Subject: **PES - Aquaculture Farm, Pindimar**

Index: **MP10-0006; Abalone Farm Pindimar**
Author: **Senior Strategic Land Use Planner - Alexandra Macvean**
Ordinary Meeting: **27 May 2014**

DETAILS:

Date Received:	20 March 2014
Applicant:	City Plan Services on behalf of Austasia Leefield Pty Ltd
Owner:	R Bressan, A Bressan and R Halliday
Land:	Lot 2 DP 1014683, 180 Clarke Street, Pindimar NSW
Area:	50.6Ha
Property Key:	31346
Zoning:	1(a) Rural and unzoned waterway, Great Lakes LEP 1996
Draft Zoning:	RU2 Rural Landscape and W2 Recreational Waterway, Great Lakes LEP 2014

Note: at the time of lodgement of the proposal with Planning & Environment (formerly Department of Planning and Infrastructure) Great Lakes LEP 2014 was a draft document. Great Lakes LEP 2014 was published on the NSW legislation website on 4 April 2014.

SUMMARY OF REPORT:

The report includes assessment comments and development consent condition recommendations relating to Major Project 10-0006 for the establishment of a land-based abalone farm at 180 Clarke Road, Pindimar.

SUMMARY OF RECOMMENDATION:

The recommendations contained within the report be endorsed by Council as a formal submission to Planning and Environment (formerly the Department of Planning and Infrastructure) as the development consent authority.

FINANCIAL/RESOURCE IMPLICATIONS:

Nil.

POLICY IMPLICATIONS:

Nil.

LEGAL IMPLICATIONS:

Nil.

LIST OF ANNEXURES:

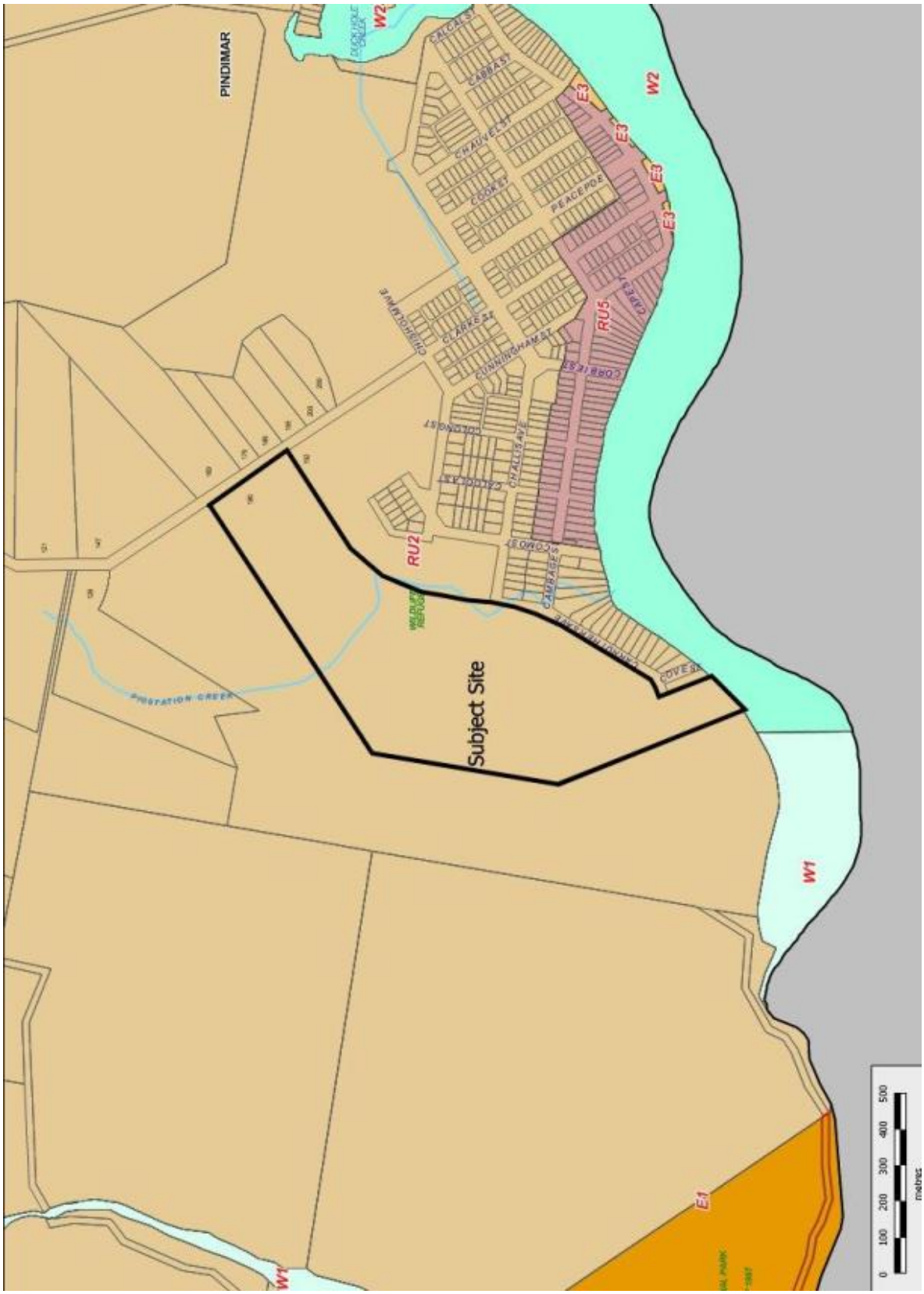
Nil.

LIST OF ATTACHMENTS:

A: Appendix 2 of the Environmental Assessment Report - Development Plans

Due to its large size, Attachment A has been circulated in hard copy to Councillors and Senior Staff only as a paper conservation measure. However, this Attachment is publicly available on Council's Website, copies are available at Council offices and copies are available on request.

SUBJECT SITE AND LOCALITY:



BACKGROUND:

The development of an Abalone farm on the subject site was originally proposed in 2003, when a Development Application (DA 313/2003) was lodged with Great Lakes Council. DA 313/2003 proposed an annual production of 30 tonne of live abalone using six megalitres of water from Port Stephens per day. Port Stephens Council delegated their consent authority role to Great Lakes Council for those components of the application located within the waters of Port Stephens.

The proposal was classed as 'designated development' under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and was assessed by Council and all relevant government agencies. The proposal was also subject to public exhibition and objections from some surrounding land owners. The matter was reported to Council in October 2006 and was subsequently approved by Council on 4 July 2006 with government agencies also issuing General Terms of Approval.

A third party appeal was made to the NSW Land & Environment Court (LEC) against the granting of the development consent under Section 98 of the EP&A Act (LEC Proceedings 10679/2006). During the Court hearing, detailed plans and documents were requested which were not able to be produced and the applicant subsequently agreed to the making of consent orders allowing the appeal and the proposal was withdrawn.

In late 2005, Part 3A of the EP&A Act was introduced.

On 17 October 2007, the Minister for Planning formed the opinion that the proposed development was a project to which Part 3A of the EP&A Act applied, as it is development for the purposes of aquaculture located in environmentally sensitive areas of State Significance. Such environmentally sensitive areas include 'coastal waters of the State' and 'marine parks'. This class of development was listed in Schedule 1 of *State Environmental Planning Policy (Major Projects) 2005*, now known as SEPP (Major Development) 2005.

Accordingly, a Major Project Application for the proposal, accompanied by a Preliminary Environmental Assessment Report, was lodged with the former NSW Department of Planning and Infrastructure (DP&I) (now Planning and Environment) in December 2009.

Subsequently, Director-General's Environmental Assessment Requirements (DGRs) for the Project were prepared in consultation with government agencies, and were issued to the proponent in May 2010.

Further legislative changes have occurred since the issuing of DGRs, most importantly the repeal of Part 3A from the EP&A Act in October 2011. Schedule 6A of the EP&A Act provides transitional arrangements for existing Part 3A projects that have not yet been determined. Accordingly, the Project will continue to be assessed as a 'transitional' Part 3A project to which the repealed Part 3A provisions continue to apply.

Note that, in November 2012, the proponent was advised by DP&I that the (draft) EA for this Project was to be submitted by 30 March 2013. As required, the draft EA was submitted, and was subsequently reviewed by relevant government agencies.

The current EA document has been amended and finalised with regard to the outcomes of that review and in consultation with government stakeholders (where relevant).

The Environmental Impact Statement and associated information has subsequently been placed on public exhibition for a period of fifty-two (52) days from 20 March to 12 May 2014. A public open day was held on 27 March 2014 by the applicant and proponent.

PROPOSAL:

The proposal is for a land-based aquaculture farm for the production of 60 tonnes per year of Blacklip Abalone (*Haliotis rubra*) for human consumption. Blacklip Abalone is an indigenous gastropod mollusc and a popular food product, particularly overseas. Abalone farms exist in most states and territories of Australia, although there are currently no farms in NSW.

The proposed farm will comprise a series of land-based tanks, sheds and ancillary structures to accommodate the quarantine, breeding and grow-out of abalone. Abalone will be harvested and transported to market as live product, with no post-harvest processing on-site.

Overlay of Proposed Abalone Farm on Aerial Imagery of 180 Clarke St, Pindimar

The abalone farm will be located within a 5ha precinct in the southern portion of the site with the pipelines extending up to 540metres into Port Stephens.

Summary of structures and their purpose from the Environmental Assessment Report

Site structures	Purpose

Broodstock Shed	• Purpose: secure building for Abalone quarantine, breeding and conditioning activities.
	• Structure: single-storey building (around 4.3m high), elevated on low piers to avoid cutting/ filling. Total floor area: approximately 135m2.
	• Contains: 5 insulated shipping containers designated for specified uses:
	  ○ Quarantine Room: tanks for the isolation and quarantine of Abalone. Room accessible via a separate vestibule and 2 lockable security doors;
	  ○ Spawning/ Hatchery Area: tanks and shelves of spawning containers; and
	  ○ Broodstock Conditioning Rooms (1-3): each will contain tanks to accommodate broodstock.
	• Access: disability - accessible ramp and steps.

Juvenile Shed	• Purpose: to accommodate very young Abalone on algal culture systems until ready for adult diets. • Structure: single-storey building (around 3m high) comprising polypropylene walls, elevated on low piers to avoid cutting/ filling. Total area: approximately 135m2. • Contains: a series of tanks to accommodate juvenile Abalone. • Access: disability - accessible ramp.
External Juvenile Area	• Purpose: to accommodate juvenile Abalone during the transition period between algal feeding and adult diets. • Structure: outdoor cultivation area comprising a levelled, gravelled space. • Contains: a series of low density, shade-cloth covered plastic tanks. • Access: gravelled pedestrian paths between rows of tanks.
Grow Out Sheds	• Purpose: to accommodate the growth and maturation of Abalone until ready for harvest. • Structure: 3 x single-storey buildings (around 3.6m high). Grow Out Shed 3 will be partially positioned on low piers to minimise cut and fill. Remaining buildings will be set partially into the ground. Each building has a total area of approximately 750m2. • Contains: a series of stacked shallow raceway tanks (creating artificial channels for the flow-through of water) to accommodate mature Abalone. • Access: ground-level doorways and disability - accessible ramps (for Grow Out Shed 3).

