610m to the north of the treatment plant (properties on Hill Road).
- approximately 1km to the south of the treatment plant (properties on Yarrawa Road).
- Approximately 750m to the east of SPS1 (Harbison Hostel, Yarrawa Road).

Implementation of the above mitigation measures, if required, would also be considered as satisfactorily mitigating potential air quality impacts to these residences.

Dust and greenhouse gas emissions are not expected to issues of any significance.

Soil & Water Management

Potential soil and water impacts from the development are associated with both construction and operational phases.

During the construction phase, initial site earthworks, vehicle movements to, from and over construction areas and general construction management are potential sources of soil and water impacts.

Satisfactory mitigation of these potential impacts would be achieved by implementation and maintenance of suitable soil and sediment control measures and general construction management as part of an overall Construction Environmental Management Plan.

During the operational phase, potential soil and water quality impacts would be related to recycled water management, chemical storage and vehicle movements.

As detailed at **Section 4.5 of this SEE**, a land capability assessment for recycled water application has been prepared by SEEC (ref: 20000305) which outlines mitigation, management and monitoring measures for management of recycled water. implementation of these measures would satisfactorily mitigate potential impacts.

Chemical storage will be within an appropriately designed area of the storage building at the treatment plant facility, designed and managed in accordance with relevant Australian standards for spill containment capacity, ventilation and separation.

Vehicle movement impacts will be mitigated by the construction and use of the gravel access road to the treatment plant facility.

Access and Traffic

Traffic movements associated with the operation of the IWTS is provided in **Table 6** below:

Table 6 - Operational Traffic Movements

Purpose	Type	Frequency
Chemical supply	1 x 10 tonne light commercial vehicle	Up to 1 per 4 months
Export of bio-solids & sewage screening	1 x 12 tonne truck	Up to 1 per 7 weeks
Irrigation area maintenance – application of lime & gypsum	1 x truck & trailer	1 per annum
Visual inspections of irrigation area & operation of plant/pump station	1 x light vehicle	1 per week

Access to the site from the public road network will be via Yarrawa Road, connecting to the Stage subdivision road network and gravel access road to the IWTS

It is not expected that this level of traffic generation and type will have an unreasonable impact on the local road system or amenity of the locality.

Noise and Vibration

Potential environmental noise impacts from the development are associated with both construction and operational phases.

The estimated construction period for the IWTS is estimated at 12 weeks (weather permitting). Construction methodology is as follows:

- Site establishment including site access
- Bulk earthworks
- Construction of tanks, pipelines and concrete structures
- Installation of treatment units
- Ancillary works including fencing & landscaping

Likely noise generating equipment to be used during construction would include bored piling rig, bulldozer, excavator, grader, concrete agitators and pumps, crane, trucks (including dump trucks) and light vehicles. Some of this construction machinery would only be present for only brief periods during construction.

The IWTS system designers, Aerofloat, advise that the 'noisiest' aspect of systems operation will occur beside the aerator tanks and would be in the order of 55dBa. The closest aerated tank is about 18.5m from the boundary and they estimate that the noise level at the boundary would 35dBa.

Noise mitigation and management measures generally relate to controlling noise at the source, controlling the transmission of noise and controlling noise at the receiver. In respect to receivers it is noted that the nearest receiver not associated with the project is approximately 610m away. Traffic noise impacts are not expected as a result of traffic generated during construction or operation.

The following proposed mitigation measures, where feasible and reasonable, would satisfactorily mitigate noise generation:

Construction

- Limit construction hours to standard construction hours of 7am to 6pm Monday to Friday, 8am to 1pm Saturday and no work on Sunday/Public holiday.
- Notify nearby receivers detailing the construction activities, time periods over which they would occur, the duration of works and contact details.
- If noise complaints are received they should be recorded and attended to.
- Provide site inductions to all employees, contractors and subcontractors regarding quiet work practices, any limitations on high noise generating activities, permissible hours of work and appropriate behavioural practices.
- Quieter construction methods should be used where feasible.
- Minimise construction movements outside the standard construction hours.
- Turn off equipment after use.

Operation

- No truck movements during the night time period.
- Keep operational equipment well-maintained.
- Equipment should be turned off after use and not left idling.

- Provide site inductions regarding quiet work practices, permissible hours of work and appropriate behavioural practices.

