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SHUTE HARBOUR
MARINA

Construction Environmental Management Plan

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SHUTE HARBOUR MARINA RESORT

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

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EXECUTIVE SUMMARY

Shute Harbour Marina Development Pty Ltd proposes to develop the Shute Harbour Marina Resort; an integrated marina, residential and tourism concept. The Shute Harbour Marina Resort (SHMR) is located at Shute Harbour, Airlie in North Queensland, on leasehold land described as Lot 2 on Plan SP117389 and adjacent seabed where a permit to occupy has been granted ("the site").

An Environmental Impact Statement (EIS) is required by the Queensland Coordinator General for the proposed SHMR and as such, will form a basis for the Local, State and Federal approval decision making. Detailed technical studies and consultations with the community, as well as government agencies have been undertaken to ensure the SHMR is developed in a manner that achieves balanced environmental, social and economic benefits.

This Construction Environmental Management Plan (CEMP) has been prepared as part of the EIS to detail the environmental management measures which will be adopted during the construction of the SHMR. The CEMP incorporates the mitigation measures that have been recommended in the EIS technical reports. In particular, the CEMP provides mechanisms in which the environmental performance of the SHMR construction works can be measured and, if required, provides procedures for identifying and implementing corrective actions.

The CEMP addresses the following key components:

- **Rationale:** identification of the element to be managed and the potential for environmental impact of activities associated with each element.
- **Objectives:** identification of the environmental objectives and targets to be achieved in line with the rationale and in compliance with applicable legislation.
- **Performance Indicators:** measurable indicators and standards set to assess the efficiency of management measures and determine compliance with associated plans (e.g. waste management plan, rehabilitation plan).
- **Tasks/Actions:** monitoring and management measures to be implemented in order to achieve the stated objectives and targets to ensure impact mitigation.
- **Monitoring:** monitoring requirements to measure compliance with the performance indicators and frequency of monitoring.
- **Corrective Action:** measures to be undertaken should monitoring indicate non-compliance with performance indicators.
- **Timing:** a schedule for completion for the relevant actions.
- **Responsibility:** the party responsible for completing the actions in accordance with the rationale, objectives and timing of the specific action.

The objectives of the CEMP are to ensure that:

- commitments and recommendations made in the EIS to protect environmental values are incorporated into the design, construction and operation of the proposed development;
- best practice environmental management is achieved at all stages of the development;

- conditions of the Coordinator General's report and other permits and approvals are satisfied; and

- environmental responsibilities, and monitoring, reporting and auditing procedures are established and demonstrate due diligence.

It is concluded that any environmental impacts associated with the construction of the SHMR can be adequately controlled by the implementation of the mitigation and management procedures described in this CEMP.

1. INTRODUCTION

Cardno (Qld) Pty Ltd (Cardno) has been commissioned by Shute Harbour Marina Development Pty Ltd to prepare a Construction Environmental Management Plan (CEMP) for the proposed Shute Harbour Marina Resort (SHMR), located within the Whitsunday Shire of Queensland.

The CEMP has been prepared as part of the Environmental Impact Statement (EIS) required by the Queensland Coordinator General (COG) for the proposed SHMR and as such will form the basis for Local, State and Federal approval decision making.

This CEMP is a management tool used to assist in minimise the impact to the environment. The role of the CEMP is to ensure that:

- commitments and recommendations made in the Supplementary EIS are incorporated into the design, construction and operation of the proposed development;
- best practice environmental management is achieved at all stages of the development;
- conditions of the COG report and other permits and approvals are satisfied; and
- environmental responsibilities, and monitoring, reporting and auditing procedures are established and demonstrate due diligence.

This CEMP includes management plans for various issues relating to the development proposal which is listed below.

- Community Awareness.
- Bulk Earthworks.
- Erosion and Sedimentation.
- Dredging
- Water Quality.
- Acid Sulfate Soil Management.
- Flora and Fauna Management.
- Air Quality.
- Noise and Vibration.
- Waste Management.
- Dangerous and Hazardous Materials.
- Cultural Heritage Management.
- Traffic.
- Visual Amenity.

Each element of this CEMP provides performance criteria that are to be met with controls such that impacts from proposed works on the physical and social environment are mitigated in accordance with principles of ecologically sustainable development. In particular, this CEMP provides mechanisms whereby the environmental performance associated with the works can be measured and if required, provides procedures where agreed corrective actions are implemented.

Activities covered by this CEMP include the following.

- Site establishment.
- Sheet pile revetment wall construction.
- Breakwater construction.
- Marina basin dredging.
- Bulk earthworks.
- Marina fit-out.
- Proserpine-Shute Harbour Road upgrade.
- Essential services installation.
- Building works.

This CEMP is a dynamic document and will be continually reviewed to ensure compliance with any relevant conditions imposed by the approval process. A copy of the CEMP shall be kept on site and easily obtainable by persons entering the site.

The operation of the marina and associated facilities has been addressed in a Site Based Management Plan (SBMP) prepared for Environmentally Relevant Activities (ERAs) 11 – crude oil or petroleum product storing, ERA 19 – Dredging and 73 – marina or seaplane mooring.

2. SITE DESCRIPTION

The SHMR site is situated on the Whitsunday Shire coastline, on Queensland's central coast. The project area is located 10km south-west of Airlie Beach, 35km north-east of the Bruce Highway and a 30 minute or 2 hour drive from the Proserpine and Mackay airport respectively.

The locality and development layout of the SHMR is depicted in Figure 1.

The SHMR will be established on land within the coastal zone which encompasses 45.2 hectares of lease land and seabed, the latter under a permit to occupy. The site is described as Lot 2 on SP117389, Mount Rooper, Whitsunday Shire.

The site is bound by:

- Proserpine-Shute Harbour Road to the north, with land on the opposite side of the road forming the Conway National Park;
- an existing motel, residential dwelling and the Shute Harbour Quay Transit Terminal to the east;
- a house and marina salvage operation to the west; and
- the Great Barrier Reef Marine Park seaward of the southern boundary.

The site is located with the Great Barrier Reef World Heritage Area and Great Barrier Reef Coast Marine Park (Habitat Protection Zone) and is adjacent to the following areas of conservation significance.

- Great Barrier Reef Marine Park.
- The Conway National Park to the north of the site which is protected by the *Nature Conservation Act 1992* in order to provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally compatible. (World Conservation Union (IUCN) 1994 definition).

The majority of the site is submerged by tidal waters that overflow a narrow wavecut platform, beach and seabed with Mean High Water Springs (MHWS) located at 1.33 metres AHD. The seabed is sparsely vegetated with *Halophila ovalis* and *Halodule univeris* seagrass. Mangrove communities fringe the shoreline with patches of salt marsh occurring on rocky ground up to the Highest Astronomical Tide (HAT) level located at 2.35 metres AHD. Beyond this intertidal zone, the land is vacant and vegetated with remnant terrestrial vegetation. This part of the land rises in a gentle slope to Shute Harbour Road.

Part of the site is currently used as a mooring location for recreational boats.

3. DEVELOPMENT PROPOSAL

The Proponent proposes to develop a marina complex incorporating residential, tourism and commercial land uses at Shute Harbour, Airlie in North Queensland, on leasehold land described as Lot 2 on Plan SP117389 and adjacent seabed where a permit to occupy has been granted (the project area).

The proposed development includes:

- reclaiming tidal land for the purposes of constructing a commercial, tourism and residential precinct (including internal roads and infrastructure) and supplementary car park;
- construction of a solid breakwater;
- dredging of the marina basin to - 5.2 metres AHD to accommodate a 669 berth marina; and
- dredging of the access channel into the proposed marina.

The commercial and tourism precinct will incorporate a four star tourism resort, retail, marina amenities, car park, and landscaped open space on reclaimed land in the north and north-eastern portion of the project area. The residential precinct consists of 117 lots on reclaimed land and an isthmus projecting into the harbour.

The marina will consist of floating pontoons supported by driven piles and will include a fuel dock and sewage pump-out facility.

Civil engineering works occurring over 2 years will include the following steps:

- clearing of mangrove vegetation;
- construction of a stormwater diversion channel;
- reclaiming land using sheet pile revetment walls and geotextile filled “sausage” wall on the western boundary of the isthmus;
- piling works;
- dredging of Marina Basin to a depth of -5.2 metres using a cutter suction dredge;
- marina fit out; and
- infrastructure works including road works and services.

Drawings for the proposed civil works are presented as part of the EIS.

Ongoing maintenance dredging of the marina and access channel will be required every 5-7 years based on siltation rates and land available for spoil disposal. Spoil from maintenance dredging will be dewatered and dried on the landscaped open space area.

Buildings associated with mixed land uses will thereafter be constructed in the project area. Engineered design of buildings and structures has not yet been completed but vision documentation provides detailed concept images of the proposed development form and the Code of Development constrains the development to acceptable building solutions in accordance with Council building requirements under the local planning scheme.

4. CONSTRUCTION METHODOLOGY AND PROGRAM

Construction drawings are provided in the 'Drawings List' Section, attached to the EIS.

The construction staging plan is illustrated in drawing set 7900/48/01-400 to 700/48/01-411.

Written commentary in support of information contained within drawings, specifically on the construction phases and timing is outlined in Table 1 below.

Table 1 Construction Phases

Stage & Timeframe	Construction Activity	Description
One (Month 1 to 3)	Preliminary site works and earthworks	- Preliminary site works will include site setout to define the boundary of the project works and recording of pre-construction site conditions. - Monitoring for Cultural Heritage purposes will be implemented in line with the registered Cultural Heritage Management Plan for the project - Environmental control measures will be installed prior to construction works. - A temporary site access will be constructed, above the tidal zone. - Silt fences will be installed around the site access track. - Temporary fencing will be constructed to clearly define the extent of the site works and restrict access to the construction site. - Existing mangroves on the site between the shoreline and Shute Harbour Road will be cleared and disposed of off site prior to earthworks commencing. - Earthworks will commence with the establishment of a construction compound on a level platform approximately 20m wide using in-situ cut materials. The construction compound will be located on the seaward side of Proserpine-Shute Harbour Road. The construction compound will provide a centralised point for construction activities, storage for plant and equipment, a delivery point for construction materials such as sheet piles and the provision for truck turn around. - Earthworks will include the construction of a stormwater diversion channel parallel to Proserpine-Shute Harbour Road to the east of the site. This channel will be lined with geo-textile and will include rock checks for erosion control.
Two (Months 3 to 8)	Construction of walls to enclose Area 1 including: - temporary sheet pile wall (wall 6), and - temporary bund wall.	- The first 80m of the temporary sheet pile wall (wall 6) will be constructed using an excavator to install the sheet piles. - The continuation of wall 6 from chainage 80 to chainage 700 will be constructed from a piling rig mounted on a barge. The sheet piles will be transported to site by truck. - Imported material is required to be placed behind the sheet piles to provide the required resistance

Stage & Timeframe	Construction Activity	Description
		to design loads. This material will be transported to site by trucks. (50,000 m^3 of material is required). - A temporary bund will be constructed south from the shoreline to connect to wall 6 using imported material transported to site by trucks. (100,000 m^3 of material is required).
(Months 9 to 14)	Construction of Area 1 - earthworks to excavate marina basin, - fill development area, and - construct revetment wall (wall 1)	- The area enclosed by wall 6 and the temporary bund, Area 1, will be defished and dewatered. - The marina basin in Area 1 will be excavated in the dry. Excavation to the finished basin level of RL -5.2m AHD requires approximately 232,900 m^3 of earthworks over an area of 8.9 ha. - The top 1.5 metres of the surface will be stripped in stages to enable monitoring for Cultural Heritage purposes to be carried to be carried out. - All soft material excavated will be stockpiled adjacent to Shute Harbour Road. - Earthworks operations will include the overexcavation of the marina basin area to provide suitable material for filling to the development platform. The excavation will be benched at 2.5m intervals to a level of RL -12.5m AHD. - The construction of the revetment wall (wall 1) will be completed in the dry. The materials required to construct this block wall will be imported by trucks.
Three (Month 9 to 14)	Construction of walls to enclose Area 2 including: - temporary sheet pile wall (wall 6), and - rock faced bund (wall 3).	- Phase 3 will proceed similar to Phase 2. - 50,000 m^3 of imported material is required behind wall 6 for the construction of the wall from chainage 700. - 150,000 m^3 of material is required for the construction of wall 3.
(Month 15 to 20)	Construction of Area 2 - earthworks to excavate marina basin, - fill development area, and	- Excavation of the marina basin in Area 2 to the finished basin level of RL 5.2m AHD requires approximately 224,000 m^3 of earthworks over an area of 8.2 ha. - The fill in the peninsula on the western site of the development will be placed to a level 2.5m below finished surface level. - Geo-textile liners will then be installed along the length of the peninsula to provide a suitable volume for containment of future maintenance dredging material.
(Month 19 to 23)	Construction of revetment wall (wall 1)	- The construction of the revetment wall (wall 1) will be completed in the dry. The materials required to construct this block wall will be imported by trucks.
(Month 12 to 23)	Construction of breakwater (walls 4 and 5)	- Construction of the breakwater walls 4 and 5, will commence with the construction of wall 6 from chainage 700. The construction of the Breakwater is expected to take 12 months to complete.