Facility Shed & Office	• Purpose: to accommodate the depuration and packing of live Abalone (after harvest), workspaces, amenities for staff use, general office space and storage areas.
	• Structure: single-storey building (around 3.6m high), elevated on low piers to avoid cutting/ filling. Total area of approximately 225m2.
	• Contains:
	  ○ Facility shed/ Packing Room: containing depuration tanks and packing area;
	  ○ Store room: space for storage and workshop uses;

	○ Refrigeration room: including shelving; and ○ Office areas: will include a kitchen, amenities (including shower), office space, reception area, first aid room and screened-in porch. • Access: disability - accessible ramps.
Header Tank Area	• Purpose: to receive and store marine water from the Intake Pipes, before distribution to selected farm facilities (e.g. Broodstock Shed). • Structure: 8 x standalone, cylindrical concrete tanks with removable manhole covers, situated on a levelled rock surface. Combined volume approximately 5ML. • Contains: as above. • Access: informal.
Settlement Ponds	• Purpose: the collection, storage and settlement of marine water after use within the farm facilities, and before release into Port Stephens. • Structure: 2 x rectangular ponds excavated into the ground and lined with high-strength pond plastic. Each pond will have a volume of approximately 2.1ML; and an average depth of 2m. • Contains: as above. • Access: informal.
Pumphouse	• Purpose: to accommodate pumps and other equipment related to the intake/ outlet of marine water via the Intake/ Outlet Pipes. • Structure: secure, concrete building set predominantly below ground to a floor depth corresponding with the level of 'Indian Spring Low Tide' (approximately 2m deep). Walls will be constructed of impermeable material. Part of the roof will be covered with earth and revegetated. • Contains: principal electric pumps, bilge pumps, diesel-powered backup pump, battery backup and alarm systems. Batteries will be stored in a separate battery room on the upper floor. • Access: ramp and stairs down to Pumphouse floor.
Intake Pipes	• Purpose: to facilitate the intake and transport of marine water from Port Stephens to the farm. Water will be pumped from the Port via pumps within the Pumphouse to the farm facilities. • Structure: 2 x polypropylene pipes with an internal diameter of approximately 500mm and external diameter of approximately 630mm. Pipes will generally be positioned adjacent to each other and have a total length of approximately 540m (from the Mean High Water Mark). ○ Within the main farm precinct, pipes laid directly onto the ground's surface. ○ At road intersections, pipes buried underground within culverts. ○ Between the farm precinct and the Pumphouse, pipes placed on low concrete supports (approximately 20cm high) positioned on the ground's surface. ○ South of the Pumphouse, pipes buried underground, through the foreshore of Port Stephens, to the southern edge of the intertidal area (i.e. just south of Indian Spring Low Tide). ○ South of Indian Spring Low Tide pipes emerge from underground and will sit on low concrete supports/ footings (approximately 50cm high) positioned on the seabed. ○ Pipe terminals (water inlets) will be positioned at a depth of 15-20m. Each inlet will be fitted with 'passive fish screens'. • Contains: as above. • Access: informal.

Outflow Pipes	• Purpose: to facilitate the release of marine water from the farm to Port Stephens. Water will be released from the Settlement Ponds and will generally flow via gravity, occasionally supported by pumps within the Pumphouse. • Structure: (As for Intake Pipes). Pipe terminals (water outlets) will be positioned at a depth of approximately 6m. The total length of the pipes is approximately 450m (from the Mean High Water Mark). • Contains: as above. • Access: informal.
Parking area & loading bay	• Purpose: visitor and staff parking, loading & unloading of goods. • Structure: cleared, levelled area (levelled rock). Loading bay along existing road, adjacent to Facility Shed. • Contains: 8 car parking spaces, including 1 space accessible for people with disabilities • Access: informal.
Bin Storage	A level, gravelled area for the temporary storage of recyclable and non-recyclable waste. Dumpsters will be screened via a low fence.
RFS Tank & Equipment	50,000L concrete water tank equipped with a diesel powered pump and fire hose reel. To be filled with freshwater (from onsite rainwater collection systems) and utilised for fire fighting purposes only.
Access Road Network	Upgrading of existing dirt roads and access tracks within site to meet RFS requirements, predominantly via grading of roads to provide a level, trafficable surface. Roads will remain a single-lane width with occasional passing bays. No new roads are proposed.
Boardwalk	A wooden boardwalk to provide emergency pedestrian egress from the site onto an existing access track at the western end of Cambage Street. Will provide access over previously disturbed areas of wetland and Pig Station Creek. Main features: • Timber deck boardwalk with a length of approximately 45m, and a width of approximately 2m; • raised on wooden piles to a height sufficient to provide clearance over the Indian Spring High Tide mark; • appropriate safety railings (if required); • lockable gate to be positioned within subject site boundary, to restrict unauthorised access into the farm.
Ancillary Development & Site Works	Additional site works to support the farm include: • Limited excavation works associated with pipe burial, building construction etc.; • Rainwater tanks and other stormwater management controls; • Pump-out septic system for sewage management; • Revegetation/ landscaping with native vegetation in key areas; • Minimal outdoor site lighting around farm facilities, predominantly limited to solar powered path-lighting; • Marine water piping and open channel/drain system within the farm precinct, including connections to the 2 x Settlement Tanks; and • 3 x navigational buoys associated with marine pipelines in Port Stephens.

The farm will have a building footprint of approximately 1.2ha, will require the clearing of about 1.2ha of vegetation and the partial clearing of an additional 1.2ha for bushfire hazard reduction and other purposes.

An on-site conservation area of approximately 5.14ha (around 10% of the subject site) is proposed to be conserved in perpetuity for ecological purposes, to compensate for the area of vegetation required to be cleared or disturbed in association with the farm.

The construction of the farm is anticipated to be staged over approximately 3 years, although timing will be dependent on stock production and demand requirements (i.e. as the first abalone cohort reaches maturity milestones). Abalone cultivation operations are expected to begin at the conclusion of Stage 1.

- Stage 1: Undertaking of all road upgrade works, relevant site works and installation of servicing infrastructure. Construction of the Broodstock Shed, Facility Shed, Office, Header Tank Area, Settlement Ponds, Pumphouse and Intake / Outlet Pipes;
- Stage 2: Construction of the Juvenile Shed and External Juvenile Area (constructed as demand requires); and
- Stage 3: Construction of Grow Out Sheds 1, 2 and 3, as demand requires.

At full capacity the farm is anticipated to produce approximately 60 tonnes per year of live marketable abalone. It is likely to take approximately 3.5 years to achieve full production rates.

This production rate assumes 2 successful spawning runs per year, resulting in up to 31.6 tonnes of abalone being available for market every 6 months.

When abalone are of market size and ready for harvest, they are kept within depuration tanks, to eliminate waste products. As abalone are not filter feeders, they do not require a 'purging' process as with edible oysters (i.e. involving the expulsion of potentially hazardous impurities, such as faecal bacterial contaminants, from the intestinal contents of bivalves [Lee et. Al 2008]).

Abalone will be transported from the farm to on-sale destinations within small refrigerated vehicles. Each vehicle is expected to accommodate 1-2 tonnes of abalone, with an average of 1-2 trips per week anticipated (to a total annual production weight of approximately 60 tonnes per year). Abalone will be sold as a live product, with some stock to be sold within domestic markets (i.e. most likely within Sydney) and a large proportion to be exported directly overseas.

At full production, up to 50 mega litres of marine water will pass through the farm systems daily. The water will be sourced from Port Stephens via pipelines, and will receive in-farm water quality treatment before it is returned to the Port. Pipelines will be buried underground along the Port's foreshore and intertidal areas but will be positioned above the seabed below the low tide mark.

It is expected that the Project will result in the creation of approximately 35 construction jobs and 15 full-time equivalent operational positions. Aquaculture research and education opportunities are also envisaged but do not form part of this application.

SITE DESCRIPTION:

The subject site is located at 180 Clarke Street, South Pindimar (Lot 2 in DP 1014683) which has a total area of approximately 50.6 hectares (ha) and has direct frontage to the waters of Port Stephens.

The majority of the site is heavily vegetated with an existing unformed access road to and within the site. There is a small kaffir lime leaf orchard and foreshore structures on the property.

The landward site has been identified as having endangered ecological species, threatened species and potential koala habitat. There are also mangroves and seagrass beds within the waters of Port Stephens.

The site is classified as partially bushfire prone, partially flood affected and potentially affected by sea level rise. The site is located within the SEPP 71 Coastal zone, has riparian lands, a watercourse and is affected by 100m development buffers to an adjoining SEPP 14 Coastal Wetland and the Port Stephens-Great Lakes Marine Park.

The closest residential development in the Pindimar (south) village is located approximately 200m from the eastern boundary of the site. The existing dwelling on Lot 1, DP 1014683 to the west, is located approximately 100m from the proposed site of the pumphouse.

The land, intertidal zone and part of Port Stephens are located within the Great Lakes Local Government Area, and the adjacent water is within the Port Stephens Local Government Area. Port Stephens Council have made a separate submission to Planning and Environment on this application.

REPORT:

The following matters listed under Section 79C of the Environmental Planning and Assessment Act, 1979, are relevant in considering this application:

a) ***The provisions of any environmental planning instrument; any proposed instrument that is or has been the subject of public consultation and which have been notified to the consent authority; any DCP; any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F; any matters prescribed by the regulations; any coastal zone management plan that apply to the development application on the subject land.***

Environment Protection and Biodiversity Conservation Act 1999

The listed matters of national environmental significance in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) include world heritage properties, national heritage places, the commonwealth marine environment, nuclear actions, Ramsar wetlands, nationally threatened species and communities and international migratory species.

Council officers make the following comments with regards to the provisions of the EPBC Act:

- The proposal is not a nuclear action and the land is not on or in the vicinity of any Ramsar wetland, world heritage property, national heritage place or Commonwealth marine environment.
- While nationally threatened and migratory bird species may transiently utilise the intertidal zones in the vicinity of the pipelines, the pipeline occupies a very minor area of the available habitat and could be deemed unlikely to disturb or affect the activity patterns of wader-birds in this locality.
- In the terrestrial landscape, the Koala and Grey-headed Flying-fox are known to occur on the subject land. The proposal will remove and modify 2.4-hectares of forage for Grey-headed Flying-fox. Twenty-four koala food trees will be removed. The proposal may not be considered likely to significantly affect any habitats for the Koala and Grey-headed Flying-fox however this can be ensured by way of appropriate development consent conditions.

Environmental Planning and Assessment Act 1979

In relation to s5A of the *Environmental Planning and Assessment Act 1979* (EP&A Act 1979), the development proposes to disturb endangered ecological communities (EEC) and remove known

or potential threatened species habitat. A number of threatened species are known to occur on the subject land.

These matters are discussed in detail elsewhere in this report however, with regards to s5A of the EP&A Act 1979, the pertinent question is whether the proposed development would cause a catastrophic loss of threatened biodiversity populations in the locality and represent an unreasonable and significant loss of habitat or threats to species lifecycles.

Through analysis of the Assessment of Significance, the proposed development would not be associated with a significant impact on threatened species or EEC provided mitigation measures are implemented successfully.

The proposal would also not cause the significant harm or loss of habitat to any local populations of threatened biodiversity. Conditions of consent are very important to ensure that there are no direct or indirect impacts on trees and habitat.

Fisheries Management Act 1994

In relation to threatened aquatic species listed on the *Fisheries Management Act 1994*, the boardwalk traverses Mangrove habitat and the pipelines are within *Posidonia* seagrass beds. The Aquatic Report highlights a possibility of 40 square metres of *Posidonia* beds being impacted, but this can be minimised and even compensated by appropriate techniques.

These matters are discussed in additional detail elsewhere in this report.

Great Lakes Local Environmental Plan 1996 (LEP 1996)

The relevant aims and objectives of Great Lakes LEP 1996 are to:

a) protect and enhance the environmental qualities of the area; and
b) facilitate the orderly and economic development of land within the area; and
c) promote the well-being of the area's population; and
d) protect environmentally sensitive areas and the heritage of the area; and
e) improve opportunities for ecologically sustainable development; and
f) provide for the cultural needs of and the equitable provision of services and facilities for the community.

The development is proposed on lands and waters identified at local, regional and state levels as being environmentally sensitive with a potential aboriginal midden also located on the foreshore perimeter of the site.

The information provided with the development application indicates an intention to conserve a portion of the site for terrestrial biodiversity and where possible, minimise the short-term impacts associated with construction on the terrestrial and aquatic environments.

The proposal represents a significant development on a rural allotment which has the potential for high economic return which could in turn contribute to employment opportunities and future development potential in the locality.

The potential extent of impacts upon the waters of Port Stephens and in particular on wild populations of abalone and other aquatic species cannot be fully determined by Council officers however, the overall management of such a development may be expected to be heavily regulated by state authorities and subject to detailed assessment by those authorities.

Therefore, with the exemption of "a)" where the full impact of the proposal on the environmental qualities of the area, namely water quality, the proposal with the additional information and amendments recommended by Council officers is considered to be generally consistent with the objectives of Great Lakes LEP 1996.

The landward portion of the subject site was zoned 1(a) Rural under the provisions of LEP 1996 and aquaculture was permitted with development consent in this zone.

In accordance with Clause 8 (3) of LEP 1996 the proposed development is also considered to be generally consistent with at least one or more of the objectives of the 1(a) Rural zone of Great Lakes LEP 1996 which aimed "*to restrict development to those uses which are unlikely to:*

a) prejudice in a significant manner the agricultural production potential of land within the zone; and
b) generate significant additional traffic, or create or increase a condition of ribbon development on any road, relative to the capacity and safety of the road; and
c) have an adverse impact on the area's water resources; and
d) create unreasonable or uneconomic demands for the provision or extension of public amenities or services".