Construction vibration impacts have the potential to occur during the earthworks stage of construction. This would be a source of intermittent vibration but would be unlikely to generate levels above acceptable vibration criteria as the nearest structures, not related to the Project, are located approximately 610m from construction works.

Flora and Fauna

As outlined previously, areas of significant vegetation or potential fauna habitat as identified by the Flora & Fauna Assessment prepared by Ecoplanning are well removed from the limit of works and activities associated with this proposal.

Impact on landscape and views

The proposed siting of the treatment plant will have a localised and temporary impact on the landscape character of the locality. Once constructed the plant will only remain for the short term, with its decommissioning and removal upon the availability of the upgraded MVSTP to receive wastewater from subdivision development of the Precinct (programmed for 2024).

In respect to views, an assessment of the topography between the nearest dwellings north and south of the STP, denoted H1 and H2 on the JMD plan ref: 18001S1 Sheet 1 of 3, has been carried out. The assessment is illustrated in JMD plan ref: 18001S1 Sheet 2 of 3. The assessment indicates:

- The existing topography prevents a clear view from the nearest dwelling to the north (H1) to the proposed STP site.
- The existing topography prevents any view of the proposed STP from the nearest dwelling to the south (H2).

An assessment was also undertaken of the view of the plant infrastructure from the adjoining property to the east. This is illustrated in JMD plan ref: 18001S1 Sheet 3 of 3. The assessment found that the built form of the plant will remain below the dominant ridgeline in the western background.

Heritage

The location of the IWTS does not affect any items of non-indigenous heritage.

The development will not cause disturbance to any areas of potential aboriginal heritage significance as identified by the archaeological assessment of the Site (Biosis, 2019) submitted with the DA 02/0227 and also accompanying this submission. PAD site Areas 2 & 3 will only, in part, be used and maintained for surface irrigation.

4.10 Social & Economic Impact

It is considered that the proposed development will have a positive social impact by facilitating the initial stage of the planned delivery of a new housing community at Chelsea Gardens and Coomungie. Potential environmental impacts are able to be satisfactorily mitigated.

The proposed development will have a positive economic impact through capital investment in the locality and job creation from the construction of this development and the Stage 1 subdivision development it facilitates.

4.11 Suitability of the Site for the Development

Having regard to the assessment undertaken by this SEE and the supporting technical documents and plans, it is considered that the site is suitable to for the proposed development. The IWTS is capable of providing an environmentally acceptable wastewater servicing solution for the Stage 1 subdivision until such time as the upgraded MVSTP is available to the receive wastewater.

4.12 Submissions

Any public submission will be considered as part of the assessment process as required by the provisions of the Environmental Planning and Assessment Act 1979

4.13 The Public Interest

The proposal is considered to be in the public interest as it will facilitate the delivery of the Stage 1 subdivision development of Chelsea Gardens and Coomungie urban release area Precinct. The development of the Precinct and the delivery of additional residential housing opportunity is consistent with intended development outcomes for the locality. As mentioned previously it is not uncommon as part of the development of urban release areas to provide temporary servicing infrastructure to service initial development of these areas until the planned ultimate service infrastructure is completed and available.

5. CONCLUSION

The development the subject of this SEE seeks approval to the construction and operation of an IWTS on Lot 12 DP 866036. The site forms part of Chelsea Gardens and Coomungie urban release area Precinct. The IWTS is proposed in order to provide wastewater services infrastructure for the proposed Stage 1 subdivision development under DA 20/0227 for the interim period until the upgraded MVSTP is available to the receive wastewater.

This SEE has considered the development against the relevant considerations of the Environmental Planning and Assessment Act 1979, relevant State Planning Policies, WLEP 2010 and the Chelsea Gardens Coomungie Precinct DCP. The development is permissible with consent and satisfies the relevant provisions of the Act, SEPPS, LEP & DCP.

Potential environmental impacts from the development have been considered by this SEE, with the benefit of the supporting technical documents and plans supporting the development application. The assessment of relevant environmental considerations, including water quality, air quality, context / setting, noise / vibration, traffic / access, flora / fauna and heritage has found that the development will not have unacceptable impacts with the adoption of the recommended mitigation, management and monitoring measures. The development will have a positive social and economic impact in the locality. Approval of the development is in the public interest as it will facilitate the delivery of additional residential housing opportunity consistent with intended development outcomes for the locality.

Having considered all the relevant matters, it is considered that the development can be supported and development consent granted subject to conditions.