Stage & Timeframe	Construction Activity	Description
Four (Month 24 to 30)	Dredging of marina basin beyond temporary sheet pile wall (wall 6)	- Following the construction of walls 4, 5 and 6 silt curtains will be installed across the two openings at the eastern end of the site. - Once the marina basin is enclosed, de-fishing operations will be carried out within the basin to remove any marine animals prior to dredging operations commencing. - The marina basin will be dredged using a 400mm cutter suction dredge. The quantity of dredge material to achieve the design depth in the marina basin is estimated to be 220,000 m^3 over an area of 9.7 ha. - The dredge material will be placed on the reclaimed area. This material will be spread, dried and mixed with excavated and dried clay materials, before being placed and compacted as fill material within the reclamation areas. - Dredging of access channel at the entrance of the marina requires the dredging of 54,600m^3 of material over an area of 3.1 ha.
Five (Internal Works)	Roadworks, services , infrastructure and marina fit out.	- On completion of the earthworks to the reclamation areas, the roadworks and services will be constructed. This will include: o Construction of roadworks and services to Area 1; and o Construction of Roadworks and services to Area 2. - On completion of the dredging operations within the marina basin, a piling barge will install the piles to locate the pontoons and associated catwalks within the marina.
Five (External Works)	Upgrading of Proserpine-Shute Harbour Road	- Construction of Proserpine–Shute Harbour Road will be constructed in a period of approximately 4 months. This work be staged to enable required traffic access to be maintained and will require the import of materials by trucks.

Note:
** The quantities of imported materials for the earth bund walls and the fill behind the sheetpile wall 6 include an allowance of 50% for displacement of insitu mud under the fill.*

In more laymen's terms the establishment of the marina will involve excavation of the marina basin to -5.2m AHD. Fill obtained from the excavation of the marina basin will be used as fill material to reclaim land for the Managed Resort Accommodation and Marina development at Shute Harbour. No blasting will be undertaken during construction.

The proposed construction phases are illustrated in Drawings 7900/48/01-400 to 7900/48/01-405, attached to the EIS.

The total area of cut for the development is approximately 29.9 ha, and the total approximate volume is 732,000 m^3. The cutting and excavation of the material in the marina basin will be completed using both dry excavation and wet dredging methods, as summarised below.

- The portion of the marina basin to be excavated in the dry covers an area of 17.1 hectares and requires the excavation of 456,900 m^3 of material to achieve a basin level of RL -5.2m AHD.
- The portion of the marina basin to be dredged covers an area of 9.7 hectares and requires dredging of 220,500 m^3 of material.
- The access channel will also be dredged and covers an area of 3.1 hectares and requires dredging of 54,600 m^3 of material.

Cutter suction dredging is the preferred wet dredging method because:

- there is much less chance of sediment affecting sensitive environmental areas within Shute Bay;
- it minimises the plume compared to other equipment;
- silt curtains can be used; and
- the discharge line can be placed on the sea bed with minimal disturbance to vessels and seagrasses.

The area requiring fill for the development is approximately 13.5 ha and requires 840,000 m^3 of fill.

The proposed phasing of the construction works includes temporary works to enclose Areas 1 and 2 to enable majority of the earthworks to be completed in the dry. These temporary works require the importation of fill material which will be utilised within the development platform on removal of the temporary works. The temporary works are summarised below.

- The construction of the temporary sheet pile wall (wall 6) requires 100,000m^3 of imported material to be placed behind the wall to resist the design loads. This material will be removed for placement within the site as fill as part of the removal of the temporary sheet pile wall (wall 6).
- The construction of the temporary bund wall to enclose construction Area 1 requires 100,000 m^3 of imported material and 9,700 m^3 of rock armour. This material will be reused within the site as fill following the removal of the temporary bund.

The construction of the rock faced bund (wall 3) requires 150,000 m^3 of material and 12,000 m^3 of rock armour. The quantity of material to be imported for the construction of wall 3 is 100,000 m^3 of fill and 5,500 m^3 of rock. This imported material will be required to construct the initial portion of the wall. The additional fill material will be won from the excavation of Area 1 and the additional rock armour material will be recovered from the temporary bund.

The upgrading of Proserpine-Shute Harbour Road requires additional fill material of 26,100 m^3 for the road embankment and 7,300 m^3 for the filling of the existing detention basin.

Imported fill materials will be trucked to site and are likely to be sourced from a quarry within the Whitsunday Shire near Gregory River, approximately 65 km north-west of the site.

The majority of the earthworks within development will be constructed in the dry using conventional excavation and placement methods. This will be made possible by the temporary works to construct a sheet pile wall and earth bund to protect the work from tidal inundation. The earthworks will include the excavation, drying out and treatment of in-situ materials from the marina basin area for placement as fill material within the reclamation area.

The temporary sheet pile wall (wall 6) will be installed using a vibratory hammer. Where the required toe level is not achieved by vibratory hammer, a conventional hammer will be used to drive the piles to the required toe level.

Two alternative structures are included for the solid breakwater structure, both include steel pile structure to support precast concrete units. The construction of the solid breakwater will include driving of steel piles and the installation of precast concrete units. The steel piles will be driven using a conventional hammer pile driving rig mounted on a barge. The steel piles and precast concrete units will be delivered to site on semi-trailers and an onsite crane will be used to transfer the piles from the trucks to a barge for transport to the piling barge.

The wet excavation of the marina basin will be undertaken using a cutter suction dredge. The dredging of the marina basin will not commence until the marina is enclosed by the revetment wall, breakwater, temporary sheet piling and silt curtain.

The floating pontoons and catwalks for marina fit out will be transported to site by road and unloaded into the water using site cranes. They will then be located in position using small work boats and connected to the piles. Installation of services including power, potable water and fire water services will be required to complete the marina.

Work on site will be limited to 10 hours a day during daylight (normally between 6:30am to 6:30pm), and 6 days a week with the exception of the dredging work which at times may be required on a continuous 24 hour 7 days a week basis.

All construction for the development will be undertaken on the seaward side of Proserpine-Shute Harbour Road. There will be no road traffic restrictions to Proserpine-Shute Harbour Road and no marine traffic restrictions to the adjacent boat ramp and jetty. However, no marine traffic will be allowed within the construction footprint of the marina until completion.

The upgrading of Proserpine-Shute Harbour Road will require road traffic restrictions which will be completed in accordance with the DMR conditions for road works.

Methods of Transport

The proposed construction access to the site is in the form of an unsignalised T intersection, which has been designed to allow access by an Articulated Vehicle. No upgrade of the intersection is required for construction access. Arrangements for access of any indivisible loads or oversized vehicles, should these be required, would be detailed in due course by the appointed contractor as part of a construction traffic management plan.

The sheet piles will be transported to site on semi-trailers and lifted from the trucks to the piling barge using an onsite crane which will be located on the reclaimed land adjacent to Proserpine-Shute Harbour Road.

The materials required for the sheet pile revetment wall will be delivered to site by road. It is estimated that 185 truck loads will be required to deliver the sheet piles to site. The longest pile is expected to be 24 metres, but depending on the construction methodology standard 12 metre piles may be used and spliced together.

The materials required for the block revetment wall will be transported to site by road and it is estimated that 135 truck loads will be required to deliver the blocks to site.

The materials required for the breakwater will be delivered to site by road. The numbers of deliveries for the two alternative structures are described below.

- Alternative 1 – Steel Pile & Precast Facing Panels

It is estimated that 175 truck loads would be required to deliver the steel piles and frames to site and approximately 590 truck loads to deliver the concrete units to site.

- Alternative 2 – Steel Pile & Gravel Filled Concrete Boxes

  It is estimated that 145 truck loads would be required to deliver the steel piles, 810 trucks to deliver the material for the boxes, 45 truck loads to deliver the reinforcement and 1,200 to deliver the gravel fill material to site.

The number of trucks required to import fill material have been estimated based on a need to import approximately 300,000 m^3 of placed material using vehicles with an average payload of 28 tonnes. The material is required to be delivered to site over a period of 12 months.

Movement of materials will therefore be spread across the construction period with limited numbers in peak hours and is not expected that deliveries will impact the external road network. A summary of the maximum truck movements required for delivery of construction materials is outlined in Table 2. The peak construction vehicle numbers will occur either between month 3 and 8 with a combined total of 78 trucks per day or if the breakwater alternative 2 construction is used, in month 12 and 14 with a combined total of 85 trucks per day. It is not expected that deliveries will impact the external network in terms of link capacity or intersection performance.

Table 2 Maximum Heavy Vehicle Total Deliveries, Timeframe and Frequency

Type	Qty	Number of truck loads	Timeframe	Daily Vehicle Numbers
Sheet piles				
- Wall 6 – Ch 0 to Ch 700		85	6 months (Month 3 – 8)	1 truck
- Wall 6 – Ch 700 to end		100	6 months (Month 9 – 14)	1 truck
Blockwork Revetment Wall				
- Wall 1 – Ch 0 to Ch 600		65	6 months (Month 3 – 8)	1 truck
- Wall 1 – Ch 600 to end		70	6 months (Month 9 – 14)	1 truck
Imported Fill Material				
- Temporary Bund	100,000 m^3	6,800	6 months (Month 3 – 8)	44 trucks
- Temporary Bund – Rock Facing	9,500 m^3	790	6 months (Month 3 – 8)	5 trucks
- Wall 6 – Ch 0 to 700	50,000 m^3	3,400	6 months (Month 3 – 8)	22 trucks
- Wall 6 – Ch 700 to end	50,000 m^3	3,400	6 months (Month 9 – 14)	22 trucks
- Wall 3 – Rock Faced Bund - Fill	100,000 m^3	6,800	6 months (Month 9 – 14)	44 trucks
- Wall 3 – Rock Faced Bund - **Rock**	5,500 m^3	450	6 months (Month 9 – 14)	3 trucks
Breakwater			12 months (Month 12 – 23)	

Type	Qty	Number of truck loads	Timeframe	Daily Vehicle Numbers
Concrete Panel Structure				
- Steel piles		175	7 months	1 truck
- Concrete units		590	6 months	4 trucks
Concrete Box Option				
- Steel piles		145	6 months	1 truck
- Materials for Concrete boxes	12,000 m^3	810	12 months	3 trucks
- Reinforcement for Concrete boxes	1,320 t	45	12 months	1 truck / week
- Gravel fill for Concrete boxes	17,500 m^3	1,200	12 months	4 trucks

An average of 78 full time equivalent workers will be employed during the construction period, with a peak of 192 positions at the end of the construction period.

More information on construction traffic impacts is provided in the Traffic Impact Assessment by Cardno Eppell Olsen, presented as Appendix K1 to the EIS, and summarised in Section 4.2 of the EIS.

5. PREAMBLE TO THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

5.1 Terminology

The term **Principal** refers to Shute Harbour Marina Development Pty Ltd

The term **Council** refers to the Whitsunday Regional Council.

The term **Contractor** refers to the party or company performing construction works relating to the proposed development and includes all employees of the Contractor and sub-contractors.

The term **Consultant** refers to the civil and/or environmental engineering consultant employed by the Principal.

The term **Environmental Management Officer** (EMO) refers to the Environmental Scientist/Engineer employed by the Contractor who is responsible for undertaking the responsibilities of environmental management and supervision in support of the Contractors work activities.

The term **Works** refers to all matters associated with the construction of the proposed development.

The term **Approval** relates to the decision notices and schedule of conditions relevant to the site description and development proposal.

The term **EPA** refers to the Queensland Environmental Protection Agency.

The term **DPI&F** refers to the Queensland Department of Primary Industries and Fisheries.

The term **NRW** refers to the Department of Natural Resources and Water.

The term **DMR** refers to the Department of Main Roads.

The term **MSQ** refers to the Maritime Safety of Queensland.

The term **CEMP** refers to this Construction Environmental Management Plan.

5.2 Legislation

The primary environmental legislation relevant to this CEMP is the *Environmental Protection Act 1994 (EP Act)* and the *Coastal Protection and Management Act 1995* (Coastal Act). The *EP Act* protects environmental values through development and implementation of environmental protection policies and regulates environmentally relevant activities prescribed in the *Environmental Protection Regulation 1998.*

The *Environmental Protection (Water) Policy 1997* (EPP Water) ensures protection of environmental values from activities that may result in the release of contaminants to waters.

The *Environmental Protection (Air) Policy 1997* (EPP Air) ensures protection of ambient air quality and specifies indicators and air quality goals for control of the release of airborne contaminants.

The *Environmental Protection (Noise) Policy 1997* (EPP Noise) specifies an acoustic quality objective for protection of the well-being and amenity of individuals and the community in residential areas.

The *Environmental Protection (Waste Management) Policy 2000* (EPP Waste) promotes the efficient use of non-renewable resources and the use of waste as a resource. The hierarchy of waste management is outlined and lists waste management practices in the preferred order of adoption.

The Coastal Act has been established to:

- provide for the protection, conservation, rehabilitation and management of the coast including its resources and biological diversity;
- have regard to the goal, core objectives and guiding principles of the national strategy for ecologically sustainable development in the use of the coastal zone;
- provide with other legislation a coordinated and integrated management and administrative framework for the ecologically sustainable development of the coastal zone; and
- encourage the enhancement of knowledge of coastal resources and the effect of human activities on the coastal zone.

The *Coastal Act* provides for the protection and management of the coast by preparing coastal management plans and declaring coastal management districts as areas requiring special development controls. The *State Coastal Management Plan - Queensland's Coastal Policy 2001* (State Coastal Plan) was prepared under the provisions of the Coastal Act.

The State Coastal Plan deals with matters of International, National and State significance and provides the policies and context for the development of Regional Coastal Management Plans. In accordance with the provisions of the *Coastal Act* a regional plan for the Mackay -Whitsunday region has been drafted. However at this stage the Regional plan is still considered a Draft.

The following legislation is also applicable to proposed construction works at the site.

- The *Land Protection (Pest and Stock Route Management) Act 2002* – for the management of pest plants and animals and application of controls and restrictions on 'declared pests'.
- The *Plant Protection Regulation 2002* – for management of 'notifiable pests' under the *Plant Protection Act 1989.*
- The *Aboriginal Cultural Heritage Act 2003* is to ensure that all reasonable and practical measures are taken to prevent damage to places and objects of cultural, historical or archaeological significance.
- The *Fisheries Act 1994* (Qld) is an 'Act for the management, use, development and protection of fisheries resources and fish habitats and the management of aquaculture activities, and for related purposes' (long title). The main object of the Act is to provide for the 'use, conservation and enhancement' of fisheries resources and fish habitats through the application of the principles of ecologically sustainable development. The Act provides for the appropriate powers of the Chief Executive such that this object may be attained. These powers include those necessary for the management of commercial, recreational and indigenous fishing.
- The *Nature Conservation Act 1993* ("*NC Act*") and associated *Nature Conservation (Wildlife) Regulation 1994* provide a framework for the conservation of nature. One of

the primary mechanisms by which this objective is to be achieved is through the declaration and management of protected areas and the protection of native wildlife and its habitat. This legislation specifies management principles and intents for areas and species of conservation significance.