The waters of Port Stephens within the Great Lakes local government boundary were unzoned under Great Lakes Local LEP 1996 and development applications on unzoned land are subject to a merits assessment.

The pipe line structures associated with the proposal are located in part, within these unzoned waters and inter-tidal areas and in so far as the unzoned land provisions of LEP 1996 apply, are considered to be acceptable. As discussed elsewhere in this report, it is the potential impact of the development on the waters of Port Stephens that are of concern.

Port Stephens-Great Lakes Marine Park

The Port Stephens estuary forms part of the Port Stephens-Great Lakes Marine Park.

Piggy's Beach is located to the west of the subject site, associated with a 'Sanctuary Zone' pursuant to the Marine Park Zoning Plan. The area of the Park directly south of the subject site is zoned 'General Use' under this Zoning Plan.

The mean high water mark (foreshore) forms the southern boundary of the site and development within this area is located within the 100m development buffer to the Marine Park. Within the foreshore there are mangrove trees of varying maturity and a shallow intertidal area extends for approximately 200m from the foreshore. A seagrass meadow (*Posidonia australis*) is present beyond the intertidal zone.

The proposal incorporates the construction of a pumphouse which appears to be located just outside the 100m Marine Park development buffer and pipeline infrastructure within the buffer. These facilities are in part, proposed as submerged and trenched infrastructure which shall require the removal and disturbance to the protected vegetation in these areas.

The impacts on these works are discussed in detail elsewhere in this report.

State Environmental Planning Policy 14 - Coastal Wetland

Two SEPP 14 wetlands are located to the east (Wetland No. 757a) and west (Wetland No. 757b) of the subject land.

An alternate bushfire evacuation egress in the form of a boardwalk over Pig Station Creek within the unformed section of Cambage Street is proposed just to the west of the mapped boundary of Wetland No. 757a. The remainder of the egress which links up with the formed Cambage Street will cross through approximately 110 metres of Wetland No. 757a.

The proposal will not drain, fill, clear or construct a levee on land classified as a SEPP14 wetland. Turbidity generated as a consequence of the development is unlikely to create impacts on proximal areas of SEPP14 Coastal Wetland such that ecological function and habitat within such areas is negatively affected.

The section of egress that traverses the SEPP 14 wetland does not require any additional modification as it consists of a vehicle track previously built up above the high water mark by imported fill.

State Environmental Planning Policy 44 - Koala Habitat

In relation to SEPP 44 Koala Habitat, the subject land is considered Potential Koala Habitat. According to the Flora and Fauna Report:

"*an assessment revealed that E. robusta [Eucalyptus robusta] and E. microcorys [Eucalyptus microcorys] would comprise over 15% of the total trees present in some locations, particularly the far southern portion of the study area where the proposal is situated. Therefore the study area would be considered to constitute 'Potential Koala Habitat', and accordingly further provisions of this policy apply to the site".*

No Koalas were directly observed during field surveys however there is evidence of Koala activity through the identification of a small number of scats on the land.

The Flora and Fauna Report concluded that "*given the lack of Koala sightings and low level of Koala activity it is not considered that the study area constitutes 'Core Koala Habitat'*". This conclusion appears to be at odds with the definition of Core Koala Habitat in SEPP 44.

The SEPP 44 defines Core Koala Habitat as "*an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population*".

The Oxford dictionary defines the word resident, in the context of animals as "*remaining in an area throughout the year*".

The SEPP defines resident by evidence of breeding females and recent and historical records.

The Flora and Fauna Report states "*a mother and young was sighted in 2012 to the north-west [north-east] of the study area on Clarke Road [Street] adjacent to the neighbouring Lot 3*". In addition, Koala scats have been recorded on the land during previous surveys of 2002 and in recent surveys of 2010. Interrogations of the Atlas of NSW Wildlife reveal records of the Koala on the land in 1995 and in various other locations and dates nearby.

Therefore there is enough justified evidence to consider the land as Core Koala Habitat and a Koala Plan of Management should be prepared.

State Environmental Planning Policy 62 - Sustainable Aquaculture

SEPP 62 outlines the parameters for where and how sustainable aquaculture activities can occur within the state of New South Wales. Implementation of the SEPP also requires compliance with the provisions of the *NSW Land Based Sustainable Aquaculture Strategy* and the *NSW Oyster Industry Sustainable Aquaculture Strategy.*

Compliance with these provisions is assessed by nominated state authorities.

Council officers are satisfied that the abalone farm proposal satisfies the aims and objectives of SEPP 62 and is located on a site where sustainable land-based aquaculture development is permissible.

State Environmental Planning Policy 71 - Coastal Protection

SEPP 71 identifies State Significant Development with in the coastal zone and requires development applications for development in “sensitive coastal locations” in effect SEPP 71 aims

to further the implementation of the *NSW Coastal Policy 1997* and the provisions of the *Coastal Protection Act 1979.*

For the purposes of SEPP 71 the applicant's proposal constitutes a development within a "sensitive coastal location".

SEPP 71 therefore requires that certain ecological matters be considered in the determination of relevant development applications. Part 2, clause 8 of the SEPP requires consideration of the aims of the policy to protect and manage coastal native vegetation, wildlife corridors, threatened species and aquatic biodiversity.

The impacts of the proposal on threatened aquatic species are discussed in detail elsewhere in this report however the proposal is not likely to significantly impact upon these species.

Furthermore, the impacts of the proposal on threatened biodiversity listed on the *Threatened Species Conservation Act 1995* (TSC Act) are also discussed in detail elsewhere in this report. These findings indicate that a significant impact on such species would not result from the work.

Draft Great Lakes Local Environmental Plan 2014 (LEP 2014 - gazetted 4 April 2014)

The relevant aims and objectives of Great Lakes LEP 2014 are to:

a) to facilitate the orderly and sustainable economic development of land,
b) to promote the health and well being of the population,
c) to protect and enhance environmental, scenic and landscape assets,
d) to facilitate cultural activities that will benefit the community,
e) to promote the equitable provision of services and facilities for the community,
f) to ensure that development does not create unreasonable or uneconomic demands for the provision or extension of public amenities or services,
g) to promote public transport patronage and encourage walking and cycling,
h) to ensure that development has regard to the capability of the land so that the risk of degradation is minimised,
i) to minimise land use conflict,
j) to ensure that development meets any local water quality objectives adopted by Council in relation to groundwater, rivers, estuaries, wetlands and other waterbodies,
k) to protect, enhance and provide for the long-term management of native biodiversity, including habitat linkages, threatened species populations and endangered ecological communities, and to identify and protect biodiversity links or corridors throughout the landscape.

The proposal is considered to be generally consistent with the objectives of Great Lakes LEP 2014 however concerns are raised with regards to the satisfaction of those objectives specifically relating to the water quality and environmental management objectives.

These matters are discussed in detail elsewhere in this report and Council officers recommend that additional information be provided to Planning & Environment (formerly the Department of Planning & Infrastructure) to ensure that appropriate assessment and management practices can be established prior to determination of the application.

The landward portion of the subject site is zoned RU2 Rural Landscape under the provisions of LEP 2014. Aquaculture is defined as an activity permitted with development consent in this zone under the 'agriculture' group term.

The proposal is considered to satisfy the objectives of the RU2 Rural Landscape zone of Great Lakes LEP 2014 which aim:

- *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *To maintain the rural landscape character of the land.*
- *To provide for a range of compatible land uses, including extensive agriculture.*

- *To provide for rural tourism in association with the primary industry capability of the land which is based on the rural attributes of the land.*
- *To secure a future for agriculture in the area by minimising the fragmentation of rural land and loss of potential agricultural productivity.*

The waters of Port Stephens within the Great Lakes local government boundary are zoned W2 Recreational Waterway under Great Lakes Local LEP 2014 and aquaculture is permissible in this zone with development consent.

The pipeline structures associated with the proposal are located in part, within the waters and inter-tidal areas in the W2 Recreational Waterway zone of Great Lakes LEP 2014 and are considered to satisfy the zone objectives:

- *To protect the ecological, scenic and recreation values of recreational waterways.*
- *To allow for water-based recreation and related uses.*
- *To provide for sustainable fishing industries and recreational fishing.*
- *To enable development that does not detract from the visual qualities of the natural foreshore.*
- *To enable development that supports the viability of adjoining land-based development.*

As discussed elsewhere in this report, it is the potential impact of the development on the ecological values of this recreational waterway that are of particular concern.

Great Lakes Development Control Plan 46 - Single Dwelling and Dual Occupancy

Great Lakes Council does not have any development control plan provisions that specifically relate to land-based aquaculture.

However, *Development Control Plan 46 - Single Dwellings and Dual Occupancy* does contain general provisions that state:

- A minimum setback of 50m shall apply to all structures where there is no dwelling.
- A minimum setback of 35m applies in the majority of areas along the Port Stephens foreshore.
- A setback of 40m is generally recommended to any permanent or intermittent waterway.

There is no dwelling located on the subject land therefore a 50m setback may generally be required "to all structures" on the site.

The development application as submitted indicates that the bin structures and pumphouse are both located within this setback. No request to vary this setback requirement has been submitted therefore it is considered reasonable to request that amended plans be submitted illustrating the relocation of these structures so that the minimum setback is achieved. This additional setback may also be expected to assist with noise attenuation from the pumphouse.

The 35m foreshore building line setback does not apply to the subject land, but all structures except for the pipelines, are located at least 100m from the mean high water mark.

All structures are located outside of the 40m riparian land buffer to the watercourse on the site.

Great Lakes Development Control Plan 54 - Water Sensitive Design

A MUSIC model has been completed for the stormwater treatment system. It indicates compliance with Council's water quality objectives. Treatment will be by way of six 10L tanks for reuse and an infiltration swale. The development will not contribute additional loads of pollutants to Port Stephens associated with the building infrastructure and storage ponds.

This is in contrast however to the pollutant (nutrient) loading discharged to Port Stephens associated with the waste water generated by the production of abalone. Long term impacts

associated with nutrient loading from waste water discharge is a serious concern and in the opinion of Council officers has not been adequately addressed.

Great Lakes Development Control Plan 67 - Waste Not

The farm shall produce live abalone stock and therefore does not incorporate any processing or produce any processing waste. The only likely bi-product identified is pond sludge from the retention ponds and this is able to be used in marine worm farming, or disposed of at Port Stephens waste recycling centre.

All other wastes will be disposed of at the Council approved landfill. There is no on-site landfill disposal proposed.

Council Policy

The requirements of Council's *Erosion and Sediment Control Policy* require the preparation and implementation of an Erosion and Sediment Control Plan (ESCP) prior to commencement of construction.

Assessment of this application has been undertaken in accordance with Council's Consideration of Major Projects under the provisions of *State Environmental Planning Policy (Major Projects) 2005 Policy*. The Policy requires major project assessments to be reported to a Development Control Unit meeting; however given the history of the proposal, the matter has been reported to an Ordinary Council meeting.

The development is subject to S94 Development Contributions in accordance with the *Section 94 Development Contributions Assessment Policy.*

b) The likely impacts of development including environmental impacts on both natural and built environments and social/economic impacts in the locality

Context and Setting

The proposed development is considered unlikely to adversely affect the scenic qualities and features of the landscape given that the majority of buildings and structures are set well back from the Port Stephens foreshore and from dwellings within the Pindimar village precinct. While considerable clearing and under- scrubbing will be required during construction and for bush fire hazard reduction the visual impacts of this work will be minimal in the long-term given the retention of vegetated buffers to each of the property boundaries.

The location and trenching of the pipes within the foreshore and intertidal areas of the site will ensure that these structures will not be seen from the foreshore, waterway or adjoining dwellings and as such the existing amenity of the locality will be maintained. There is expected to be considerable disturbance during the trenching of the pipes and the exact location and species of trees and aquatic vegetation that will be disturbed during this process will be critical to the long-term environment and amenity of the site.

Where the pipelines are to be laid above the soil surface this will significantly reduce the need for additional clearing of vegetation and mature trees from the site.

Site Design and Internal Layout

The site design and internal layout of the development is considered to be acceptable with the exception of the location of the bin storage and pumphouse structures within the recommended 50m setback as previously discussed.

Views and Visual Impact

The impact of the development on views, particularly from the residents of Pindimar village and the adjoining waterway of Port Stephens, are considered to be minimal given the retention of vegetation buffers where possible and the proposed trenching of pipeline infrastructure within the foreshore and inter-tidal areas.