- The *Marine Parks Act 2004* provides for the conservation of the marine environment through:
  - the declaration of marine parks;
  - the establishment of zones, designated areas and highly protected areas within marine parks;
  - developing zoning plans and management plans;
  - the cooperative involvement of all stakeholders;
  - a coordinated and integrated approach with other conservation legislation;
  - recognition of the cultural, economic, environmental and social relationships between marine parks and other areas; and
  - the application of the precautionary principle.

5.3 Program and Contractual Obligations

This CEMP covers the construction phase of the works associated with excavation of the marina and construction of breakwater and building platform. The construction phase is defined as the period from the commencement of works to the substantial completion of the works.

The Contractor is generally responsible for ensuring that the provisions of the CEMP are met, with the exception of certain planning or design issues, which are explicitly noted throughout the CEMP as being the responsibility of the Principal and/or the Consultant.

5.3.1 Individual Duties

The Contractor shall ensure that all persons who are to be employed or sub-contracted for the works shall be trained as to their individual responsibilities as set out in this CEMP and as provided by the Acts, including the following.

General Environmental Duty – whereby a person in the performance of their duties shall not do so in a manner which will cause, or is likely to cause, environmental harm unless the person takes all reasonable and practical measures to prevent or minimise the harm.

Duty to Notify Environmental Harm – whereby if a person in the performance of their duties becomes aware that serious or material environmental harm is caused or threatened then the person must contact the Contractor whereupon the Contractor must immediately notify the Principal and/or the EPA.

Compliance with the CEMP – whereby a person in the performance of their duties shall comply with the provisions of this CEMP.

5.3.2 Approved Plans and documents

This CEMP has been written to ensure that construction complies with the documents listed below. All additional approval requirements will also be incorporated into this CEMP as required prior to commencement of construction.

Standards

- AS 3962-2001 Guidelines for design of marinas.
- AS4997-2005 Guidelines for the design of maritime structures.
- AS1289-2000 Methods for testing soils for engineering purposes – General requirements and list of methods.
- AS2870-1996 Residential Slabs and Footings.
- AS 2436 Guide to Noise Control on Construction, Maintenance and Demolition Sites.
- AS 3798-2007 Guidelines on earthworks for commercial and residential developments.

Guidelines

- Institute of Engineers Australia Soil Erosion and Sediment Control Guidelines.
- EPA (2006) Queensland Water Quality Guidelines 2006.
- DPIF (2006) Code for self-assessable development – Maintenance works on existing lawful structures (other than powerlines and on-farm drains) in a declared fish habitat area or involving the removal, destruction or damage of marine plants, Department of Primary Industries and Fisheries.
- Derbyshire, K. (2006) *Fisheries Guidelines for Fish-friendly structures – FHG 006*, Queensland Department of Primary Industries and Fisheries.
- Ahern, C. R., Ahern, M. R., Powel, B., *(1998) Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils in Queensland*.
- Queensland Government (2002).Queensland Acid Sulfate Soil Technical Manual – Soil Management Guidelines, Version 3.8. Queensland.
- Environment Australia (2002). National Ocean Disposal Guidelines for Dredged material.

Policies

- SPP 2/02 Planning and Managing development involving acid sulfate soils (Queensland Government, 2002).
- SPP 1/03 Mitigating the adverse impacts of flood, fire and landslide (Queensland Government, 2003).
- State Coastal Management Plan – Queensland's Coastal Policy (Queensland Government, 2001).
- Draft Mackay-Whitsunday Regional Coastal Management Plan (Queensland Government, 2006).

Reports

- Cardno (2007) *Acid Sulfate Soils Management Plan*. Brisbane, Queensland.
- Cardno Lawson Treloar (2008) *Shute Harbour Marina Development – Coastal Processes Report to Support an EIS*. Milton, Queensland.
- Cardno Lawson Treloar (2008) *Shute Harbour Marina Project - Stormwater Management Strategy to Support EIS*. Milton, Queensland.
- FRC Environmental (2008) *Aquatic Ecology*. Wellington Point, Queensland.

- Natural Solutions (2008) *Marine Megafauna Impact Assessment and Management Plan*. Cairns, Queensland.

5.4 Non-Compliance

5.4.1 Corrective Action Requirements

The Contractor shall assume responsibility for implementation of this CEMP. Where the Contractor becomes aware of a site or operational condition that does not comply, a Corrective Action Request (CAR) form is to be completed and reported to the Principal.

An example CAR form provided in Appendix A of this CEMP.

The Contractor is also required to maintain a register of CARs, which shall demonstrate that appropriate actions have been completed within a suitable timeframe.

Any CAR registered in accordance with this CEMP shall be provided to the Principal, any State or Commonwealth Government Department, any statutory authority or other person, consensually or as lawfully required.

In some instances, further investigation or monitoring may be required to establish whether the Contractor has failed to adequately implement the CEMP, or has failed to comply with relevant legislation, guidelines and statutes. In these instances, an independent party such as an Environmental Auditor shall carry out the investigation or monitoring. If it is established that the cause for non-compliance with the stated performance indicator(s) has arisen from the Principal Contractor's actions or omissions, then the costs of the monitoring shall be deducted from payments to the Principal Contractor and paid to the Consultant, otherwise the costs of the monitoring shall be obtained from the Principal and paid to the Environmental Auditor.

5.4.2 Incident Reporting

The Contractor/Environmental Manager shall notify the Principal of the non-compliance within 24 hours of receiving confirmation of the non-compliance (including validation monitoring) and the relevant administering authorities.

An emergency and/or incident must be notified to the EPA by the Contractor for a site by telephone or fax within 24 hours of becoming aware of the emergency or incident resulting in a release of contaminants not in accordance, or reasonably expected to be in accordance with this CEMP (and conditions of approval).

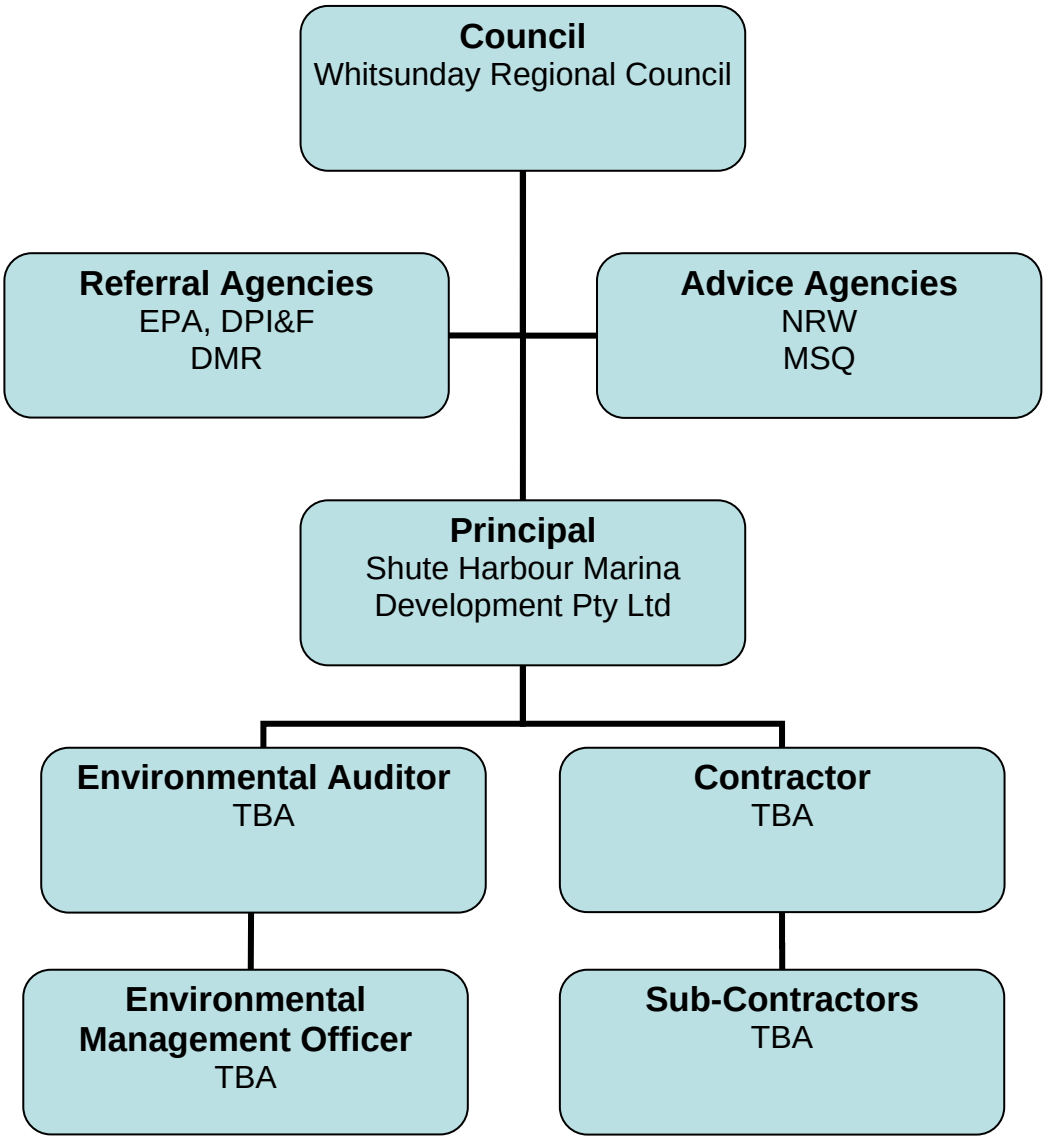
The notification of any emergency or incident, must include, but not limited to the following information.

- The name of the holder of the development approval.
- The location of the emergency or incident.
- The number of the relevant development approval.
- The name and telephone number of the designated contact person.
- The time of the release.
- The time the operator became aware of the release.
- The suspected cause of the release.
- The environmental harm caused, threatened, or suspected to be caused by the release.

- Actions taken to prevent further any release and mitigate any environmental harm caused by the release.

5.5 Roles and Responsibilities

The flow diagram provided below illustrates the reporting relationships of the various parties that will be involved in the construction phase of the development and implementation of this CEMP.



5.5.1 Council

The roles and responsibilities of the Council are to:

a. take reasonable and relevant steps to ensure that any applications for development permits and supporting documentation, including this CEMP, satisfy the relevant conditions of subsequent development approval(s);

b. liaise with the Principal and its representatives to ensure that the development is carried out in accordance with all relevant conditions of subsequent development approval(s);

c. attend pre-start meetings to be held at the site prior to the commencement of physical development works to confirm that all appropriate environmental management controls are being implemented;

d. promptly respond to any request from the Principal for advice concerning appropriate responses to any environmental incidents with the potential to cause environmental harm;

e. promptly assess any proposed changes to this CEMP and its implementation that may be requested by the Principal;

f. convey to the Principal any inquiries received, from adjoining residents and local community groups, that concern the development; and

g. assess CEMP implementation and performance at the completion of on-site works and following the maintenance and establishment periods.

5.5.2 Principal

The roles and responsibilities of the Principal are to:

a. assume ultimate responsibility for compliance with development approval conditions and implementation of this CEMP;

b. nominate the Superintendent who will represent the Principal in issuing instructions to and reviewing the performance of the Principal Contractor and relevant consultants; and

c. promptly notify Council of any proposed changes to this CEMP and its implementation, reporting or monitoring, and any breach of development approval conditions and proposed corrective action.

d. be the primary entity for receiving enquiries concerning construction activities;

e. appoint consultants to assist (or represent the Principal) in overseeing works and monitoring compliance with conditions of relevant approvals and contract specifications;

f. appoint an Environmental Management Officer to oversee the implementation of the CEMP and to provide environmental management advice as the need arises;

g. receive and maintain a register of any inquiries received, from adjoining residents and local community groups, that concern the development;

h. assess inquiries received, using the services of appropriately qualified consultants when required, and the need for and nature of any corrective actions required in respect thereof;

i. notify the Contractor of any inquires received from adjoining residents and local community groups and the nature and timing of any measures that are required in response to such an inquiry;

j. advise Council and the relevant adjoining resident or local community group of the nature and timing of any measures that are to be implemented in response to their inquiry;

k. arrange for pre-start meetings prior to the commencement of construction activities associated with each stage of the development;

l. ensure that the Contractor complies with the requirements of the CEMP and any environmental management or corrective action directions issued; and

m. report to the Council on CEMP implementation and performance, including any non-compliance, at monthly intervals and at the completion of on-site works and following the maintenance and establishment periods.

5.5.3 Contractor

The roles and responsibilities of the Contractor are to:

a. satisfactorily demonstrate to the Principal and Council that appropriate measures have been implemented on-site during the execution of the contract to comply with the requirements of this CEMP;

b. ensure that an appropriate Environmental Management Induction Process is implemented during the construction phase of the development;

c. comply with workplace health and safety legislation and standards and to promptly advise the Principal of any conflict between the requirements of this CEMP and workplace health and safety legislation and standards;

d. maintain records of any complaints received and responses, advise the Principal of complaints and responses, investigate and (where appropriate) implement control measures within the timeframes specified by the Principal;

e. attend pre-start meetings and periodic site inspections during construction or as triggered by any environmental events (eg. major rain events causing run-off/erosion) and incidents from the commencement of the contract until the completion of the contract works;

f. notify the Principal regarding CEMP performance and monitoring, non-compliance and actions taken, and seek advice when required;

g. notify the Principal regarding environmental incidents with potential to cause environmental harm or nuisance and provide written details within 24 hours of occurrence including details of corrective actions taken;

h. report on CEMP implementation and performance to the Principal at monthly intervals and at the completion of on-site works and following the maintenance and establishment periods; and

i. follow directions of the Principal, or a nominated representative, with respect to environmental performance.

5.5.4 Environmental Management Officer

The roles and responsibilities of the Environmental Management Officer are to:

a. on behalf of Principal, liaise with the Contractor and Superintendent to facilitate compliance with legislation, Council policies and development approval conditions, and community expectations during the project;

b. attend a pre-start meeting with the Principal, Superintendent, Principal Contractor and Council prior to the commencement of any vegetation clearing and earthworks;

c. conduct fortnightly site inspections during earthworks, clearing and landscaping stages, or as requested by the Principal, and as triggered by environmental events and incidents;

d. advise the Principal on compliance and effectiveness of the CEMP, including any corrective action instructions to be issued to the Principal Contractor;

e. issue written corrective action instructions to the Principal Contractor, via the Principal, within 24 hours of the identification of a need for corrective actions to be taken;

f. issue a written corrective actions compliance note to the Contractor, via the Principal, within 48 hours of the nominated timeframe given in the written notice for completion of the corrective action;

g. review and advise the Principal of any proposed alterations to the CEMP that may be required in response to issues that arise during the conduct of works; and

h. report on CEMP implementation and performance to the Principal at monthly intervals and at the completion of on-site works and following the maintenance and establishment periods.

5.6 Environmental Policy

SHUTE HARBOUR
MARINA

ENVIRONMENTAL POLICY

Shute Harbour Marina Development Pty Ltd and Port Binnli Pty Ltd are committed to:

- *conducting the construction of its marina and marine facilities in a manner consistent with **environmentally sustainable development**;*
- *operating all its activities in compliance with any statutory requirements for protecting the environmental values of air, noise, water and waste;*
- *ensuring staff and contractors are suitably informed and trained to implement the control measures for routine operations and emergencies to minimise the likelihood of environmental harm;*
- *achieving best practice environmental management;*
- *providing adequate human and financial resources to effectively implement the Construction Environmental Management Plan;*
- *monitoring and auditing the performance of the Construction Environmental Management Plan;*
- *ensuring the activities are conducted in the public interest and that other relevant marina users, patrons, visitors and the public are informed on all matters concerned with safety, health and environmental aspects;*
- *preserving the visual amenity of the locality; and*
- *achieving compliance with all relevant Workplace Health and Safety Requirements.*

6. ENVIRONMENTAL DILIGENCE

6.1 Environmental Induction and Training

Under section 493 of the EP Act the corporation is liable for breaches of the *EP Act u*nless due diligence has been exercised. One way that an organisation conducting works can demonstrate due diligence is by training staff in related environmental matters.

All staff engaged on the project shall be instructed by the Principal Contractor as to their obligations under this CEMP before work commences so that they are made aware of relevant environmental issues and correct compliance and reporting procedures.

The Principal or equivalent shall provide site induction and training for attendance by all contractors and staff including:

- a general site induction;
- due diligence;
- site-specific environmental values;
- environmental activities, aspects and impacts.
- familiarisation with the requirements of this CEMP;
- contractual obligations; and
- environmental emergency/incident reporting;
- records.

Environmental training shall be re-undertaken when changes to plant and equipment, or procedures and practices occur.

Records of individual environmental training should be kept at the site office.

6.2 Monitoring and Review

This CEMP is a living document. As such, to ensure the environmental management at the site is continually improved, a review of this document by the Principal, in consultation with relevant agencies shall occur:

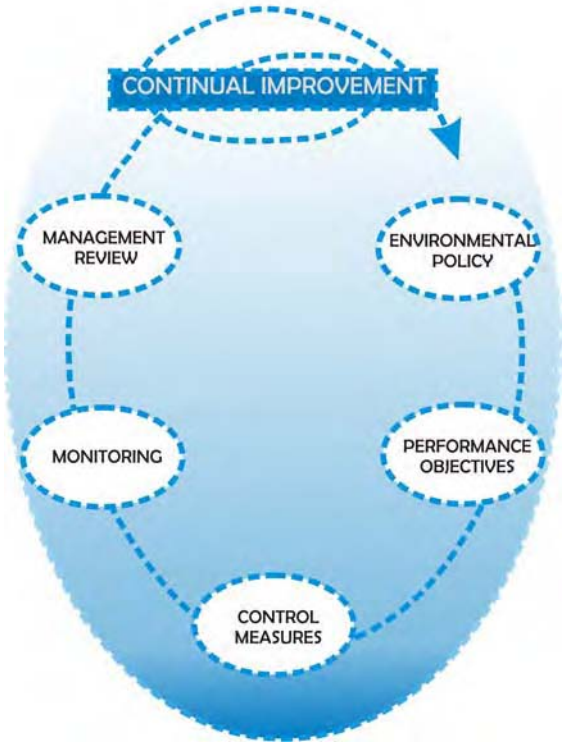
- to incorporate any relevant condition requirements issued subsequent development approval(s);
- following significant environmental incidents;
- at the completion of environmental audits; and
- in the instance whereby the objectives of any element of this CEMP are not being met.

The suitability, adequacy and effectiveness of this CEMP shall be reviewed annually following a continual improvement procedure as illustrated below. The review should consider the following matters.

- Suitability of the objectives.
- The extent to which the objectives have been met.
- Monitoring results.
- Audit findings.

- Technical reviews.
- Changes to organisational structure, plant and equipment, or procedures and practices.

The CEMP must not be implemented or amended in a way that contravenes any condition of a relevant development approval(s).



6.3 Environmental Auditing

Environmental Auditing shall be undertaken as part of civil and development works. The Principal shall engage an appropriately qualified Environmental Auditor, independent of contractual arrangements for the duration of the construction works.

The Environmental Auditor shall audit the construction works against the CEMP and any subsequent revisions 6 monthly until completion of works and/or when a significant incident occurs including:

- after a cyclone or when another major storm event occurs;
- when an uncontrolled release occurs; and
- when direct or indirect impacts from the works have been identified on the nearby areas of conservation significance.

The Environmental Auditor at the completion of the works must finalise audits and prepare a summary of the results.

A copy of each Audit Report shall be provided to the administering authorities within 10 business days of a written request being made.

7. COMPLAINTS

7.1 Complaint Procedure

Should a complaint be received the following procedure must be followed.

1. Identification of the source(s) of the complaint.
2. Respond to the complainant outlining the procedure for corrective action and proposed timeframe for implementation of corrective actions.
3. Implementation of appropriate mitigation measures as determined by the Environmental Management Officer.
4. Undertake relevant validation monitoring as required by regulatory authorities or development approval conditions.
5. Notify complainant of corrective actions when completed.
6. The complaint must be recorded in a dedicated Complaint and Enquiry Register. The register must be made available to the relevant administering authority upon request.

The complaint register must have recorded the following information:

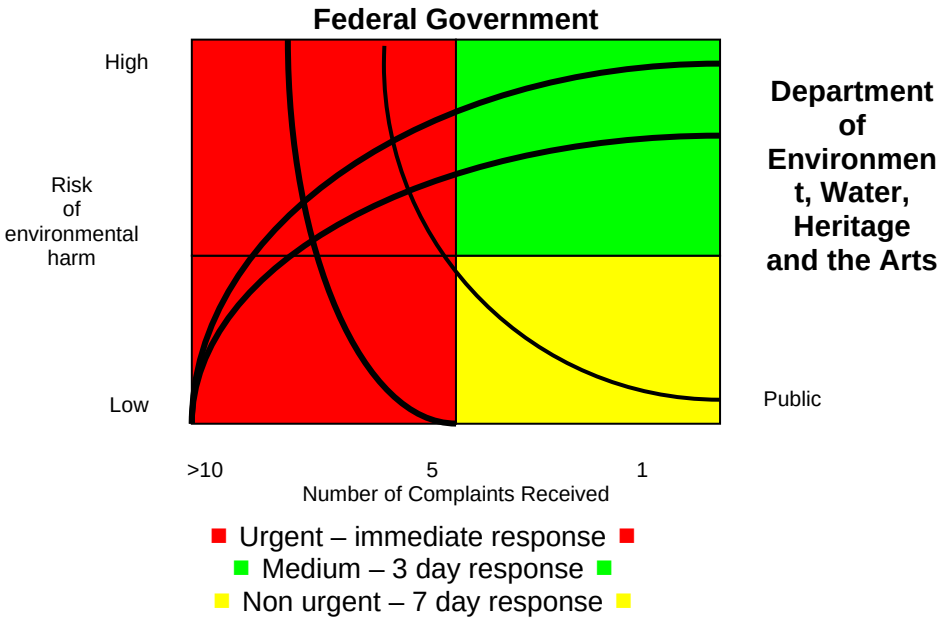
- time, date and nature of complaint and/or enquiry;
- type of communication (telephone, letter, personal etc.);
- contact details including name, address and telephone number of complainant and/or enquirer;
- response and investigation undertaken as a result of the complaint and/or enquiry; and
- action taken in response to the complaint and/or enquiry and signature of person responsible.

All complaints will be risk managed using complaint indicators presented below in Tables 3 and 4.

Table 3 Complaint Indicators

Urgency • Urgent (health driven including nuisance) • Non-urgent (primarily nuisance driven)	**No. of Complaints Received** • 10 or more (extreme) • 5 – 10 (high) • <5 (medium) • 1 (low)
Risk of environmental harm • High • Medium • Low	**Complainant** • Neighbour • Public • Agency/ government authority • Anonymous

Table 4 Risk Assessment Matrix



The purpose of this procedure is to ensure that all complaints are:

- investigated within a practicable and timely fashion;
- mitigation and corrective measures are implemented, where appropriate;
- information regarding the investigation and resolution of the complaint is provided to the complainant(s) during the process and at conclusion; and
- documented and registered.

7.2 Site Contacts

Prior to the commencement of any works associated with the construction phase of development, a sign detailing the project team must be placed in a prominent position, at each entrance to the development site. The sign must detail the relevant project coordinator for the works being undertaken on the site, and the following parties (where relevant).

- Principal
- Contractor

The sign must provide a telephone number for the Principal and Contractor to which any inquiries concerning the conduct of development works on this site should be directed.

8. EMERGENCY PLANS

The site shall be managed to avoid detrimental impact on the receiving environment external to the site as a result of the following emergency events associated with construction activities.

8.1 Oil Spill and/or Fire

The Oil Spill and Fire Response Emergency Plans are attached as Appendix B of this CEMP.

8.2 Heavy or Prolonged Rainfall

Construction phase stormwater treatment and conveyance measures employed at the site are adequate to contain and treat a minimum of a 1 in 5 year 24 hour stormwater event. In the event that heavy or prolonged rainfall occurs beyond this event magnitude at the site during the works, the following actions shall be implemented.

- The Contractor shall cease construction activity and remove all earthmoving equipment from the development area.
- The Contractor shall take actions to ensure that erosion and sediment control measures in place over the site are performing adequately and that stormwater discharges from the site meet the release criteria specified in the Water Quality Element of this CEMP. Actions shall also be taken to ensure that all materials being stored at the site including fuels and lime are secure and there is no risk of accidental release or stormwater contamination.
- The Contractor shall only recommence at the site only after the site has been assessed and it has been determined that the risk of erosion and sedimentation has returned to pre “Heavy or Prolonged Rainfall” conditions and all erosion and sediment control measures have been assessed and repaired / replaced as required.
- All captured water in the diversion drains, stormwater/treatment basins from a heavy or prolonged rainfall event is to be assessed and managed prior to release by the Contractor as outlined in the Water Quality Element of this CEMP.

8.3 Accidental Release of Material

In the event that accidental release of material, other than oil, occurs at the site during the works, the following actions shall be implemented.

- The Contractor shall take appropriate steps to contain the released material. This shall include the use of accidental spill kits located adjacent to stored materials.
- The Contractor shall make an initial assessment of the severity of the accidental release and the nature of the material.
- The Contractor shall notify the relevant administering authority(ies) (for example, EPA, MSQ, WSC), the Principal and the Superintendent of any accidental release of material.
- The Contractor shall take steps in consultation with the relevant administering authority(ies) to treat, remove or otherwise manage the released material.
- The Environmental Auditor/EMO and the Superintendent shall make an assessment of the area to confirm the success of the remediation works and whether additional works are required.

- The Contractor shall assess the work procedures or cause of the failure and implement any changes deemed to be appropriate to prevent reoccurrence of a similar incident in the future.
- Following completion of remedial actions the Contractor shall provide an incident report or CAR to the Principal detailing the nature of the incident and the corrective actions implemented.

An Oil Response Plan and Fire Response Plan have been prepared and are attached as Appendix B of the CEMP.

8.4 Construction is Halted Due to Unforseen Circumstances

In the event that construction works are halted due to unforseen circumstances (eg. cyclone, fire), to ensure that environmental deterioration does not occur over time the Contractor shall ensure that all erosion and sediment control devices are intact and operational and all contaminants stored on site are protected.

Prior to vacating the site, the Contractor shall ensure that all stockpiles are adequately stabilised and the total disturbed area is minimised. In addition, any site conditions that could conceivably degrade over time and may result in environmental harm shall be attended to.

The Contractor shall monitor and maintain the erosion and sediment control devices on a continual basis until work re-commences at the site.

8.5 Emergency Contacts

EMERGENCY - 000

FIRE – (07) 49466442

POLICE – (07) 49488888

AMBULANCE – 131233

EPA - 1300 130 372
EPA Mackay Office - 49447800

MARITIME SAFETY QUEENSLAND – (07) 4946 2200
(AH 4956 3489)

WHITSUNDAY SHIRE COUNCIL - 4945 0200

WHITSUNDAY COUNTER DISASTER CENTRE (CYCLONE RELATED) - 4945 0290

9. ELEMENT 1: COMMUNITY AWARENESS

Rationale
Construction activities are likely to have short term impacts on public amenity due to noise emissions, dust emissions, road closure, traffic diversions and disruption to property access, therefore, it is important to advise the local community of potential impacts.