Privacy (Aural and Visual)

As part of a former development application a Noise Assessment was prepared by Richard Heggie Associates Pty Ltd dated 21 May 2003 (RHA Report 30-1254-R1).

Three specific aspects of the development were considered by the Richard Heggie and Associates Noise Assessment including: operational noise, traffic noise and construction noise. Operational noise levels (including the 24 hour operation of pumps etc.) were predicted under both calm and prevailing weather conditions and compared with existing background noise levels. The results of this assessment indicated that the noise emissions would be below the desired level noise and not create any undue disturbance to nearby residential properties.

Similar results were found for road traffic noise, which also meets design goals for both day and night time periods and construction noise levels, were predicted to meet the Department of Environment and Conservation Construction Noise Criteria for a construction period of between 4 and 26 weeks.

A subsequent Noise Impact Assessment has been prepared by Advitech Pty Limited dated 11 April 2011 (Job No. 0110070-00) and has been submitted in association with the current major project. While Advitech provide that plant and processes associated with the development generally remain the same as those described in the original proposal, Advitech advise that it was necessary to undertake further background noise monitoring to allow for the preparation of a contemporary assessment.

The Noise Impact Assessment modelled noise impacts of the farm and found that noise emissions from the site would meet the requirements of the relevant guidelines (i.e. the *NSW Industrial Noise Policy* and the *Interim Construction Noise Guideline* during operation and construction, respectively). Also, traffic noise impacts have been shown to meet the objectives of the *Environmental Criteria for Road Traffic Noise* (and the more recent *NSW Road Noise Policy*).

While the Noise Impact Assessment does not contain any necessary recommendations for noise control, City Plan Services in their Environmental Assessment Report dated February 2014 provide that the operation of acoustically significant plant and equipment on the site (excluding water pumps) will be restricted to the hours between 7am to 6pm daily. Further, according to City Plan Services, the pumphouse which accommodates the 24 hour a day pump operations will be located over 500 metres south-west of the nearest residential dwelling and will be predominately buried underground.

Council's assessment indicates that the nearest dwelling is only approximately 100m from the pumphouse and appropriate conditions of consent relating to noise have been recommended to ensure adequate noise attenuation measures are in place.

Access, Transport and Traffic

Access to the proposed development is from Cambage Street which is bitumen seal with gravel shoulders, then via Como Street and Challis Avenue which both currently have a 4m wide 100mm thick gravel pavement. All streets providing vehicular access to the site have now been dedicated as public roads.

At the time of the original abalone farm approval (DA313/2003) Cambage Street was a gravel formation, however Council has undertaken rehabilitation works since and the street is now bitumen sealed.

Given that there are existing dwellings located in Cambage Street (Nos. 13 & 15) adjacent to the Como Street intersection and located within the village zone, bitumen sealing of Como Street to the rear boundary of No. 13 is justified from an amenity/dust viewpoint given that the proposal provides for a daily workforce of 15 employees as well as associated deliveries.

Therefore a traffic control plan is to be submitted for public road upgrading within Como Street and Challis Avenue. Upgrading of both Como Street and Challis Avenue to a Class 4e standard (5m. gravel width) including ancillary drainage, from the intersection of Como Street & Cambage Street to the property entrance is required to comply with Council's adopted Design Specification standards.

Internal roads, bridges and turning areas shall be required to be upgraded to the requirements of the Rural Fire Service.

Furthermore, given that the required upgrade length of public road is approximately 340m provision of a passing bay and compliance with the NSW Rural Fire Service conditions and standards is required within the public road section.

It is proposed to provide eight on-site car parking spaces including one disabled space. Provision of a dust free surface to the carpark and manoeuvring areas is justified to avoid ongoing dust and scour issues as well as providing appropriate disabled access to on-site facilities.

It is also proposed to provide a bushfire emergency evacuation pedestrian link via construction of a timber boardwalk over Pig Station Creek to South Pindimar village. The boardwalk traverses a section of SEPP 14 wetland. Construction strategies shall be employed to ensure minimal disturbance to the wetlands during the construction phase.

Utilities

Both the power and telephone services currently available on the site are able to be extended to the proposed development and Certificates of Compliance will be required to be provided by both Telstra and Country Energy to ensure that these services are suitable for the proposed development.

No reticulated water and sewer services are currently available on the land and as such potable water will need to be collected by tank.

The disposal of effluent from the administration/amenities building will require the submission of an On-site Effluent Disposal Application and an Operation Approval for the on-site sewage management system prior to the issue of any construction certificate.

The area for disposal of on-site effluent should be identified and confirmed by an appropriate geotechnical report prior to determination given the other site constraints.

Chemicals, Pharmaceuticals and Fuels

According to City Plan Services in their Environmental Assessment Report dated February 2014, the proponent intends to minimise the use of chemicals and pharmaceuticals within the farm wherever possible. Some substances will, however, be required for water disinfection, water buffering and other uses.

Pollution prevention and control measures proposed by City Plan Services include keeping the majority of substances in small volumes, which will be generally used indoors. It is further provided that should any spills occur, containment and remediation will be undertaken in accordance with the relevant Material Safety Data Sheet. In addition, a bunded area is to be provided for the storage and use of diesel which will allow for clean-up in the event of any spillage.

These provisions are acceptable and appropriate conditions of consent regarding storage and use of fuels and chemicals have been provided.

Flooding

The site is classified as a greenfield site. Part of the development site is located below the 2100 1% flood level - RL 2.6m AHD with a wave run-up estimated to be 0.7m. Therefore the flood level is RL. 3.3m. AHD and the flood planning level, applying a 500mm freeboard is RL 3.8m. AHD.

The lowest floor level of the production sheds is RL 4.15m AHD and provides adequate freeboard. The settlement ponds finished batter levels are RL 4.9m AHD.

The only infrastructure located within the 1% flood level is the proposed pump station which has been proposed as a partially buried structure with a floor level of -2m AHD. Accordingly, it will be affected by flooding and will be of tanked construction using flood compatible materials.

The applicants have also stated that if flooding was to occur "*water can be pumped out of the Pumphouse via a submersible bilge pump after floodwaters recede. As outlined within Section 3.7.6.2 of this EA, the farm is able to cease pumping (ie. water intake from the port) and recirculate marine water within the farm facilities for a limited time during such situations."*

Waste Water Discharge

A significant concern of the development proposal is the planned discharge of polluted waste water generated by the production of abalone to Port Stephens. The best case scenario after removal of particulate matter will see the discharge of 2.07 tonnes of total nitrogen per year to the estuary and 1.43 tonnes of ammonia.

Following removal of particulate matter the proposal relies on dilution of pollutants within the estuary. This is a high risk strategy especially in regards to the unknown implications of the impact of long term toxicity of ammonia to near field aquatic ecosystems.

Whilst short term loads are likely to be well dispersed and assimilated into the estuary it is the critical long term implications that the report has provided no examination of. It is therefore necessary to know what the impact of ammonia is on aquatic ecosystems near the discharge point.

It is not reasonable to compare the waste water discharge from the development with the Karuah Catchment or to the concentration of pollutants in urban stormwater runoff. A more realistic comparison would be to compare the total annual pollutant loading with that of an urban development.

Based on Fletcher et al (2004) untreated urban runoff has a loading of approximately 10kg/ha per year of Total Nitrogen (TN). Industrial development has a typical loading of 22kg/ha per year of TN. As such the waste water discharge from the proposed abalone farm is equivalent to the runoff from a 200 ha urban development with no treatment or a 91 ha industrial development without treatment. It makes no difference if this is discharged to intertidal or deep water zones. These are significant nutrient loads.

Council and the development industry have been rigorously implementing water quality objectives for development within the catchments of the Great Lakes. The terrestrial component of this development (runoff from buildings and hard stand areas) has a treatment train to ensure a neutral or beneficial impact of the receiving waters of Port Stephens. Likewise the waste water generated should be treated to ensure compliance with established water quality objectives. It would be inconsistent with current knowledge of the functioning of the estuary and risks of nutrient loads to enclosed waters to allow the equivalent of a 200 ha urban development without treatment.

It would therefore be inappropriate to approve the development based on the current information provided, given the potential significant impact on long term water quality conditions and near field aquatic systems has not been adequately examined. The proposal is considered to fall short in regards to investigation of the option for using biological processes to remove nitrogen before discharge so as to meet water quality objectives.

In order to provided certainty that the proposal will not result in the decline of near field aquatic ecosystems it is critical to examine the following matters in more detail as part of an integrated water management plan:

- Impact of long term particulate accumulation in the deeper water zone.
- Long term toxicity implications of ammonia to aquatic ecosystems in around the discharge point.
- Biological measures to reduce ammonia and TN loading before discharge so that neutral or beneficial effect test is achieved.
- Details of the frequency of particulate matter removal from settlement ponds.
- Baseline and ongoing aquatic health monitoring program needs to be developed to assess long term impact of the discharge.

It is not possible to provide appropriate development consent conditions until the above work is provided.

Flora and Fauna

An Environmental Assessment Report (EAR) by City Plan Services, dated 28 February and Plans by Sorensen Design and Planning dated 13 March 2013 (sheets 1 to 25) has been reviewed for this assessment.

The following table summarised the relevant aspects of the application and the development site:

Land zoning	The site of the proposed abalone farm is currently zoned RU2 under the Great Lakes LEP 2014. The site of the proposed intake and outlet pipes are zoned W2 Recreational Waterway Great Lakes LEP 2014 and Port Stephens LEP 2013 associated with the Port Stephens Estuary.
Land area	51.6-hecatres plus Crown Land on the foreshore of Port Stephens.
Extent and type of environmental disturbance	Construction of the building footprints will require the clearing of about 1.2-hecatres of vegetation, and the bushfire hazard reduction and establishment of pipelines will result in the partial clearing/ disturbance of a further 1.2 hectares of land. This vegetation provides forage and breeding habitat for threatened species such as the Little Lorikeet, Greater Broad-nosed Bat, Koala, Wallum Froglet and Little Bentwing-bat. Minor disturbance to Saltmarsh and Mangroves will result from the construction of a boardwalk egress for bushfire protection. There will also be disturbance to an area of 40 square metres of Posidonia seagrass beds. The work would result in the removal of up to 13 hollow-bearing trees.

Environmental Reporting provided	The project application is accompanied by an EAR.	
Legislation that is potentially relevant	*s5A of the EP&A Act*	Applies
	s79 of the EP&A Act	Applies
	Threatened Species Conservation Act 1995	Applies
	Environmental Protection and Biodiversity Conservation Act 1999	Applies
	SEPP14	Applies*
	SEPP26	NA
	SEPP44	Applies
	SEPP71	Applies
	Native Vegetation Act 2003	Applies
	National Parks and Wildlife Act 1974	NA
	Marine Parks Act 2003	Applies
	Fisheries Management Act 1994	Applies

A number of ecological constraints have been identified on the site including the presence of endangered ecological communities, regionally significant remnant native vegetation communities, threatened species habitats, old growth attributes and hollow-bearing trees, koala habitat (SEPP 44), seagrass beds and mangroves, foreshore lands, a Marine Park, an OEH identified key regional corridor and key regional habitat for priority forest fauna. These ecological attributes are discussed in more detail below.

Terrestrial Biodiversity

Vegetation Communities

Appendix 13 of the EAR contains a Statement of Effect on Flora and Fauna Species (Flora and Fauna Report), by Wildthings, dated December 2013. The Flora and Fauna Report provides an assessment of potential impacts on threatened species, protected species, populations, ecological communities and their habitats.

Fourteen vegetation communities have been mapped and described in the Flora and Fauna Report.

Ten within the Lot 2 including:
1. Swamp Mahogany – Paperbark Forest (EEC);
2. Smooth-barked Apple Heath;
3. Coastal Sand Blackbutt Open Forest;
4. Ironbark/Tallowwood Open Forest;
5. Grey Gum/Tallowwood/Ironbark Open Forest;
6. Spotted Gum/Ironbark Open Forest;
7. Smooth-barked Apple/Stringybark Open Forest;
8. Moist Riparian Forest;
9. Aquatic Vegetation – Dam; and
10. Cleared Modified.

Four vegetation communities occurring outside Lot 2 along the foreshore, including:
1. Mangrove;
2. Foreshore vegetation;
3. Saltmarsh (EEC); and
4. Swamp Oak Forest (EEC).