Objective
Undertaken all reasonable measures to notify the local community of the nature, duration and program of construction works.

Performance Indicator
Nil community complaints received during construction works.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Advise stakeholders who will be affected by construction activities in advance of works commencing via public notification. The following members of the community are to be notified at least two weeks in advance of works that may adversely impact on them. • Whitsunday Regional Council. • Adjacent residential areas and land owners.	Record and investigate on the CAR form any complaint(s) received from the community and regulatory authorities, such as the Council and EPA. Corrective actions to be implemented as required within the agreed time frame noted on the CAR. All complaints to be investigated in accordance with the documented complaint procedure and a log of events and actions must be recorded in a dedicated register.	Two weeks prior to start of works	Principal
Provide a point of contact for complaints. The contact details shall be clearly identified on signage at the site entrance. Contact details shall include a 24 hours contact telephone number.	The signage at the site entrance shall be checked weekly to ensure the details are visible. Corrective actions shall be undertaken as appropriate to ensure the task is achieved.	Ongoing	Contractor
The construction working hours (limited to 6.30 am to 6.30 pm Monday to Saturday other than continuous 24 hour dredging) shall be notified to stakeholders and shall be clearly identified on signage at the site entrance.	The signage at the site entrance shall be checked weekly to ensure the details are visible. Corrective actions shall be undertaken as appropriate to ensure the task is achieved.	Ongoing	Contractor

10. ELEMENT 2: EARTHWORKS MANAGEMENT

Rationale
Construction of the proposed development will involve excavation of soils and the alteration of landform at the site.

Objective
Minimise the environmental impact associated with the works on the surrounding environment, in particular the potential detrimental impact on water quality through management of coastal resources and their values (including coastal processes).

Performance Indicators
Bulk earthworks are undertaken as per engineered drawings and staged as per construction phases.
Artificial structures are installed in accordance with relevant standard, including the Code for Prescribed Tidal Works under schedule 4 of the *Coastal Protection and Management Regulation 2003*.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Civil works are to be undertaken, including isthmus and breakwater construction in accordance with the relevant engineered drawings (as listed in the drawing set).	This task shall be monitored by the Superintendent during construction including approved tidal works. Corrective Action Requests shall be issued by the Site Supervisor accordingly.	Ongoing	Contractor/ Superintendent
No fill to be imported and used on site unless it has been certified that the fill does not contain potential acid sulphate soils (PASS) or any hazardous contaminant.	Any fill from an uncontaminated site should have appropriate documentation to confirm the uncontaminated nature of fill. CAR forms shall be issued as required	Ongoing	Contractor
The Contractor shall undertake all construction works in accordance with the ASSMP.	This task shall be monitored by the Contractor during the construction of approved prescribed tidal works.	Ongoing	Contractor
Excavated material from the marina basin will be placed, treatment and compacted to required standards in the fill areas of the marina precinct to avoid slumping and raise the site to the design level to protect against flooding and storm surge.	Fill material will be compacted to a minimum density ratio of 98% in commercial areas and 95% in residential areas to meet the requirements of AS 3798-2007 and geotechnical advice during construction.	Ongoing	Contractor
Stockpiles are to be constructed to a maximum height of 4 metres.	EMO to audit stockpiles and stockpile locations weekly.	Ongoing	Contractor

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Adequate settlement and stability of fill platforms is required in accordance with design specifications to prevent settlement creep.	Settlement plate monitoring to be conducted to ensure compliance with design specifications, particularly in areas identified as having underlying weak alluvial material present within the profile and where resort development is proposed.	Ongoing	Contractor
Upgrade to the Proserpine-Shute Harbour Road shall be in accordance with engineered drawings and the Lease Agreement with Shute Harbour Marina Development Pty Ltd.	Compliance with the DMR Lease Agreement shall be undertaken during road upgrade works (attached as Appendix D).	During Proserpine-Shute Harbour Road Upgrade	Contractor
Installation of infrastructure in road reserve corridors of main roads shall be undertaken in accordance with the DMR published guidelines for “Installation of Underground Conduits within the Boundaries of the State-Controlled Road”. A works program must be prepared prior to commencement of road upgrades in consultation with DMR.	Environmental Management Officer to audit installation activities within main roads corridors to assess compliance with the DMR guideline (Appendix E).	When required	Contractor

11. ELEMENT 3: DREDGING

Rationale
Construction of the proposed development will involve dredging approximately 732,000m^3 of marine mud for use as fill material providing also a safe navigational depth for ultimate marina users.

Objective
Minimise the environmental impact associated with dredging on the surrounding environment, in particular the potential detrimental impact on water quality through management of coastal resources and their values (including coastal processes).

Performance Indicators
Dredging does not result in an adverse change to background water quality parameters.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Dredging works must be managed by the use of silt curtains and other appropriate mitigation devices to ensure minimal release of sediment to the local aquatic environment.	Water quality parameters shall comply with the water quality objectives specified in Element 6 of this CEMP.	During dredging	Dredging Contractor
Maintenance and operation of all dredging equipment shall occur according to manufacturer's specifications to ensure no excessive discharge of dredge spoil to marina waters and accidental release of contaminants.	As per manufacturer's specifications. Environmental Auditor to monitor monthly at the time of water quality monitoring.	During dredging	Dredging Contractor
A limit on the rate of the dredge pump is required to ensure that discharge is not excessive into the spoil pond which could increase the water velocity and in turn increase the amount of suspended solids released at sampling points.	A limit shall be imposed prior to dredging when the dimensions of the settlement pond(s) are known.	During dredging	Dredging Contractor
Prominent markers identifying the positioning of the spoil disposal transfer pipeline shall be displayed to prevent accidental damage to the pipeline.	Prominent markers are displayed on the dredge spoil handling pipeline.	During dredging	Dredging Contractor

12. ELEMENT 4: EROSION AND SEDIMENTATION CONTROL

Rationale
Construction of the proposed development will involve alteration of landform at the site. Stormwater coming in contact with this material has the potential to transport sediment and/or other contaminants to natural drainage lines and receiving waters (the Bay).

Excavated areas and stockpiles are to be protected from erosion and at the completion of the works the ground surface is to be rendered stable to ensure erosion and sedimentation of receiving waters does not occur as a result of the construction of the marina.

Objective
Implement erosion and sediment control devices identified in approved engineered drawings and in accordance with the requirements of the *Soil Erosion and Sediment Control Guidelines*, Institute of Engineers Australia.

Performance Indicators
Erosion and Sediment Control devices are installed and operational prior to commencement of site establishment and construction activities.
No failure of erosion and sedimentation control devices is detected during construction works.
Sediment concentrations in water discharged from the site are in accordance with water quality criteria stated in Element 5.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Install drainage, erosion and sediment controls as per relevant engineered drawings.	Environmental Management Officer to audit erosion control devices are installed as per approved plans. All stormwater collected in the stormwater collection system shall be monitored, and treated if necessary, prior to release.	Prior to start of works	Contractor
Maintain the erosion and sediment control devices so that they remain effective throughout the construction period. An erosion and sediment control devices maintenance schedule shall be prepared as part of the draft works plan.	Failures in erosion and sediment control devices shall be immediately reported on a CAR form. Environmental Management Officer to audit erosion control devises are installed and maintained regularly and after each rain event. Maintenance of the grassed stormwater swale on the northern extremity of the SHMR (and south of the Shute Harbour Road) to be monitored as per Appendix C.	Fortnightly and following rain (>25mm/24 hours)	Contractor
Erosion and sediment controls shall be of sufficient size to capture a 1 in 5 year 24 hour rainfall event.		Prior to start of works	Contractor

Tasks	Corrective Action / Monitoring	Timing	Responsibility
A stabilised entry/exit point to the sites shall be established and signed so that access for construction vehicles and equipment is limited to the site entrance point. All construction vehicles and equipment shall enter or leave the site via a stabilised entry/exit point.	Undertake repairs or maintenance to ensure integrity of site access/egress points. Roads and pavements shall be swept, not hosed as required to prevent entry of soils to waters.	Prior to start of works	Contractor
If material from bulk earthworks has been captured in the erosion and sediment control devices, uncontaminated material shall be returned to a secure stockpile area for use as construction fill.	A CAR form is to be completed when erosion and sediment control devices have been contaminated by construction materials.	Fortnightly and following rain	Contractor
Following the forming of land, permanent or temporary vegetative stabilisation should be undertaken.	Landscaping to be initiated as soon as it is feasible to do so. Refer to the list of feasible landscaping species provided in Appendix F.	Following the forming of land	Landscape Consultant

13. ELEMENT 5: WATER QUALITY

Rationale
The works will involve excavation, reformation and importation of fill to the site in a sensitive environmental area. Unless appropriate management is followed, the works have potential to cause detrimental impacts on the aquatic environment and its water quality.

Objective
Minimise the risk of any release of contaminants originating from the site entering surface and ground waters in the locality of the site and to ensure that the existing qualities of the receiving surface and ground waters are not adversely affected.

Performance Indicator
All waters released from the site shall comply with the release criteria outlined in Table 5 below or demonstrate that there is no worsening of existing conditions. Water quality criteria applies to locations specified in Table 7 which must be monitored at the frequency specified. Background water quality monitoring locations are proposed long term sites where pre-construction sampling has occurred. Background water quality monitoring locations are presented in Table 8. Water quality objectives (WQOs) for background water quality monitoring locations are as specified in the Stormwater Management Plan (CLT, 2008).

Table 5 Water Quality Release Criteria

Water Quality Parameter	Release Criteria
Marina Basin	
pH	6.5 to 8.5
Turbidity	Less than 10% above background levels
Dissolved Oxygen (% saturation)	80-110
Oil and Grease	No visible sheen
Litter	No visible litter
At settlement pond/tailwater pond	
pH	6.5 to 8.5
Suspended Solids	< 50mg/L

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Install water quality improvement devices as per the sediment and erosion control plans.	Environmental Management Officer to audit areas, not less than monthly.	Prior to start of works	Contractor
Appropriate signage shall be placed around stormwater drains to inform that contaminants are not to be released to waters. Signs are to provide a warning that stormwater drains, drain to the ocean.	Environmental Management Officer to ensure signs remain visible.	Prior to start of works	Contractor
Complete baseline sampling at strategic locations within the property and release points prior to commencement of any activities on the site as per the Stormwater Management Plan.	Samples to be submitted to a NATA approved laboratory for testing.	Prior to start of works	Environmental Auditor
Water quality to be monitored for the parameters outlined in Table 5 at the locations and frequency specified in Table 7. Samples for release waters are to be taken at all newly reclaimed land discharge points. All water generated from activities shall not be released from the control system until the criteria specified in Table 5 have been achieved.	Water quality levels exceeding recommended would quality guidelines shall be investigated to identify the source of the increase and strategies shall be proposed using a CAR to achieve acceptable limits. In the event of a sediment plume monitoring in accordance with Table 6 is required. Monitoring shall be undertaken and records kept of contaminant releases to waters from the discharge location for the quality characteristics and not less frequently than specified in Table 5 for general operations and Table 6 in the event of a visible sediment plume external to the lease area. All determinations of the quality of contaminants released must be: a) made in accordance with methods prescribed in the latest edition of the Environment Protection Agency Water Quality Sampling Manual; and b) carried out on samples that are representative.	Ongoing	Contractor/EMO
In the event of a rainfall event greater than a 1 in 5 year 24 hour event, all work is to cease immediately and equipment moved to an area where it will be unaffected by overland flow and stormwater control system monitored for its effectiveness. Refer to emergency and contingency planning in section 8 of this CEMP.	A CAR should be completed in the event of a discharge from the site that did not comply with the Water Quality Release Criteria outlined in Table 5.	Ongoing	Contractor.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Minimise the amount of stormwater leaving the site through onsite storage and reuse in construction requirements, dust suppression and revegetation.	Water shall be reused where practicable in construction methodology to avoid release to sensitive receiving waters. Rehabilitation and edge sealing should use native species identified for each of the Regional Ecosystems previously on site and listed in Appendix G. Water application for particular species to be as per distributor's advice.	Ongoing	Contractor
All machinery used on site should be maintained such that resultant contaminates are not released to the receiving environment.	Leaks from plant and equipment must be repaired immediately using a mobile service provider.	Ongoing	Contractor
The site shall be enclosed during capital dredging works using both the newly constructed breakwater and floating (and weighted) silt curtains.	Water quality releases from the site must comply with limits for parameters listed in Table 5.	Ongoing	Contractor
Materials used for tidal works shall be designed for having a long life in marine environments, having regard to their ability to resist the following: (a) attack by marine organisms; (b) corrosion; (c) deterioration resulting from abrasion or immersion in seawater.	Manufacturer's specifications to be adhered to.	Ongoing	Contractor
No vessel maintenance (including abrasive blasting and/or metal surface coating) is to be undertaken on site.	Vessel maintenance to be relocated to existing gazetted maintenance facilities.	Ongoing	Contractor

Table 6 Water Quality Monitoring in the event of a Plume

Location	Parameter	Limit	Frequency
Mid-water column between 50 and 100 metres up current of the dredge apparatus to establish background levels	Turbidity (*In situ*)	No Limit	Daily on an outgoing tide when a Sediment Plume is visible.
At a location representative of the Sediment Plume at mid water column	Turbidity (*In situ*)	Less than 10% above background levels	Daily on an outgoing tide when a Sediment Plume is visible.

Table 7 Water Quality Monitoring Locations and Frequency for Release Criteria

Location	Frequency	Type	Parameter
All control structures	Daily	Visual inspection	Inspection of structures to ensure measures are in place and operating effectively.
Temporary sedimentation/ASS treatment basins	Weekly	Visual inspection	Leachate staining Odour Algal blooms Signs of erosion Sediment accumulation at discharge points
Inside the Shute Harbour Marina at the discharge location of the treatment train	Monthly	Continuous Sampling	As per Table 5.

Table 8 Background Water Quality Monitoring Locations

Site	Description
SH1	Shute Bay, west of the proposed development.
SH2	Shute Bay, to the north of the proposed marina entrance.
SH3	Shute Bay, west of the proposed marina entrance.
SH4	Shute Bay, south west of the end of the western wing of the proposed development.
SH5	Shute Bay, south of the proposed marina.
SH6*	Inside the Shute Harbour Marina at the discharge location.
SH7	Within the unnamed tributary north of the western end of the Proserpine Shute Harbour Road upgrade.
SH8	Within the unnamed tributary north of Proserpine Shute Harbour Road between SH7 and SH9.
SH9	Within the unnamed tributary north of the eastern end of the Proserpine Shute Harbour Road upgrade.
SH10	Within the unnamed tributary north of Proserpine Shute Harbour Road east of the site extent.

14. ELEMENT 6: ACID SULPHATE SOIL MANAGEMENT

Rationale
Excavated material should be assumed to be without acidity as per the geotechnical findings. As a conservative environmental measure, approved management practices shall be employed to avoid detrimental impacts on the aquatic environment and its water quality.

Objective
All ASS is identified, treated and managed during works in accordance with the Acid Sulfate Soil Management Plan (ASSMP) attached to the EIS.

Performance Indicator
Remediation of acid trend waters if discovered, and provision of control structures to prevent leachate discharge off-site which does not meet specific water quality criteria outlined in Element 5 (Section 13 of this CEMP).

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Works shall be undertaken in phases to avoid disturbing large amounts of potentially acidic material at any one time.	Construction to follow the excavation techniques and methodology.	Ongoing	Contractor
The ASSMP shall be implemented. All soils removed during marina construction (in particularly marina basin dredging) where the field ASS assessment identifies PASS must be monitored and tested by a NATA accredited laboratory and treated in accordance with the ASSMP prior to use as fill material.	All soils indicated to exceed the oxidisable sulphur criteria shall be treated with fine agricultural lime after excavation and sufficient dewatering to enable appropriate mixing. If acid neutralising capacity (ANC) is included in calculations for liming rates, a fineness factor of at least 1.5 must be applied to account for likely lower ANC in the field. The Contractor shall submit monthly reports to the Principal/Contractor when non-conformances with the ASSMP occur.	Ongoing	Contractor

15. ELEMENT 7: AQUATIC AND TERRESTRIAL ECOLOGY

Rationale
Construction of the proposed development has the potential to impact on ecologically significant areas such as the Great Barrier Reef World Heritage Area, Great Barrier Reef Marine Park and State Marine Park and associated important flora and fauna. The site is also directly adjacent to a Conway National Park, a protected area.

Any vegetation clearance works shall be conducted so that it is in accordance with the DPI marine plant permit and in a manner that avoids any injury or harm to native fauna, during and following construction works.

Objective
To ensure the protection of identified ecologically significant areas and to minimise the requirement for the removal of vegetation at the site and prevention of weed introduction and spread on site.

Performance Indicators
To ensure the protection of identified ecologically significant areas and to minimise the requirement for the removal of vegetation at the site.
To comply with the requirements of any approvals relating to disturbance of marine plants or handling of fauna.

Tasks	Corrective Action /Monitoring	Timing	Responsibility
Earthmoving equipment must be certified clean of weeds and soil material (washed down prior to arriving).	The cleanliness of the construction equipment must be inspected by the Environmental Management Officer. Equipment arriving on site dirty, or only partially clean should be denied entry.	Prior to works	Environmental Management Officer
Vegetation clearing, including disturbance to coastal wetlands (including seagrass communities) shall not occur outside the surveyed bounds of the project area.	Environmental Management Officer to audit not less than monthly. Vegetation to be retained on site, if any, to be fenced and clearly signed.	Ongoing	Environmental Auditor
An appropriately experienced “spotter and catcher” must be contractor prior to terrestrial vegetation clearing to ensure all fauna present in trees and other vegetation is relocated prior to vegetation clearance.	The Contractor shall ensure any vegetation containing native fauna is retained until the fauna either moves, or is removed and subsequently released at an appropriate location in good health. The Contractor shall report any observations of sick or injured native animals within or adjacent to the work area and contact the Queensland Parks and Wildlife Service (QPWS) to receive advice concerning specific measures to be taken.	Prior vegetation clearance	Environmental Management Officer

Tasks	Corrective Action /Monitoring	Timing	Responsibility
Daily monitoring of the marina will be undertaken to identify any indicator of poor ecological health of the marina (i.e. algae blooms, dead vegetation, fish kills).	Fish kills shall be reported to the EPA Incident Hotline on 1300 130 372 in accordance with section 5.4 of this CEMP.	Ongoing	Contractor
Re-landscape the development using species endemic to the area and in accordance with landscape design plans.	Landscaping shall be undertaken in accordance with approved plans and using endemic native species as suggested in Appendix G. The contractor shall make a list of species used in landscaping for compliance purposes and provide this to the Principal. Weed monitoring shall be undertaken by the Environmental Management Officer.	Progressively	Contractor
Landscaped species should be obtained from local nurseries or similar.	Purchase orders for native plant species to be retained by the Contractor.	When required	Contractor

16. ELEMENT 8: MARINA MEGAFAUNA

Rationale
The site has been surveyed by Natural Solutions for marine megafauna. Marine megafauna, including dugong, turtle, whale and dolphin species, must be protected from impacts associated with the construction of the SHMR.

Objective
To avoid adverse impact to marine megafauna within the locality.

Performance Indicators
No death of marine megafauna.
Risks to marine megafauna are reduced through tasks and monitoring during works.

Tasks	Corrective Action /Monitoring	Timing	Responsibility
Prior to dredging works, the marine megafauna within the marina footprint shall be relocated.	Marine megafauna not trapped within the enclosed marina basin during dredging works.	Prior to dredging	Contractor
During maintenance dredging, the Contactor shall monitor for marine turtles, dugong, whales or dolphins each half hour, by observation using binoculars. Dredging shall be suspended if turtles, dugongs, whales or dolphins are observed within 200m of dredge head. Dredging shall only re-commence when fauna have left the 200m zone.	As task	During dredging	Contractor
In order to deter turtles interaction with the dredge apparatus, the Contractor shall ensure that tickler chains are installed and functional at all times.	Tickler chains are installed.	Prior to dredging	Contractor
Waste management shall be undertaken as per the Waste Management Plan.	No visible debris within the marine environment during construction works.	Ongoing	Contractor
Construction lighting within the marina shall be limited to that required for safety only.	Lights not required for safety shall be turned off. Lighting on the dredge apparatus shall be shielded.	Ongoing	Contractor

17. ELEMENT 9: AIR QUALITY

Rationale
Construction of the proposed development will involve the use of powered mechanical equipment for movement of earthen material to achieve the required landform for the proposed development. The bulk handling of this material has the potential to create dust nuisances by release of dust as suspended then deposited particulate matter, when dewatered.

Objective
To minimise the emission of air impurities associated with construction works.
Employ appropriate methods to minimise dust nuisance to satisfaction of the administering authority(ies).

Performance Indicators
No odour or dust complaints received from adjoining operations, nearby residents or from statutory authorities.
When requested by regulatory authorities to undertake monitoring, results shall indicate compliance with the air quality criteria specified in Table 9.

Table 9 Air Quality Criteria

Parameter	Maximum Acceptable Concentration
24 hour average dust concentration as PM_{10}	150µg/m^3
Average dust deposition rate	120mg/m^2/day
Odour	No detectable odour outside the boundaries of the project area

Tasks	Corrective Action / Monitoring	Timing	Responsibility
When constructing the spoil disposal area and treatment ponds via bulk handling of dry material for depth and bunding, dust shall be suppressed using a water truck with recycled water or collected stormwater on site. Any dust generating activities are to cease during windy conditions. Water trucks are to be deployed when dust is visible for longer than 15 minutes and clearly visible leaving the construction area boundary.	A monitoring program shall be implemented for nuisance and/or health complaints to determine compliance with air quality criteria specified in Table 9 of this CEMP. When requested by the administering authority, dust and particulate monitoring shall be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter from dredging spoil management, and the results notified within 14 days to the administering authority following completion of monitoring. Monitoring shall be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include: a) for a complaint alleging dust nuisance, dust deposition; and b) for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM10) suspended in the atmosphere over a 24hr averaging time.	Ongoing	Contractor
The water truck shall be filled with water that has undergone treatment to meet water quality criteria or that captured by the stormwater control system.	No potable water to be used for dust suppression activities. If no water is available from the treatment and/or stormwater control system, recycled water distribution points can be obtained by contacting Whitsunday Shire Council.	Ongoing	Contractor
A speed limit of 10km/h shall be maintained within the site. All employees, contractors and visitors shall be advised of the speed limits in the site induction.	Site induction carried out prior to any work commencing on site.	Ongoing	Contractor

18. ELEMENT 10: NOISE AND VIBRATION

Rationale
Construction of the proposed development will involve the use of powered mechanical equipment and increased vehicle and vessel movements. In addition, construction works may generate ground vibration, particularly through sheetpile revetment wall and breakwater wall construction. Appropriate management measures are required to ensure that noise and vibration produced during construction works does not result in nuisance at noise sensitive places.

Objective
To control noise and vibration generated by construction activities and to minimise the impact to ensure acceptable levels of amenity at the closest sensitive receptors.

Performance Indicator
No complaints of noise or vibration impacts are received.
The works shall be carried out by such practicable means necessary to prevent the emission of noise that constitutes *"unreasonable"* or *"intrusive"* noise as defined by the EPP Noise.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Noise sources shall be confirmed prior to construction and mitigation measures	In the event noise sources are inconsistent with those identified in the EIS, the works plan shall provide an updated assessment of potential noise impacts. Environmental Management Officer to audit noise sources monthly and determine whether mitigation measures are appropriate and effective. Community consultation or notification to potentially affected residents of noisy construction periods must be ongoing, particularly when dredging and/or piling is occurring over 24 hours for a long period of time.	Prior to commencement of works and ongoing.	Contractor
Temporary barricades/screens shall be used to remove line of sight to noisy plant/equipment from noise sensitive places.	Environmental Management Officer to audit the effectiveness of such barricades and screens not less than monthly in the event of complaints.	Prior to commencement of works.	Contractor
All noise generating mobile and stationary plant and equipment, and processes shall be controlled to minimise noise emission in accordance with AS 2436: *Guide to Noise Control on Construction, Maintenance and Demolition Sites*.	The Contractor shall maintain a record of all complaints received in relation to noise emissions including complainant details, nature of complaint and corrective actions undertaken.	Ongoing	Contractor

Tasks	Corrective Action / Monitoring	Timing	Responsibility
All powered mechanical equipment shall be fitted with effective exhaust mufflers and shut down during the intervening periods between works.	Environmental Management Officer to audit noise and vibration levels not less than monthly in the event of valid noise monitoring.	Ongoing	Contractor
Working hours at the site shall be limited to between 6.30 am and 6.30 pm Monday to Saturday other than when dredging of the marina basin occurs and community consultation has been undertaken. Other than dredging there are to be no works conducted at the site on Sunday or during public holidays which causes audible noise at sensitive places surrounding the site.	In the event of the adjusted noise level for a single noise source or activity exceeding the background noise level by more than 5 dB(A) at a noise sensitive place, negotiations shall be encouraged by the Principal/Contractor with the complainant to determine a negotiated solution.	Ongoing	Contractor
Noise monitoring shall be undertaken in the event of a complaint and at the request of the administering authority.	Complaints shall be investigated in accordance with 7 of this CEMP. Noise monitoring shall be undertaken in accordance with the latest edition of the EPA's Noise Measurement Manual and the results notified within 14 days to the administering authority. Monitoring shall include: • LA 10, adj, 15 mins • LA 1, adj, 15 mins • LA 90, adj, 15 mins • the level and frequency of occurrence of impulsive or tonal noise; • atmospheric conditions including wind speed and direction; • effects due to extraneous factors such as traffic noise; and • location, date and time of recording.	Ongoing	Contractor

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Vibration emitted from the works must not cause an environmental nuisance at any nuisance sensitive place or commercial place. A Vibration Management Plan shall be prepared as part of the Works Plan to aid in achieving this task.	When requested by the administering authority, vibration monitoring and recording must be undertaken to investigate any complaint of vibration nuisance, and the results notified within 14 days to the administering authority. Monitoring must include: • peak particle velocity (mm/s); location of the blast/s within the site (including which bench level); • atmospheric conditions including temperature, relative humidity and wind speed and direction; • the level and frequency of occurrence of impulsive or tonal noise; • atmospheric conditions including wind speed and direction; • effects due to extraneous factors; and • location, date and time of recording.	Ongoing	Contractor

19. ELEMENT 11: WASTE MANAGEMENT

Rationale
Waste management at the works site is to focus on appropriate methods to avoid, reuse, recycle and dispose of waste materials generated as a result of the works.

Objective
To ensure that no waste material is released from the site in an uncontrolled manner causing environmental harm.