Three vegetation communities are listed Endangered Ecological Communities (EECs) under the *Threatened Species Conservation Act 1995* (TSC Act). These have been identified by brackets in the numbered bullet points above.

Saltmarsh is also listed as a Vulnerable Ecological Community (VEC) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Threatened Flora

Despite targeted surveys no threatened flora were recorded within the subject land; although suitable habitat has been identified for 18 threatened flora species, including:

- *Cryptostylis hunteriana* (Leafless Tongue Orchid),
- *Diuris arenaria* (Tomaree Doubletail),
- *Diuris praecox* (Newcastle Doubletail),
- *Corybas dowlingii* (Red Helmet Orchid),
- *Rhizanthella slateri* (Eastern Underground Orchid),
- *Asperula asthenes* (Trailing Woodruff),
- *Angophora inopina* (Charmhaven Apple),
- *Callistemon linearifolius* (Netted Bottlebrush),
- *Eucalyptus parramattensis ssp. decadens* (Drooping Red Gum),
- *Melaleuca biconvexa* (Biconvex Paperbark),
- *Melaleuca groveana* (Grove's Paperbark),
- *Syzygium paniculatum* (Magenta Lilly Pilly),
- *Maundia triglochinoides, Persicaria elatior* (Tall Knotweed),
- *Cynanchum elegans* (White-flowered Wax Plant),
- *Chamaesyce psammogeton* (Sand Spurge) and
- *Senecio spathulatus* (Coastal Fireweed).

Only one species, *Tetratheca juncea* (Black-eyed Susan) was considered to have a 'high' likelihood of occurrence on the subject land. Notwithstanding, Tetratheca juncea was only targeted on one occasion in August of the most recent surveys.

Survey guidelines state, that surveys should be repeated 2 – 3 times during the flowering season between late August and the end of November (in dry years) and between August and January (in wet years). Other cryptic species, such as orchids were surveyed on repeated occasions.

Threatened Fauna

Six threatened fauna species were recorded within the study area during the survey, including:

- *Crinia tinnula* (Wallum Froglet),
- *Glossopsitta pusilla* (Little Lorikeet),
- *Pteropus poliocephalus* (Grey-headed Flying-fox),
- *Miniopterus australis* (Small Bentwing-bat),
- *Scoteanax rueppellii* (Greater Broad-nosed Bat) and
- *Phascolarctos cinerea* (Koala).

Fifty-one other threatened fauna species were considered to potentially utilise the land for foraging/ hunting/ nesting resources. This includes, but is not limited to:

- *Litoria brevipalmata* (Green-thighed Frog),
- *Hoplocephalus bitorquatus* (Pale-headed Snake)
- *Limosa limosa* (Black-tailed Godwit),
- *Haematopus fuliginosus* (Sooty Oystercatcher),
- *Esacus neglectus* (Beach Stone-curlew),
- *Ptilinopus regina* (Rose-crowned Fruit-Dove),
- *Daphoenositta chrysoptera* (Varied Sittella),
- *Pandion haliaetus* (Osprey),

- *Hieraaetus morphnoides* (Little Eagle),
- *Ninox strenua* (Powerful Owl),
- *Dasyurus maculatus maculatus* (Tiger Quoll),
- *Potorous tridactylus tridactylus* (Long-nosed Potoroo - SE Mainland),
- *Cercartetus nanus* (Eastern Pygmy–possum),
- *Petaurus norfolcensis* (Squirrel Glider),
- *Phascogale tapoatafa* (Brush-tailed Phascogale),
- *Pseudomys gracilicaudatus* (Eastern Chestnut Mouse),
- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle),
- *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat) and
- *Myotis macropus* (Large-footed Myotis).

Habitat Trees

A total of 191 habitat (hollow-bearing) trees were identified by Wildthing (2013) within the southern portion of the study area where the Abalone Farm is proposed. The Flora and Fauna Report states "*many of these trees were considered to be significant as a result of their very large size and variety and number of hollows they contained*".

Aquatic Biodiversity

An Aquatic Ecology Assessment (Aquatic Report) by Bio-Analysis, dated December 2013 identifies mangroves and seagrass beds (*Zostera* and *Posidonia* beds) occurring in the intertidal and subtidal zones of the land. The inlet and outlet pipes will traverse through these habitats.

A summary of the pertinent environmental values of the land is provided below:

Known Threatened Species	The land provides known habitat for the Wallum Froglet, Little Lorikeet, Grey-headed Flying-fox, Little Bentwing-bat, Greater Broad-nosed Bat and Koala.
Potential Threatened Species	The site provides potential habitat for 18 threatened flora species and 51 threatened fauna species that are additional to those recorded on the land.
Endangered Ecological Communities	Swamp Mahogany – Paperbark Forest, Saltmarsh and Swamp Oak Forest are EECs listed under the TSC Act.
Endangered Populations	Not identified on the subject land.
High Conservation Value Vegetation	Swamp Mahogany – Paperbark Forest, Saltmarsh and Swamp Oak Forest are of State conservation value. A variety of other vegetation types on the land are considered to be regionally significant in relevant reference texts because they are considered inadequately reserved, severely depleted, rare and/ or vulnerable in the regional context.
Key Regional Corridor (mapped)	Mapped on the subject land, but will not be impacted by the development.
Key Regional Habitat (mapped)	Mapped on the subject land and will be impacted by the development.
SEPP44 Potential	Two Koala food tree species listed under Schedule 2 have been

Koala Habitat	recorded at densities greater than 15% in some areas of the subject land.
SEPP44 Core Koala Habitat	There are two historical sightings of the Koala on the land. A small number of scats were identified on the land within Swamp Mahogany – Paperbark Forest. A mother and young has been sighted on 5 November 2012 adjacent to the neighbouring Lot 3. Contrary to conclusion in the Flora and Fauna Report, evidence suggests that the land may in fact comprise core koala habitat and a Koala Plan of Management appears to be required.
SEPP14	There are no mapped SEPP14 Coastal Wetlands on the land; however two SEPP 14 wetlands are mapped to the east and west (see image below). No works are proposed in any SEPP 14 wetland.
SEPP26	There is no mapped SEPP26 Littoral Rainforest in relevant proximity to subject land
SEPP71	The land is within the Coastal Zone as identified by SEPP71.
Environmental protection zone	The waters of Port Stephens are zoned W2 Recreational Waterway under Great Lakes LEP 2014. The adjoining terrestrial lands are not zoned for environmental protection, but are zoned RU2 Rural Landscape under Great Lakes LEP 2014.
Marine Park	The waters of the Port Stephens Estuary are gazetted as the Port Stephens/ Great Lakes Marine Park. As such, the inlet and outlet pipes are within the Marine Park and specific comment and approval of the Marine Parks Authority is required. The pipeline infrastructure is proposed in an area of the Marine Park zoned for “General Use”, but adjacent a "Sanctuary Zone".
National Park	There are no areas of National Park in relevant proximity to the site of the proposed development.

POTENTIAL ECOLOGICAL IMPACTS

Terrestrial

The development will clear 1.2-hecatres of native vegetation and modify/ disturb 1.2-hecatres of native vegetation including EECs.

The inlet/outlet pipes that connect the proposed facility to the waters of Port Stephens will cross an area of Swamp Mahogany – Paperbark Forest, Coastal Sand Apple Blackbutt Open Forest, Mangroves and Posidonia seagrass.

The pipeline is to be constructed above ground north of the pump house and buried underground south of the pump house. To reduce disturbance impacts of establishing pipes north of the pump house the pipe will be raised on footings and manoeuvred to avoid the removal of any trees (the

pipes are apparently flexible). This is expected to be beneficial in the long-term as the vegetation recovers.

There has been no discussion on the disturbance to the understorey when positioning the pipes above ground. A small rubber-tracked excavator will position the pipes. A larger area of vegetation can be expected to be flattened/ crushed and damaged if the excavator has to manoeuvre the pipe between trees.

Where the pipes are buried in terrestrial areas a single trench will be created to accommodate the 4 pipes, approximately 0.9-metres deep and approximately 2.6-metres wide. In intertidal areas, the trench will be of a variable depth in order to maintain the consistent grade of the pipe. The width of the 'disturbance corridor' for buried pipes, including stockpile areas, will therefore be approximately 4.6-metres.

Parts of the land are mapped as Potential Acid Sulfate Soil (PASS) and appropriate management during excavation will be required.

The additional egress, providing boardwalk access to Cambage Street will traverse Saltmarsh EEC.

The Flora and Fauna Report indicates that the saltmarsh is not pristine and already impacted by vehicle access however Figure 26 of the Flora and Fauna Report shows the area of EEC to accommodate the boardwalk to be in good condition.

The boardwalk is 2m wide and traverses through 20-metres of saltmarsh. The structure will be similar to the boardwalk that connects the villages of North and South Pindimar approved and completed in 2004. Direct impacts will include the drilling of holes for the pylons and the temporary damage to vegetation associated with the construction of the board walk (i.e. trampling, crushing, smothering, possibly dumping of material etc.).

The boardwalk is to be raised to allow vegetation to grow around and not inhibit movement through the area by terrestrial and aquatic fauna. The drilling of the holes may also expose Potential Acid Sulfate Soil (PASS); however this is expected to be negligible provided the holes are drill the same size as the pylons and drilled and filled sequentially to reduce exposure times. Spoil from the holes is to be removed from the site.

The appended Matters of National Environmental Significance Report (Appendix G of the Flora and Fauna Report) is dated 18 January 2012 and is out of date.

No trees are expected to be removed to upgrade the existing internal road network.

Direct impacts to the Wallum Froglet would be confined to the establishment of the pipelines. Disturbance to Wallum Froglet habitat north of the pump house is expected to be lower and only temporary as no trenching is proposed. Disturbance to habitat south of the pump house (buried pipes) are expected to be more severe and take longer to recover and potentially modify the hydrology of portions of habitat. Potential indirect impacts to the Wallum Froglet found in Swamp Mahogany – Paperbark Forest includes stormwater runoff and increased weed infestation.

The proposal will clear 1.2-hecatres of forage and modify/ disturb 1.2-hecatres of forage habitat for the Grey-headed Flying-fox, Little Lorikeet, Koala, Little Bentwing-bat and Greater Broad-nosed Bat.

The proposal will necessitate the removal of up to 13 habitat trees containing various size class hollows. For those habitat trees required to be removed compensatory fauna nest boxes are proposed within adjoining habitat at a ratio of two nest boxes per removed hollow (2:1).

The proposal will remove up to ten potential nesting/ roosting trees for the Little Lorikeet and Greater Broad-nosed Bat. There are inconsistencies between the s5A assessments and other

sections of the Flora and Fauna Report between the number of nesting/ roosting trees to be removed.

As a precautionary measure, nesting boxes have been proposed to replace 13 habitat trees that will be removed providing potential nesting and roosting habitat for Little Lorikeet and Greater Broad-nosed Bat. There is no guarantee the compensatory nest boxes will be accepted and used by the impacted hollow obligate species.

The proposal will result in the removal of approximately 24 separate preferred Koala food trees (*Eucalypts microcorys*) and it is reported that no *Eucalyptus robusta* (another Koala food tree) will be removed.

Aquatic

The inlet/ outlet pipes and boardwalk will traverse through mangroves, which are protected under the *Fisheries Management Act 1994* (FM Act).

The findings of the Flora and Fauna Report are ambiguous and do not explicitly identify the type and degree of impacts to mangroves. In the executive summary it states *"no mangroves are required to be removed for the boardwalk. A small amount of pneumatophores may be affected".*

However later in the report it states "*the boardwalk is to be constructed without the removal of any mature Mangrove Trees [emphasis added]. However a small number of branches may be required to be removed*."

The Aquatic Report and EAR provide more detail as to the type and degree of impacts on mangroves. The EAR determines the pipes will be buried under 70-metres of mangroves. The Aquatic Report and EAR conclude that "*at least two medium sized trees within the footprint of the proposed pipelines will be directly disturbed by the trenching works through the intertidal zone….The trenching will also require some trimming of one medium sized adult mangrove and major trimming (removal of branches) to the other*".

Impacts to benthic invertebrates along the pipeline route are expected to be short-term, as invertebrate populations will recolonise the intertidal flat quickly.

No *Zostera capricorni* seagrass was found within inlet/ outlet pipeline easement in the intertidal zone of the subject land.