Performance Indicators
No waste of any type is released from the works site in an uncontrolled manner.
Evidence of waste spillage or dispersal shall indicate non-compliance with the objectives and the tasks/actions outlined in this element.
Evidence of stormwater blockage by wastes or pollution shall indicate non-compliance with the objectives and the tasks/actions outlined in this CEMP.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
The Contractor shall maintain a regular waste removal schedule and document all waste disposal activities. A Waste Management Plan (WMP) has been prepared for the development and is appended to the EIS.	Environmental Management Officer to audit waste management in accordance with the Waste Management Plan.	Ongoing	Contractor
Waste management training shall be provided in the site induction program to personnel commencing work in the development area. The induction shall include procedures for separation of waste streams and appropriate disposal options.	In the event of a waste spill, contractors shall follow the procedures provided during the induction and record the corrective actions in accordance with 7 of this CEMP.	Prior to contractors starting work	Contractor
The Contractor shall mulch foliage and branches of cleared vegetation for re-use on site where possible. Non-native vegetation shall not be mulched for re-use on site, to minimise the risk of propagation. The Contractor shall remove cleared non-native vegetation from the site for disposal at a suitable facility such as a landfill prior to significant decomposition.	A receipt from the plant removalist must be obtained where green waste is disposed of. Mulched vegetation retained on the construction site shall be located as far as practicable from the stormwater management system to prevent run-off and reduced levels of Dissolved Oxygen due to breakdown by aquatic species.	After vegetation clearing	Contractor
Provide separate on-site storage bins for reuse of waste materials. Waste materials that cannot be reused on site shall be separated into designated holding containers for collection.	There shall be no waste of any type released from the works site in an uncontrolled manner.	Ongoing	Contractor

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Separate facilities shall be provided for disposal of construction and domestic wastes. These facilities shall be adequately signed and instructions provided during site induction training for appropriate separation of wastes. Provide separate waste holding bins and recycling bins within construction working spaces. Recyclable materials will be kept separate and recycled where possible.	Environmental Management Officer to audit waste schedule, disposal records and waste storage areas, not less than monthly. There shall be no waste of any type released from the works site in an uncontrolled manner.	Monthly Ongoing	EMO/Contractor
Recycle waste materials within the construction site including materials salvage and reuse where possible, purchasing recyclable or recycled materials where available.	There shall be no waste of any type released from the works site in an uncontrolled manner. The Environmental Management Officer to audit waste receptacles to monitor for cross contamination of wastes and check for disposal of recyclable wastes.	Ongoing Periodically	Contractor EMO
Locate waste disposal skip(s) in a designated area(s) suitable for collection by waste disposal vehicles.	No waste or waste receptacles to be placed outside the construction zones. Spilt product shall be cleaned up using dry methods as quickly as practicable to prevent wind-blown materials. There shall be no waste of any type released from the works site in an uncontrolled manner.	Ongoing	Contractor
Wastes shall be collected by a licensed waste disposal contractor for disposal on a regular (at least weekly) basis, and additional services shall be arranged if required. Ensure all regulated waste as defined by the *Environmental Protection Regulation 1998* is removed by a regulated waste transporter licensed by the Environmental Protection Agency. Undertake waste-tracking to provide details of waste classification and volume, date of removal, transporter details and proposed destination.	Environmental Management Officer to audit waste schedule, disposal records and waste storage areas, not less than monthly.	Weekly	Licensed waste contractor.
Dredge spoil shall be reused on site as fill material as much as possible but within the geotechnical constraints. Excavated materials requiring removal from the site shall be removed offsite promptly contractor.	Environmental Management Officer to audit waste schedule, disposal records and waste storage areas, not less than monthly.	Ongoing	Contractor

20. ELEMENT 12: DANGEROUS AND HAZARDOUS MATERIALS

Rationale
Construction of the site may involve the use of dangerous or hazardous materials such as fuel, paints, solvents, adhesives and sealants. While these are not expected to be stored or used on the site in large quantities, the site is required to be managed to prevent impacts on human health and the receiving environment as a result of accidental release or spillage of dangerous or hazardous materials associated with the works.

Objective
To effectively manage the safe storage, handling and disposal of dangerous or hazardous materials within the construction site.

Performance Indicators
No adverse human health or environmental impacts associated with hazardous materials is experienced on the site at any time during the works.
No spill or handling incidents that may potentially cause impact to humans or environmental degradation.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Provide secure storage facilities for oils, greases and solvents and industrial waste containers. Prepare a map of the storage areas of dangerous and hazard materials and include this as part of the manifest at the site entrance. Display Material Safety Data Sheets (MSDS) with each dangerous or hazardous substance stored on site. Contractor to display in prominent locations the procedure for spills.	Environmental Management Officer to audit dangerous and hazardous materials storage areas, including spill kits, not less than 6 monthly. The manifest detailing the nature, quantity and location of all hazardous materials is to be maintained, regularly updated and audited 6 monthly. The emergency response procedures must be followed in the event of an oil spill or fire (refer to Appendix B).	Ongoing	Contractor
All areas designated for the storage of fuels, oils, chemicals or other hazardous liquids should have a compacted base and be surrounded by a bund to contain any spillage in accordance with Australian Standard 1940-2004 *Storage and handling of flammable and combustible materials.*	Environmental Management Officer to audit dangerous and hazardous materials storage areas, not less than 6 monthly.	6 monthly	Environmental Management Officer
Spill kits shall be used at all times for clean up of hazardous materials, including fuels and oils.	Environmental Management Officer to refill spill kits as required.	Ongoing	Contractor

Regulated waste shall be disposed of lawfully and transported by an approved regulated waste removalist.	A copy of the approved regulated waste removalist's Registration Certificate should be kept on file. Regulated waste transfer forms are to be retained in a dedicated waste management register in the event regulated waste is generated and is disposed off site.	Ongoing	Contractor
Refuelling shall occur in a defined area and fuel and oil storage areas shall be maintained and operated to minimise emissions to the atmosphere.	Refuelling activities shall be monitored periodically by the Environmental Management Officer to minimise and/or avoid accidental release to the environment. Accidental releases shall be actioned in accordance with Section 8 of this CEMP.	Ongoing	Contractor

21. ELEMENT 13: CULTURAL HERITAGE MANAGEMENT

Rationale
Ensure that construction activities are undertaken to prevent damage to any cultural heritage places or items located within the site during works. Previous investigations have not revealed finds of archaeological significance at the SHMR site.

Objective
No destruction or damage of significant archaeological sites, or objects of cultural value to occur at any time during construction work.

Performance Indicator
No destruction or damage of significant archaeological sites, or objects of cultural value to occur during site construction works.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
All works to be undertaken in accordance with the registered Cultural Heritage Management Plan (CHMP) for the site.	All monitoring and corrective actions to be undertaken and registered in accordance with the CHMP for the site.	Ongoing	Contractor

22. ELEMENT 14: TRAFFIC (INCLUDING NAVIGATION)

Rationale
Impacts from the road works program and heavy road vehicles, and coastal barges transferring clean fill to site, may be experienced at sensitive places and on Proserpine-Shute Harbour Road which should be avoided where practicable.

Objective
Prevent the disturbance from upgrades to Proserpine-Shute Harbour Road and heavy vehicles accessing the site from the Proserpine-Shute Harbour Road and the likelihood of accidents occurring including potential boat strikes.

Performance Indicator
Impacts to the environment and the community are minimised during construction.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
A Construction Traffic Management Plan (CTMP) must be prepared by the appointed contractor addressing the following transport related aspects: • site access; • the volume, composition (types and quantities), origin of goods to be moved including construction and raw materials; • anticipated times at which oversize movements may occur; • details of oversize indivisible loads (including types and composition); • the proposed transport routes; • increased road maintenance; and • barge operations.	The Environmental Management Officer is to review the CTMP no less than 6 monthly.	Prior to commencement of works and ongoing	Contractor
Road traffic and barges speed must be enforced on site. Construction marine vessels utilised by the marina development shall maintain a 6 knot speed limit.	Limit operation time of heavy vehicles or barges in the event of a validated noise complaint to between the hours of 8.00am and 5.00pm. Road and marine traffic incidents to be reported to Queensland Transport.	Ongoing	Contractor
Barge operations for dredging works shall be undertaken in	The Environmental Management Officer shall ensure the requirements	Ongoing	Contractor

accordance with the requirements of the Regional Harbour Master.	of the Regional Harbour Master are complied with.		
The Contractor shall ensure that all dredge equipment, including for example barges, anchor buoys and floats are clearly marked to be visible during the hours of daylight and night identified with omni-directional yellow flashing lights.	All dredge apparatus not clearly marked shall be immediately identified and CAR form completed.	Ongoing	Contractor
The Contractor shall ensure that a clear navigation channel is maintained at all times during the dredging operation.	The Contractor shall provide temporary navigation markers to guide vessels around the work area to provide safe navigation.	Ongoing	Contractor
All traffic control, signage and pavement markings to be carried out in accordance with AS 1742.3-1995 *Manual of Uniform Traffic Control Devices, Part 3 – Traffic Control for Works on Roads.*	Determine corrective action in accordance with the Department of Main Roads.	Prior to road upgrade	Contractor
Maintain two-way traffic flows on all roads where possible.	If closures are required, they are to be carried out during non-peak periods as may be necessary and with approval of the Superintendent. Where necessary, arrangements are to be made for car parking for property owners directly affected by the road works.	Ongoing	Contractor
Provide advice to emergency services regarding changes to traffic arrangements and site access during construction works.	EMO to ensure this task has been actioned by Contractor within 3 months of commencing works.	Within 3 months of commencing works	Contractor EMO

23. ELEMENT 15: VISUAL AMENITY

Rationale
Construction activities may appear untidy and have the potential to obstruct any appealing views for surrounding landowners and visitors to the area. In addition, construction activities can contribute to the release of unfavourable noise and dust emissions. These impacts may collectively have an adverse effect on the landscape character and aesthetic appeal of the surrounding environment.

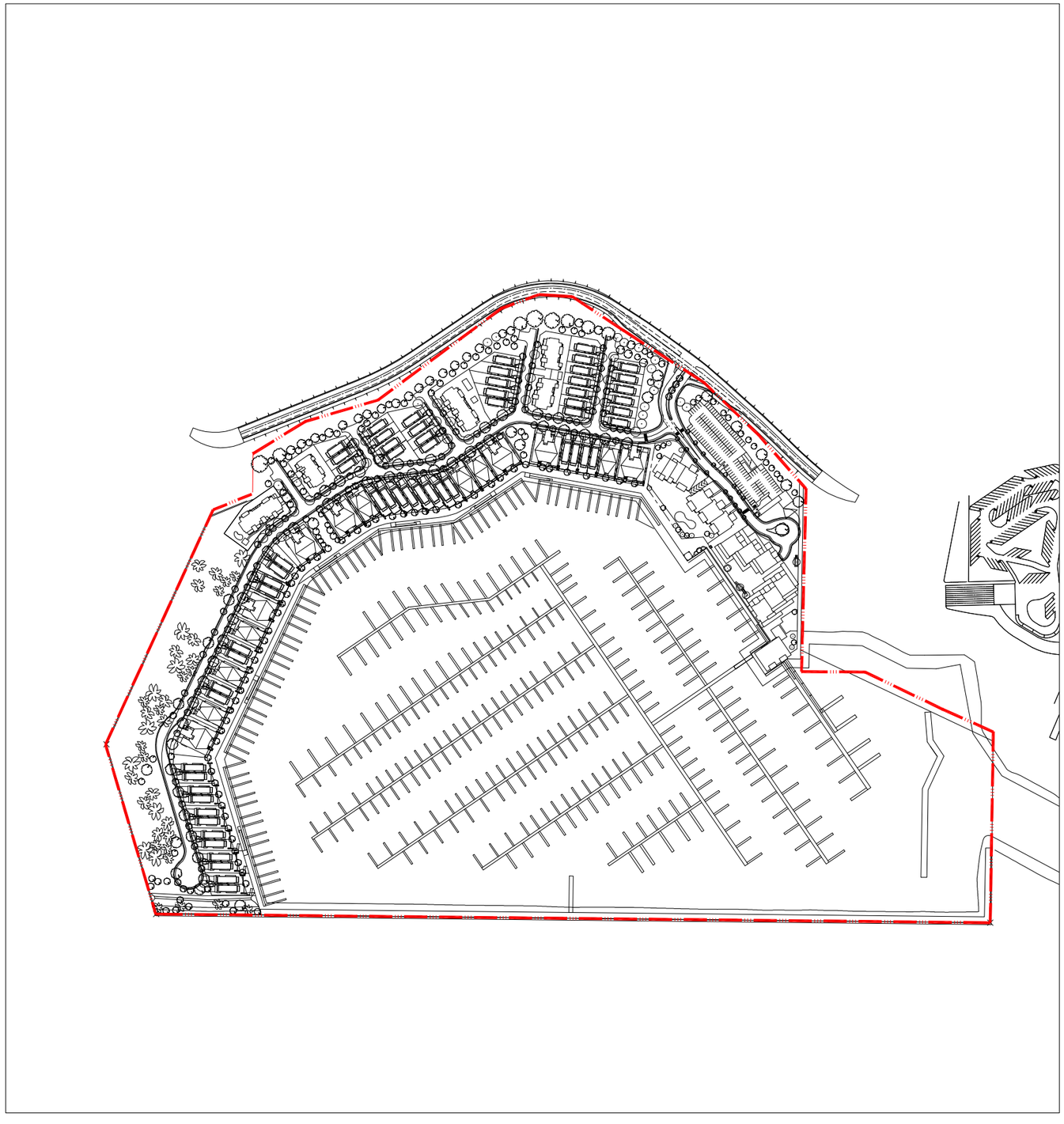
Objective
Construction and associated building works to be undertaken in a manner that maximises the aesthetic appeal of the surrounding environment and is sympathetic to the residential and business needs of the Airlie Beach, Cannonvale and Shute Harbour townships and local tourist population.

Performance Indicator
Impacts on visual amenity and the community are minimised during construction works.
Nil complaints received from affected and interested stakeholders in relation to the construction works.