Approximately 40 square metres of *Posidonia australis* seagrass will be directly impacted by the footings for the raised pipes within the sub-tidal zone. The mitigation measure proposed for the placement of pipeline using divers should be effective in minimising impacts.

Indirect impacts include shading by the pipes and associated growth of algae and sessile organisms and other potential disturbances that could result from the pipeline placement. Posidonia australis is protected under the Fisheries Management Act 1994 (FM Act).

"*Posidonia seagrass meadows*" has been nominated as an EEC under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). A determination has not been gazetted during preparation of this assessment.

Consequently, in summary, this environmental assessment report has identified the following potential ecological impacts:

- Clearing of 1.2-hecatres of native vegetation and modification/ disturbance 1.2-hecatres of native vegetation including EECs. This includes the clearing of 1.2-hecatres of habitat for the Grey-headed Flying-fox, Little Lorikeet, Small Bentwing-bat and Greater Broad-nosed Bat.

- The proposal will remove up to ten potential nesting/ roosting trees for the Little Lorikeet and Greater Broad-nosed Bat and affect up to 13 hollow-bearing trees.
- Direct and indirect harming of mangroves and saltmarsh and other native vegetation during construction of the boardwalk and inlet/ outlet pipelines, including the harming of the habitat to the habitat of the Wallum Froglet.
- Potential Acid Sulfate Soil contamination during construction.
- Sediment and erosion risks during construction.
- Increased turbidity during construction of sub-tidal section of pipelines.
- Direct and indirect harm to Posidonia seagrass beds and benthic and aquatic fauna of the intertidal zone.
- Risks to aquatic habitats associated with polluted discharges or disease.

PROPOSED CONSERVATION AREA

A 5.14-hectare conservation area has been proposed that follows vegetation associated with Pig Station Creek on the subject land. This equates to a 2:1 offset ratio. No evaluation appears to be provided to validate the offset area in respect of the Biobanking Assessment Methodology or similar for both ecosystem and threatened species credit values.

The vegetation within the conservation area consists of the predominant Spotted Gum/ Ironbark Open Forest and Moist Riparian Forest, Smooth-barked Apple/ Stringybark Open Forest and Swamp Mahogany/ Paperbark Forest are also present. This offset area is apparently supported by the Office of Environment and Heritage (OEH) during consultation.

Riparian habitats are also located within the proposed conservation area and provide important attributes for many flora and fauna species. These habitats are also generally more productive and can support a higher density of fauna species.

The most heavily impacted vegetation communities on the development site are Ironbark/ Tallowwood Open Forest and Coastal Sands Apple Blackbutt Open Forest. Approximately 24 Tallowwoods will be removed, which are a preferred local Koala Food Tree species and potentially utilised by Koalas on the subject land. These two communities do no occur in the proposed Conservation Area.

Therefore the size, relevance (i.e. like for like) and functional appropriateness of the proposed conservation area in compensating impacts on vegetation communities and threatened species habitat caused by the proposed development is not considered to be sufficient.

Furthermore, the Wallum Froglet habitat will be impacted by the establishment of the pipelines. Other impacts include alteration of habitat through weed invasion and the pH of surface waters. Wallum Froglet habitat has also not been confirmed in the proposed Conservation Area.

It is noted that an earlier proposal for the Abalone Farm on this land (DA313/2003) was associated with a 26.5ha conservation area proffered for 1ha of clearing for the development. In comparison the current proposal, offers only 5.14ha of habitat to be conserved for 2.4ha of clearing without appropriate conservation of like-for-like habitat.

Therefore the proposed Conservation Area is considered to be of an insufficient area and an inadequate off-set to the cleared and impacted habitat. In addition, no detail is provided on the effective mechanism associated with long-term conservation management.

Climate Change

The subject land is affected by flooding and is likely to be affected by climate change including sea level rise. The construction of infrastructure within areas potentially affected by flooding and sea level rise are discussed elsewhere in this report.

Cumulative Impacts

Insufficient information is available to Council officers to consider cumulative risks or threats which over time may result in a decline in water quality and biodiversity in the terrestrial or aquatic environments as a result of this proposal.

Heritage

The report prepared by Myall Coast Archaeological Services: Aboriginal Heritage and Archaeological Assessment Abalone Farm, Pindimar NSW states that the proposal is basically sheds tanks and pipelines and associated infrastructure. The sheds, tanks and associated infrastructure will be located on disturbed land. The report notes that the majority of the pipeline will generally not disturb the land as it will be on the surface and have no impact on Aboriginal values.

A shell deposit, likely to constitute an Aboriginal shell midden, is located adjacent to the southern boundary of the site at the foreshore of Port Stephens, and may extend inland for some distance. No other areas of Aboriginal or Non-Aboriginal heritage significance have been identified.

The last stage of the pipeline to the waters of Port Stephens will be located under the ground and was originally planned to be in close proximity to the midden (DA313/2003). However within the current application the proposed route has been moved further away from the subject midden.

The midden area is highly valued by the Aboriginal community to day and was in the past. Its outlook, landscape, features and resource attributes readily evoke a sense of use, purpose attachment and place. The midden area is such a special place to the Aboriginal Community that it puts into perspective the probable comparative lack of use of the proposed development footprint.

Therefore it has been determined that the proposed route is still probably too close to the midden and in order to completely avoid any likely impact it is recommended that the pipe infrastructure for the development should be moved even further to the west, along a disturbed track.

The report considers that this management measure of moving the last stage of the pipeline further west ensures the protection of the assessed heritage values.

Development consent conditions relating to management and protection of the midden and any other items of Aboriginal heritage on the site are also provided.

Other matters relating the assessment of this application under S79C of the Environmental Planning and Assessment Act 1979, in particular those relating to Public Interest are to be considered by the determining authority, which in this instance is Planning & Environment (formerly the Department of Planning and Infrastructure).

CONCLUSION:

Following a detailed review and assessment of the land-based abalone farm application as provided by Planning and Environment, Council officers conclude that additional information and an amended application is required to enable Council to properly consider the application.

In this regard Council officers recommend additional or amended information be sought to address the following matters:

- On-site effluent disposal;
- Integrated water management;
- Protection of the potential item of Aboriginal heritage identified on the site (foreshore midden);
- Bush fire hazard and management;
- Protection of potential and core koala habitat;

- Identification of an adequate and appropriate environmental conservation area on the site to compensate for impacts on endangered and threatened species and habitats;
- Adequate information to determine the impacts of the development during construction.

RECOMMENDATION:

A) Council recommend that Planning & Environment request lodgement of an amended application to enable a complete assessment of the proposal in accordance with S79C of the *Environmental Planning & Assessment Act 1979,* with regard to the following matters:

1. The applicant shall be required to identify an on-site effluent disposal area on the site not located in areas identified as being affected by flooding or sea level rise; or within development buffers to the identified watercourse, coastal waters of the state, the adjoining SEPP 14 Coastal Wetlands or the proposed conservation area.
2. The applicant shall be required to provide information on the proposed on-site effluent management system and any associated geotechnical report required to determine suitability of the system for the proposed development on the subject site in accordance with Great Lakes Council's On-Site Management System Development Assessment Framework.
3. It is recommended that the pipe infrastructure for the development be moved to the west, along the existing disturbed track in order to avoid any likely impact of construction on the potential Aboriginal midden located on the foreshore of the site.
4. It is recommended that the bin structures and pumphouse are both relocated to achieve the required 50m setback to all property boundaries.
5. It is recommended that a new Bush Fire Management Report be obtained on the following grounds:
    a) The author of the Bush Fire Management Report does not appear to be an Accredited Bushfire Consultant (BPAD).
    b) The report states that the buildings will be classified as class 7 under the *Building Code of Australia* (BCA) and it is recommended this be reviewed as a classification as class 8 buildings may be more appropriate.
    c) The fire safety requirements of the BCA need to be addressed given there is no mains water supply to or on the site.
    d) The report proposes the secondary access to be a walkway only whereas the *Planning for Bushfire Protection Guidelines* require the provision of "alternate access road".
    e) Detailing the upgrading of internal roads, bridges and turning areas to the requirements of the Rural Fire Service.
    f) While the author of the report indicates that the RFS has been consulted during the preparation of the report it is recommend that a formal written response to this report should be provided by the RFS prior to determination.
6. There is evidence of both potential and core Koala habitat as defined by *State Environmental Planning Policy 44 - Koala Habitat* on the subject land therefore the Applicant should be required to commission a qualified ecological consultant to prepare and submit a Koala Plan of Management (KPOM) pursuant to SEPP 44.
7. The Conservation Area proposed is significantly under-sized, inappropriately located and would not (ecologically or practically) adequately compensate for the negative effects of the proposal either by "avoided clearing" or the permanent enhancement of an area of habitat of sufficient size. It is therefore recommended that the Conservation Area be revised and enhanced. The revision should address significant inadequacies with regards to compensating development impacts on specific

ecosystems and threatened species habitat, particularly the Koala and Wallum Froglet.

8. There remains uncertainty with respect to some details of the actual ecological impacts of the proposed work due to a lack of detail or an ambiguity in the discussion of construction issues. It is recommended that a Construction Management Plan is required to detail appropriate construction methodologies prior to formal determination. A key aspect of this CMP should focus on the pipeline establishment and associated avoidance, mitigation and compensation strategies in pipeline establishment and maintenance.
9. An integrated water management plan is to be prepared for the development having particular regard to the impacts of particulates and nutrients on aquatic ecosystems, within the waters of Port Stephens.

B) In the circumstance that Planning and Environment grant development approval to the proposed abalone farm at 180 Clarke Street Pindimar, without the additional information outlined in item A) it is recommended that the following development consent conditions be incorporated into the Notice of Determination:

GENERAL CONDITIONS

1. Water Sensitive Design Maintenance Plan

An operation and maintenance plan for the Water Sensitive Design Strategy is required to be submitted and approved by the Certifying Authority. The maintenance plan should include but not be limited to:

a) details of the location and nature of stormwater management structures such as pits, pipes, inlet filters, water reuse tanks, bio-retention, swales and any other stormwater structures and drainage works
b) an identification of the responsibilities and detailed requirements for the inspection, monitoring and maintenance of all stormwater management structures including the frequency of such activities
c) the identification of the positions responsible for inspection and maintenance activities including a reporting protocol and checklists
d) procedures for managing water quality emergencies including the identification of authorities to be notified.

Reason: To ensure water quality measures installed on the site can be adequately maintained.

2. Maintenance of stormwater treatment measures

The swale shall be maintained by the owner in perpetuity including approved plant species or grass within in the swale

Reason: To identify the location of stormwater treatment measures and ensure ongoing maintenance with the Water Sensitive Design section of the Great Lakes Development Control Plan.

3. Compliance with Building Code of Australia

All building work must be carried out in accordance with the requirements of the Building Code of Australia as in force on the date the application for the relevant construction certificate or complying development certificate was made.

Reason: Prescribed condition under the Environmental Planning & Assessment Regulation 2000.

4. Adjustment to utility services

All adjustments to existing utility services made necessary by the development are to be undertaken at no cost to Council.

Reason: To ensure utility services are undertaken at no cost to Council

PRIOR TO THE ISSUE OF A CONSTRUCTION CERTIFICATE
The following conditions must be complied with prior to the issue of any Construction Certificate:

5. Stormwater quality treatment (swale)

Prior to issue of a construction certificate, plans and specifications for the stormwater management system including a swale must be submitted to and approved by the Certifying Authority The swale is to be 250 m long and 1m wide at the base, receiving overflow from the rainwater tank and other roof and hardstand areas. The swale must meet the following criteria:

a) Be constructed on a minimum 1-5% grade
b) Contain grass or native plants that tolerate wet and dry periods
c) Contain rock protection or a stormwater pit at the rainwater overflow pipe to prevent erosion

Reason: To ensure water quality requirements as contained in the Water Sensitive Design section of the Great Lakes Development Control Plan are met.

6. Geotechnical report – engineering works

Prior to the issue of a construction certificate, a certificate from a professional geotechnical engineer must be submitted to the certifying authority, certifying that:

a) the design of the civil engineering works, including retaining walls and/or cut & fill batters, has been assessed as structurally adequate in accordance with the relevant Australian Standards;
b) the civil engineering works will not be affected by landslip or subsidence either above or below the works;
c) adequate drainage has been provided with appropriate considerations given to groundwater constraints.

Reason: To ensure site stability and public safety.

7. Acid sulphate soil assessment

Prior to the issue of a construction certificate, an acid sulphate soil assessment must be submitted to and approved by the certifying authority for works involving excavations beyond 1 metre below natural ground surface. The acid sulphate soil assessment must be undertaken in accordance with the Acid Sulphate Soil Manual (NSW ASSMAC 1998).

Reason: Management of acid sulphate soils.

8. Structural details

Prior to the issue of a construction certificate, structural drawings prepared by a suitably qualified and experienced structural engineer must be submitted to and approved by the certifying authority. The plans must include details for:

a) All reinforced concrete floor slabs and/or beams or raft slab (having due regard to the possible differential settlement of the cut and fill areas.
b) Footings of the proposed structure.
c) Structural steel beams/columns.

Reason: To ensure structural stability and safety.

9. Erosion and sediment control plan

Prior to the issue of a construction certificate, an erosion and sediment control plan prepared by a suitably qualified person in accordance with "The Blue Book – Managing Urban Stormwater (MUS): Soils and Construction" (Landcom) must be submitted to and approved by the certifying authority. Control over discharge of stormwater and containment of run-off and pollutants leaving the site/premises must be undertaken through the installation of erosion control devices including catch drains, energy dissipaters, level spreaders and sediment control devices such as hay bale barriers, filter fences, filter dams, and sedimentation basins.

Reason: To protect the environment from the effects of erosion and sedimentation.

10. On-site sewage management system - Section 68 application

Prior to the issue of a construction certificate, an application under Section 68 of the Local Government Act 1993 to install an on-site sewage management system must be obtained from Council. The application for Section 68 approval must be accompanied by a report prepared by a suitably qualified professional with demonstrated experience in effluent disposal matters. The report must address the site specific design of sewage management in accordance with the requirements of the Local Government Act 1993, the Local Government (General) Regulation 2005 and Guidelines approved by the Director General.

Reason: To ensure suitable onsite sewage disposal is provided to the development to protect public health and the natural environment.

11. Works within the road reserve

Prior to the issue of a construction certificate, an application for a Public Engineering Works Permit (PEWP) must be submitted to and approved by Council for the road reserve works listed in the table below. Each work must be carried out in accordance with the standard specified in the column opposite the work. All works must include the adjustment and/or relocation of services as necessary to the requirements of the appropriate service authorities.

Work	**Standard to be provided**
Construction upgrading of Como St. including ancillary drainage, from the intersection of Cambage St. to the intersection of Challis Ave.	Widen Como St. to Class 4e standard - 5m. gravel width, 200mm thick with a 5m. wide two coat bitumen seal from the Cambage St. intersection to the rear boundary of No. 13 Cambage St.
Construction upgrading of Challis Ave. including ancillary drainage, from the intersection of Como St. to the property boundary.	Widen Challis Ave. to a Class 4e standard - 5m. gravel width, 200mm thick and include a passing bay in accordance with the requirements of the NSW Rural Fire Service.
Construction of an emergency pedestrian egress boardwalk over Pig Station Creek.	Construct a timber boardwalk 2m. wide.

Reason: To ensure works within Council's road reserve are constructed to a suitable standard for public safety.

12. Traffic management plan

Prior to the issue of a construction certificate, a traffic management plan including measures to be employed to control traffic (inclusive of construction vehicles) during construction of the development must be submitted to and approved by the certifying authority. The traffic control plan must be designed in accordance with the requirements of the Roads and Traffic Authority's Manual, Traffic Control at Work Sites Version 2 and Australian Standard AS 1742.3: Manual of uniform traffic control devices - Traffic control for works on roads'.

The plan must incorporate measures to ensure that motorists using the road adjacent to the development, residents and pedestrians in the vicinity of the development are subjected to minimal time delays due to construction on the site or adjacent to the site.

The traffic control plan must be prepared for public road upgrading within Como St. and Challis Ave. by an accredited person trained in the use of the current version of RTA Traffic Control at Work Sites manual.

The approved Construction traffic management plan must be implemented prior to the commencement of work.

Reason: To ensure public safety during the construction of the development.

13. Car parking

Prior to the issue of a construction certificate, plans and specifications detailing access, parking and manoeuvring on the site must be submitted to and approved by the certifying authority. Vehicular access, parking and manoeuvring must be in accordance with Australian Standard AS/NZS 2890.1: Parking facilities: Off-street car parking. Plans must include the following items:

a) Pavement description;
b) Existing and design levels;
c) Drainage (pipes, pits, on-site detention, etc.).
d) Accessible car parking space/s designed in accordance with Australian Standard AS/NZS 2890.6: Parking facilities - Off-street parking for people with disabilities;
e) Line-marking and signs.

The engineering plans and specifications must be designed by a qualified practising civil engineer. The civil engineer must be a corporate member of the Institution of Engineers Australia or must be eligible to become a corporate member and have appropriate experience and competence in the related field.

Reason: To ensure suitable vehicular access and manoeuvrability is provided within the development.

14. Flood planning level

Prior to the issue of a construction certificate, plans and specification detailing the use of flood compatible materials for the pumphouse and fixtures below the flood planning level must be submitted to and approved by the certifying authority. Power outlets must be located above the flood planning. The flood planning level for this development is R.L. 3.8m A.H.D

Reason: To protect the building from flooding in accordance with Council and NSW Government Policy.

15. Access and facilities for people with disabilities

Prior to the issue of a construction certificate, plans and specifications detailing access to and within the development and facilities for persons with disabilities must be submitted to and approved by the certifying authority. The development must be in accordance with Australian Standard AS 1428.1 - Design for access and mobility and Part D3 of the Building Code of Australia.

Reason: To ensure the development provides equitable and dignified access and facilities for people with disabilities.

16. Water storage where not connect to a reticulated supply

Prior to the issue of a construction certificate, plans and specifications for the water storage tank must be submitted to and approved by the certifying authority. The water storage tank, must have a minimum capacity of 30,000 litres, be screened to prevent vermin from entering the tank and fitted with an outlet incorporating a first flush system. Where water to serve flushing toilets is provided from a dam or other source, the water storage tank capacity can be reduced to 18,000 litres.

Reason: To provide an adequate water supply.

17. Garbage storage area required

Prior to the issue of a construction certificate, plans and specifications of the garbage storage area must be submitted to and approved by the certifying authority. The garbage storage area must be provided on-site in a location that is readily accessible from within the site and which is screened from public areas and adjoining properties. The garbage storage area must incorporate the following design elements:

a) Bunded with a minimum volume of the bund being capable of containing 110% of the capacity of the largest container stored, or 25% of the total storage volume, whichever is the greatest.
b) Provided with a hose tap connected to the water supply.
c) Paved with impervious material.
d) Graded and drained to the sewer system.
e) Roofed to prevent the entry of rainwater.

Reason: To ensure that adequate and appropriate waste and recycling facilities are provided.

18. Building materials, finishes and colours

Prior to the issue of a construction certificate, a detailed schedule of external materials, finishes and colours must be submitted to and approved by the certifying authority. All external building materials must be in neutral, recessive, non-reflective colours and finishes, which harmonise with the colours of the natural landscape.

Reason: To maintain visual amenity to the street and surrounding properties.

19. External roofing material and colour

Metal roof sheeting must be painted or colour bonded to minimise reflection and to be sympathetic and compatible with the building and surrounding environment. Zincalume finish or off-white colours are not permitted. Prior to the issue of a construction certificate, details of the external material and colour of the roof must be submitted to and approved by the certifying authority.

Reason: To ensure that excessive glare or reflectivity nuisance does not occur as a result of the development.

20. S94 contributions

Prior to the issue of a construction certificate, a monetary contribution must be paid to Council in accordance with Section 94 of the Environmental Planning and Assessment Act 1979. The services and facilities for which the contributions are levied and the respective amounts payable under each of the relevant plans are set out in the following table:

Code	Contributions Plan	Facility	quantity	unit		rate		amount
GLW-07	Great Lakes Wide	Headquarters Building	3,547,000	$1 non res	@	$0.001	=	**$3,547.00**
TGHN08	Tea Gardens District	Major Roads	12	one way trips	@	$378.51	=	**$4,542.12**
					Total			**$8,089.12**

Contribution rates are subject to indexation. The rates shown above are applicable until 30 June following the date of consent. Payment made after 30 June will be at the indexed rates applicable at that time.

The Contributions Plan and the Standard Schedule for Section 94 Plans may be viewed on Council's web site or at Council's offices at Breese Parade, Forster.

Reason: Statutory requirement to be paid towards the provision or improvement of facilities and services.

21. Haulage Levy

Prior to the issue of any occupation certificate, details of the amount of fill that has been imported to the site or the material that has been excavated and removed from the site must be submitted to Council for the purpose of calculating the haulage levy. The haulage levy is required to be paid in accordance with the Great Lakes Wide Development Contributions Plan 2007, as may be updated from time to time. The haulage levy must be paid to Council prior to the issue of any occupation certificate.

Reason: Maintenance and repair of public assets.

22. Bond required to guarantee against damage to public land

Prior to the issue of a construction certificate, a Damage Bond Application form together with payment of a bond in the amount of $6,000 and a non-refundable administration fee of $310.50 must be submitted to Council. The bond is payable for the purpose of funding repairs to any damage that may result to Council assets from activities/works associated with the construction of the development and to ensure compliance with Council standards and specifications.

A final inspection will be carried out by the responsible Council officer and the bond (minus any fees required for additional inspections) will be considered for refund:

a) once all works, including landscaping, driveway construction, turfing, etc, have been completed, and

b) following issue of an occupation certificate by the certifying authority.

The damage bond is reviewed periodically and therefore the fee and bond amount payable will be determined from Council's current fees and charges document at the time of lodgement of the damage bond.

Reason: Protection of public assets.

PRIOR TO THE COMMENCEMENT OF ANY WORK ASSOCIATED WITH THIS CONSENT

The following conditions must be satisfied prior to the commencement of any building construction or subdivision work:

23. Waste management plan

Prior to the commencement of any demolition work, a waste management plan prepared in accordance with the requirements of Council's Waste Management Policy must be submitted to and approved by the certifying authority.

Reason: To ensure adequate and appropriate management of waste and recycling.

24. Aboriginal Heritage Management Plan

An Aboriginal Heritage Management Plan is to be prepared for the conservation of the midden as per Aboriginal community requirements, with on-going consultation with the Aboriginal community throughout the development process. It shall be prepared in consultation with the Aboriginal stakeholders to address the preservation and protection of key Aboriginal heritage values, and to deal with measures to be taken in the event that new Aboriginal objects of significance or a nature not anticipated (such as burials or ceremonial items) are discovered during construction. This plan is to include:

a) The bagging, tagging and collection of any artefacts that may be unearthed during the construction process and kept with the Karuah Local Aboriginal Land Council until an appropriate keeping place is determined by the Aboriginal Heritage Management Plan.

b) An Aboriginal Cultural Education Program shall be developed by the proponent for the induction of personnel involved in the construction activities in the project area in consultation with the Karuah Local Aboriginal Land Council.

25. Vegetation Management Plan

A Vegetation Management Plan (VMP) is to be prepared in accordance with recommendations made in the Statement of Effect on Flora and Fauna Species, by Wildthing dated December 2013. The VMP will guide the conservation and protection of surrounding environments, including EECs and threatened species habitat during construction and ensure long-term viability of the nearby surrounding environment. The VMP will prescribe monitoring and management of the surrounding vegetation including the conservation area including but not limited to:

a) Pre-clearing and clearing supervision to be implemented on both terrestrial and aquatic habitats, to cover the removal of hollow bearing trees, placement of the pipes on Posidonia seagrass beds and through mangroves, the construction of the board walk through mangroves and saltmarsh.
b) Consultation with an appropriately qualified and experienced arborist during the construction of the pipelines to reduce the impact on the root zones of nearby trees.
c) The installation and on-going management of nest boxes. Hollow-bearing trees which are required to be removed are to be compensated by suitable nest boxes at a ratio of

2:1. Nest boxes should be monitored, maintained and replaced if lost, for the life of the approved development. Monitoring of nest boxes occupancy to ascertain acceptance rates by threatened species as part of an on-going management and monitoring program.

d) Monitoring of seagrass beds and mangroves during construction and as part of an on-going management and monitoring program.
e) Establishment of construction strategies to ensure minimal disturbance of the SEPP 14 Coastal Wetlands during construction of timber boardwalk over Pig Station Creek to South Pindimar village.
f) Limiting the area of disturbance during construction of the proposed facility.

26. Construction certificate required

Prior to the commencement of any building or subdivision construction work (including excavation), a construction certificate must be issued by a certifying authority.

Enquiries regarding the issue of a construction certificate can be made to Council's Customer Service Centre on 6591 7222.

Reason: Statutory requirement under the Environmental Planning and Assessment Act 1979.

27. Notification of commencement and appointment of principal certifying authority

Prior to the commencement of any building or subdivision construction work (including excavation), the person having the benefit of the development consent must appoint a principal certifying authority and give at least two (2) days notice to Council, in writing, of the persons intention to commence construction work.

Reason: Statutory requirement under the Environmental Planning and Assessment Act 1979.

28. Toilet facilities - unsewered areas

Prior to the commencement of work, toilet facilities must be provided at or in the vicinity of the work site at the rate of one toilet for every 20 persons or part of 20 persons employed at the site. Each toilet provided must be a toilet connected to an accredited sewage management system approved by the Council.

Reason: To maintain the public health and the natural environment.

29. Site construction sign

Prior to the commencement of work, a sign or signs must be erected in a prominent position at the frontage to the site.

a) showing the name, address and telephone number of the principal certifying authority for the work, and
b) showing the name of the principal contractor (if any) for any building work and a telephone number on which that person may be contacted outside working hours, and
c) stating that unauthorised entry to the work site is prohibited.

The sign is to be maintained while the building work, subdivision work or demolition work is being carried out, but must be removed when the work has been completed.

Reason: Prescribed condition under the Environmental Planning and Assessment Regulation 2000.

CONDITIONS TO BE SATISFIED DURING DEVELOPMENT WORK
The following conditions must be complied with during any development work:

30. Construction times

Construction and/or demolition works, including deliveries on or to the site must not unreasonably interfere with the amenity of the neighbourhood and must occur only in accordance with the following:

Monday to Friday, from 7 am to 6 pm.

Saturday, from 8 am to 1 pm.

No construction and/or demolition work, including deliveries are to take place on Sundays or Public Holidays.

Reason: To maintain amenity during construction of the development.

31. Maintenance of sediment and erosion control measures

Sediment and erosion control measures must be maintained at all times until the site has been stabilised by permanent vegetation cover or hard surface.

Reason: To protect the environment from the effects of erosion and sedimentation.

32. Burning of felled trees prohibited

The burning of trees and vegetation felled during clearing of the site is not permitted. Where possible, vegetation is to be mulched and reused on the site.

Reason: To maintain amenity and environmental protection.

33. Compliance with waste management plan

During demolition and/or construction of the development, waste disposal must be carried out in accordance with the approved waste management plan.

Reason: To ensure waste is minimised and recovered for recycling where possible.

34. Inspection of drainage and on-site sewage management system

The drainage and on-site sewage management works must be inspected during construction by Great Lakes Council to verify compliance with this consent and the Australian Standards. An inspection fee in accordance with Council's Fees and Charges Policy must be paid to Council. Inspections must be carried out at the following stages:

a) Arrange inspections with Council's Building District Surveyor by calling (02) 6591 7291 when:
    i) All plumbing has been installed prior to covering in.
    ii) Internal drainage lines are laid in position and prior to covering in.
    iii) External drainage lines are laid in position and prior to covering in.
b) Arrange inspection with Council's Environmental Health Officer by calling (02) 6591 7291 when installation of the on-site sewage management facility and associated disposal areas are complete.

Reason: To ensure drainage and onsite sewage disposal is in accordance with the approved plans and standards.

35. Survey of location of buildings and other structures

A survey certificate prepared by a registered surveyor must be submitted to the certifying authority at the following stages of the development:

a) Prior to the construction of footings or first completed floor slab showing the area of land, building under construction and boundary setbacks.
b) At each level indicating the level of that floor to Australian Height Datum (AHD).
c) Upon completion of the roof timbers, before roofing is laid, indicating the ridge height to AHD.
d) At completion, indicating the relation of the building and any projections to the boundaries and that the building has been erected to the levels approved in the development consent.
e) Indicating the levels of the floor and battered wall of the settlement ponds and pipeline infrastructure.

Reason: To ensure compliance with the approved plans.

36. Wiring in flood prone buildings

All wiring, power outlets, switches, etc, must be provided in accordance with the following requirements:

a) To the maximum extent possible, all wiring, power outlets, switches, etc, must be located above the flood planning level.
b) All electrical equipment installed below the flood planning level must be suitable for continuous submergence in water and must not contain fibrous components.
c) All electrical equipment installed below the flood planning level must be capable of disconnection by a single plug and socket assembly.
d) Electrical circuits to areas below the flood planning level must be separated from circuits serving areas above the flood planning level.
e) Only submersible-type splices are to be used below the flood planning level.
f) All conduits located below flood planning level are to be so installed that they will be self-draining when subjected to flooding.
g) Any existing wiring is to be certified by a licensed electrical contractor as compliant with current electrical standards.

Reason: To maintain the safety of buildings and occupants during a flood event.

37. Aboriginal heritage

This consent does not authorise the harming of an Aboriginal object or place. Under the National Parks and Wildlife Act 1974, it is the responsibility of all persons to ensure that harm does not occur to an Aboriginal object or place. If an Aboriginal object is found, whilst undertaking development work, all work must stop and the NSW Office of Environment and Heritage notified. All directions of the Office of Environment and Heritage must be complied with at all times.

Reason: To protect Aboriginal heritage.

38. Aboriginal Field Officer to be on site for all earthworks

An Aboriginal Field Officer from the NSW National Parks and Wildlife Service and/or the Local Aboriginal Land Council must be present during all earthworks. The identity of the appointed person is to be made known to Council two days prior to commencing earthworks.

Reason: To protect Aboriginal heritage.

39. External materials, finishes, and colours

All external materials, finishes and colours must be provided in accordance with the approved schedule of external materials, finishes and colours.

Reason: To ensure the visual amenity of the streetscape.

PRIOR TO THE ISSUE OF AN OCCUPATION CERTIFICATE
The following conditions must be satisfied prior to any occupation or use of the building:

40. Completion of car parking areas and provision of signs

Prior to the issue of an occupation certificate, the car parking areas must be constructed in accordance with the approved plans and be fully line-marked. Signs must be erected clearly indicating the availability of off-street parking and the location of entry/exit points, visible from both the street and the subject site.

Reason: To ensure that adequate parking facilities for the development are provided on site.

41. Rainwater tank

Prior to the issue of a final occupation certificate, rainwater tank/tank-stand installations must be structurally sound and in accordance with manufacturers details. Overflow from the tank must be connected to the existing stormwater system, or disposed of in a manner that does not cause nuisance to neighbouring properties or degradation of land.

Reason: To ensure rainwater tanks stands are structurally adequate and overflow from the tank is discharged in a proper manner that protects adjoining properties.

42. On-site sewage management system - approval to operate

Prior to the issue of an occupation certificate, the on-site sewage management system must be completed in accordance with the approved plans and current specifications and standards. The system must not to be used and/or operated until it has been inspected by a Council Officer and an approval to operate the system has been issued.

Reason: To ensure public health and safety.

43. Implementation of noise attenuation methods

Prior to the issue of an occupation certificate, noise attenuation methods required by the acoustic engineer or any additional noise attenuation works required by this consent must be implemented and the completed works certified by the acoustic engineer.

Reason: To ensure compliance with the development consent and to maintain acoustic amenity.

44. Survey certificate of complete building and other structures

Prior to the issue of a final occupation certificate, survey certificates from a registered surveyor must be submitted to the principal certifying authority upon completion of the building and other structures.

Reason: To determine the height of buildings under construction and ensure compliance with the approved plans.

45. Emergency management plan

Prior to the issue of a final occupation certificate, an emergency management plan must be submitted to and approved by the principal certifying authority. This plan must specifically address:

a) plant breakdown,
b) spillage and cleanup procedures for all chemicals stored on the site, and
c) flooding
d) bushfire
e) earthquake

Reason: To ensure procedures are in place to minimise harm to the public and the environment from chemicals stored on the site in an emergency.

46. Inspections of engineering work.

Prior to the issue of a final occupation certificate, all engineering work must comply with Council's engineering guidelines, specifications and standards and must be inspected in accordance with Council's holding points. Upon completion of the public works a final inspection must be arranged with Council and a Certificate of Practical Completion must be issued by Council.

Reason: To ensure compliance with Council's specification for engineering works.

47. Electricity supply certificate

Prior to the issue of a final occupation certificate, a certificate of compliance from the electricity supply authority must be submitted to Council stating the satisfactory arrangements have been made for the provision of electricity supply to the development. '

Reason: To ensure that utility services have been provided to the development.

48. Telephone supply certificate

Prior to the issue of an occupation certificate, a certificate of compliance from the telephone supply authority must be submitted to Council stating the satisfactory arrangements have been made for the provision of telephone supply to the development.

Reason: To ensure that utility services have been provided to the development.

49. Provide chemical storage area

Prior to the issue of an occupation certificate, a covered impervious bunded area must be provided for storage of chemicals, oils or fuel (for example a bunded chemical cabinet). The volume of the bunded area must be at least 110% of the volume of the largest container.

Reason: To reduce the risk of environmental pollution from chemical or fuel spills.

50. Provide spill kit

Prior to the issue of an occupation certificate, a spill kit must be provided for use of emergency equipment if there is a leak or spill of chemicals or oils. The spill kit must be clearly labelled and include items such as rags, brooms and mops to stop any spill from entering the drainage system.

Reason: To reduce the risk of environmental pollution from chemical or fuel spills.

ONGOING USE

The following conditions must be satisfied during the ongoing use of the development:

51. Operation of car parking area

All car access driveways, turning areas, parking spaces and bicycle parking must be provided and maintained in accordance with the approved plans.

Vehicles using any off-street loading/unloading and/or parking area must enter and leave in a forward direction. All driveways and turning areas must be kept clear of obstructions that prevent compliance with this condition.

Reason: To ensure that adequate and parking facilities and safe manoeuvring areas are provided on site.

52. Buildings not to be used for residential occupation

The buildings must not be used for any form of residential occupation.

Reason: To protect the amenity of adjoining premises.

53. Hours of operation

The abalone farm pumping and water reticulation system will operate 24 hours a day. The hours of operation of the business when staff attend the premises are restricted to the times set out in the following table:

Period	Start Time	Finish Time
Monday to Friday	8.00am	6.00pm
Saturdays	8.00am	6.00pm
Deliveries	8.00am	6.00pm

Any alteration to the above hours of operation will require the further consent of Council.

Reason: To protect the amenity of adjoining premises.

54. Operational noise levels

Operational noise levels associated with the development must not exceed those specified in Advitech Pty Limited's Noise Impact Assessment dated 11 April 2011 (Job No. 0110070-00) at the boundary of any residential premises: Intrusive noise levels are:

- Day – 39dB(A) LAeq15min
- Evening – 38dB(A) LAeq15min
- Night – 37dB(A) LAeq15min

55. Operation of 'acoustically significant' plant and equipment

Operation of 'acoustically significant' plant and equipment including pumping stations, generators, air conditioning units and heavy vehicle movements shall be restricted to the hours between 7am to 6pm daily. Note: this condition does not include the operation of water pumps which operate 24 hours daily.

56. Implementation of noise attenuation methods

One month after the use has commenced an acoustic report must be submitted to Council. This report must assess noise emission from the development, the effectiveness of the noise attenuation methods and compliance or otherwise with the appropriate maximum noise level as well as any additional measures required to achieve compliance with the appropriate maximum noise level.

Should additional noise attenuation measures be required to achieve compliance, they must be installed within 30 days of Council approval of the reported measures. Certification from a suitably qualified person must be submitted to council verifying that the additional measures have achieved compliance with the appropriate maximum noise level.

Reason: To ensure compliance with the development consent and to maintain acoustic amenity.

57. Odour

Odour associated with the premises must not be a source of 'offensive odour' at the nearest affected premises:

"offensive odour" is defined under the Protection of the Environment Operations Act 1997 as an odour:

a) that, by reason of its strength, nature, duration, character or quality, or the time at which it is emitted, or any other circumstances:
b) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or
c) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or
d) that is of a strength, nature, duration, character or quality prescribed by the regulations or that is emitted at a time, or in other circumstances, prescribed by the regulations.

Reason: To maintain the amenity of adjoining properties.

58. Equipment in flood prone buildings

All equipment installed below or partially below the flood planning level must be capable of disconnection by a single plug and socket assembly.

Reason: To reduce flood impacts.