Tasks	Corrective Action / Monitoring	Timing	Responsibility
Maintain a neat and tidy site.	Areas for stockpiling, storage and maintenance activities to be designated. Sufficient waste facilities are to be provided. Construction site to be tidied on an as-needed basis to remove wind-blown litter and the like.	Ongoing	Contractor
Minimise exposure of the construction site by using temporary barricades/screens. A proposal to construct an earthen bund along the frontage of the site to Proserpine-Shute Harbour Road is being investigated.	The Contractor shall investigate and maintain a record of all complaints received in relation to visual amenity in accordance with section 7 of this CEMP. Repair or upgrade barriers/screens to prevent visual amenity complaints by residents and tourist population.	Ongoing	Contractor
The site shall be landscaped as soon as practicable upon completing staged works.	The Environmental Management Officer shall audit progressive rehabilitation works on a 6-monthly basis. Repair any areas where revegetation is unsuccessful promptly.	Ongoing	Contractor

FIGURES

Figure 1 Locality and Development Layout



LEGEND

Proposed Lease Boundary

50 0 50 100 150 200 250m
1:5000

Scale 1:5000 (A3)

FIGURE 1
LOCALITY PLAN AND DEVELOPMENT LAYOUT

Rev: v.2 Date: 17 July 2008

Project No.: 7800/41

Shute Harbour Marina Development Pty Ltd

CAD FILE: I:\7800-41\ACAD\Construction Environmental Management Plan\Figure 1 - Locality plan & development layout_v3.dwg
XREF's: dcdb; Master Plan July 2008

PRINT DATE: 21 October, 2008 - 9:38am

APPENDIX A

Corrective Action Request Form

CORRECTIVE ACTION REQUEST

Report No: _____

Date: _____

DETAILS OF NON-CONFORMANCE: Inspected by:
DETAILS OF PROPOSED ACTION Passed to Principal (as applicable):y/n Date: Reply required by:
CONSULTANT/ PRINCIPAL ADVICE (as required): Date action required by (if applicable): Signed (by Principal or Principal's representative): Date:
AUTHORITY TO PROCEED Sign: Date:
ACTION CARRIED OUT Sign: Date:
ELEMENT RE-INSPECTED BY Sign: Date:
COPY ISSUED TO PRINCIPAL Date: Sign:

APPENDIX B

Oil and Fire Response Plans

SHUTE HARBOUR
MARINA

DRAFT OIL SPILL EMERGENCY ACTION PLAN FOR SHUTE HARBOUR MARINA CONSTRUCTION

APPLICATION OF OIL SPILL EMERGENCY ACTION PLAN

This Oil Spill Emergency Action Plan applies to the construction stage of the Shute Harbour Marina Development.

Equipment required for managing oil spills shall be stored at the marina.

The Principal Contractor shall assume the responsibilities ascribed by this Draft Oil Spill Emergency Action Plan and minor equipment required for managing oil spills shall be stored on site with emergency response equipment available from Maritime Safety Queensland.

DEFINITION OF A SPILL OR SLICK

A small spill is broadly defined as less than 1 litre. A medium spill is 2-5 litres. Anything over 5 litres is serious and must be reported immediately to Whitsunday Shire Council, Environmental Protection Agency and Maritime Safety Queensland.

Small spills and drips can be dispersed using chemical dispersant, but it is preferable to utilise oil absorbent cloth, where possible.

In the event of a medium or serious oil spill being sighted at the Marina, the following action must be adhered to:

ACTION

- The Principal/Contractor, or in the event of the non-availability of the administering authorities, must be informed immediately to organise a response team.
- The spill must be contained by surrounding its perimeter with the **OIL SPILL BOOM**. If spillage occurs from a vessel, surround the entire area with the floating boom and deploy oil absorbent pads onto the slick.
- Ensure **FIRE EXTINGUISHERS** are close at hand.
- Isolate the source of the oil/fuel leak.
- Keep any persons not involved with the containment operation well clear of the area. Under no circumstances allow any person to smoke or start engines of any vessels in the area.
- In the event of an oil spill for which the pending marina management is responsible for initial emergency action the Environmental Management Officer/Contractor will coordinate the operation and deploy all staff as deemed necessary and will keep the Principal updated with events. In the event of an oil spill for which the pending marina management is not responsible for initial emergency action, the Whitsunday Shire Council shall coordinate.
- In an event of an oil spill for which the pending marina management is responsible for initial emergency action the Principal, or their appointee, will make any decisions regarding notification of the appropriate authorities in the event of a large spill, ie Whitsunday Shire Council, Maritime Safety Queensland, EPA.
- In the event of an oil spill for which the marina management is responsible for initial emergency action a full detailed report must be provided to the Principal and relevant regulating authorities within 24 hours.

DRAFT OIL SPILL EMERGENCY ACTION PLAN FOR SHUTE HARBOUR MARINA CONSTRUCTION

FIRST AID PROCEDURES

In the event of a person being affected by the oil or fuel spill, the following first aid procedures can be referred to as a guide.

SYMPTOMS AND SIGNS

- Person may complain of a headache.
- Check may feel tight and person may find it difficult to breath.
- There may be facial swelling and redness (especially around the eyes).
- Pulse will be rapid.
- Person may feel nauseated and may be vomiting.
- In severe cases, person may lose consciousness or go into shock.

TREATMENT

Remove person from the area, restore fresh air and adequate breathing. Call the emergency service immediately. Loosen all tight clothing from around the neck and maintain open airway. If breathing becomes difficult, place the person in the recovery position. If they lose consciousness, employ resuscitation procedures if necessary. Be prepared to treat the person for shock. Arrange urgent removal to hospital.

SHUTE HARBOUR
MARINA

FIRE REPONSE PLAN

EMERGENCY - 000

FIRE – (07) 49466442
POLICE – (07) 49488888
AMBULANCE – 131233
MARITIME SAFETY QUEENSLAND – (07) 4946 2200 (AH 4956 3489)

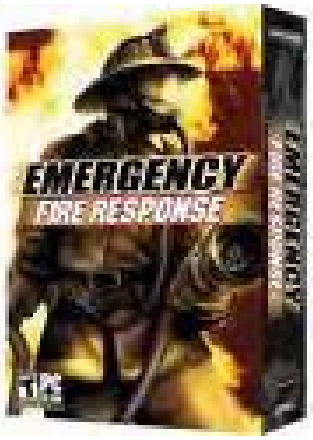
In the event of a fire:

- **RAISE THE ALARM**

  Call Emergency Services 000 **– Give Clear Concise Information including:**

  - **YOUR NAME**
  - **LOCATION OF FIRE – MARINA ADDRESS & POSITION OF FIRE** (eg. Berth Number)
  - **TYPE OF FIRE**
  - **DETAILS OF INJURIES**

- **NOTIFY AMBULANCE (IF NECESSARY)**



REMEMBER – PERSONEL SAFTY IS OF PARAMOUNT IMPORTANCE

DO NOT TAKE RISKS

- Rescue any life & ensure safety
- Unlock all access gates
- Evacuate Immediate Area
- Shut Off all Utilities – DO NOT SHUT OFF WATER
- Protect the exposures – Remove or protect other boats, buildings, equipment etc.
- Fight the fire if possible & safe – Do Not Take Risks
- Environmental Considerations – minimise or contain environmental damage
- Pertinent personnel must be contacted as soon as possible.

CONTRACTOR DETAILS TO BE ADVISED

APPENDIX C

Stormwater Diversion Drain Maintenance Checklist

VEGETATED SWALE

SCHEDULE OF SITE VISITS													
Purpose of Visit	**Frequency**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**
Routine inspection	12/year	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Annual inspection	1/year				✓								
Routine maintenance	12/year	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The above schedule is a guideline only. Routine maintenance should be scheduled based on the outcome of routine inspection.

INSPECTION	
1.	**Routine Inspection**
1.1	Routine inspection should be carried out on a regular monthly basis. The purpose of the inspection is to indicate when mowing/maintenance of the swale is required, if any erosion or scouring has occurred and to identify any build up of sediments or litter.
1.2	The length of grass in the swale should be assessed.
1.3	Complete appropriate Maintenance Form. Routine mowing/maintenance should be scheduled when the height of vegetation in the swale is excessive.
2.	**Annual Inspection**
2.1	Once a year, the condition of the swale should be closely inspected. Any damage or problems should be noted on the Maintenance Form for action.

ROUTINE MAINTENANCE	
1.	**Purpose**
1.1	Routine maintenance of the swale involves weed control, the collection of any litter, and the mowing of excessive vegetation.
2.	**Weed Management**
2.1	If weeds have been observed during routine inspection, these weeds should be removed from the swale. Weeding generally involves manual removal of perennial species.
2.2	The aim is to remove the weed including the roots when the weeds are less than 3 months old, otherwise weeds infestation rapidly occurs and is difficult to control.
2.3	Herbicides should not be used as they would contaminate the water in the discharging to the Broadwater.
2.4	The weeds should be disposed offsite at an appropriate waste management facility.
2.5	Replant appropriate plant species, where necessary, in areas that have been extensively weeded.
3.	**Litter Management**
3.1	Remove and dispose of litter that may be visible around the swale.
4.	**Mowing**
4.1	Mow excessive vegetation and dispose of mulch at any appropriate waste management facility.

APPENDIX D

DMR Lease Agreement

AGREEMENT

BETWEEN

STATE OF QUEENSLAND

AND

SHUTE HARBOUR MARINA DEVELOPMENT PTY LTD

AGREEMENT

Between

STATE OF QUEENSLAND

and

SHUTE HARBOUR MARINA DEVELOPMENT PTY LTD
ACN 081 285 832

CROWN
LAW

Crown Solicitor
State Law Building
50 Ann Street
BRISBANE

Facsimile: (07) 3239 6386
Telephone: (07) 3239 6915
Reference: CP2/ROA077/2020/DER

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3. **Traffic Management Plan** 4
4. **Access to the Development** 4
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7. **Assignment** 5
8. **Notices** 5
9. **Governing Law** 6
10. **Waiver** 6
11. **Variation** 6
12. **Costs** 6
13. **Execution** 6
14. **Entire Agreement** 6

THIS AGREEMENT is made this day of 1999.

BETWEEN: State of Queensland represented by the Department of Main Roads of 46 Gordon Street, Mackay in the State of Queensland.

("DMR")

AND: Shute Harbour Marina Development Pty Ltd ACN 081 285 832 having its registered office at 380 Shute Harbour Road, Airlie Beach in the State of Queensland.

("the Developer")

RECITALS

A. The Developer is the Lessee under special Lease No 200573 of an area of land described as Lot 2 on CP866441, County of Herbert, Parish of Conway for a term of 5 years commencing on 25 August 1994 ("the Special Lease").

B. The Developer is also the holder of a Permit to Occupy No200566 in respect of an area of land described as Lot 1 on CP866441, County of Herbert, Parish of Conway for a term of 5 years commencing on 25 August 1994.

C. The Developer has sought the approval of the Minister for Natural Resources to the granting of a new lease for a significant development under s.128 of the *Land Act 1994* over the Leased Area that is to commence upon the expiration of the Special Lease on 25 August 1999.

D. The Department of Natural Resources is prepared to seek the necessary approval from the Minister for Natural Resources if the Developer satisfies the criteria set out in s.129 of the *Land Act 1994* and if the Developer obtains the written consent of DMR to the proposed Plan for the Road Reserve and the consent and/or details of the requirements of various government agencies including DMR to the Development.

E. DMR has granted its consent to the proposed Plan for the Road Reserve which is set out in Schedule 1.

F. DMR has no objection to the granting of a new lease to the Developer for the purpose of construction of the Development on the Leased Area provided that the Developer complies with the terms and conditions of this Agreement.

G. The parties wish to record the terms of their agreement.

THE PARTIES AGREE AS FOLLOWS -

1. Interpretation

1.1 In this Agreement unless the context otherwise requires or the contrary intention appears, then the following terms shall have the meanings respectively assigned to them -

"Agreement" means this document and any reference to Schedules in this document.

"Access Point" means the point of access to the Development that is to be determined by the Developer in consultation with DMR

"Council" means the Whitsunday Shire Council

"Date of this Agreement" means the date referred to in clause 13 of this Agreement;

"Development" means the construction of a marina, resort hotel, accommodation, commercial and other activities;

"Developer" means Shute Harbour Marina Development Pty Ltd ACN 081 285 832;

"Leased Area" means the land described as Lots 1 and 2 on CP866441, County of Herbert, Parish of Conway;

"Plan" means the plan prepared by Ullman & Nolan Pty Ltd showing the proposed Road Reserve which is set out in Schedule 2;

"Road Reserve" means the area shown hatched in black on the Plan set out in Schedule 1;

"Phase 1" means the reclamation, benching and dredging stage of the Development;

"Phase 2" means the construction of the buildings and Access roads comprised in the Development;

"Traffic Management Plan" means the plan that is to be prepared by the Developer setting out the proposed access requirements for the Development and the potential impact of the Development on the present road system and is to be submitted to DMR for its approval.

1.2 A reference to a person includes a reference to corporations and other entities recognised by law.

1.3 In this Agreement the Table of Contents has been inserted for convenience of reference only and is not intended to be part of or to affect the meaning or interpretation of any of the terms and conditions of this Agreement.

1.4 A reference to a statute, regulation, ordinance or by-law shall be deemed to extend to all statues, regulations, ordinances or by-laws amending, consolidating or replacing the same.

1.5 In this Agreement the headings to the clauses have been inserted for convenience of reference only and are not intended to be part of or to affect the meaning or interpretation of any of the terms and conditions of this Agreement.

1.6 In the case of any inconsistency between the Schedules to this Agreement and a clause contained in this Agreement, the provisions of the clause shall prevail to the extent of any inconsistency.

1.7 The singular includes the plural and vice versa.

1.8 Words importing one gender shall include a reference to all other genders.

1.9 A reference to a clause, schedule or attachment is a reference to a clause, schedule or attachment to this Agreement and includes any amendment to same made in accordance with this Agreement.

1.10 A covenant or agreement on the part of two or more persons shall be deemed to bind them jointly and severally.

2. Provision of a Road Reserve

2.1 The Developer shall make provision for a Road Reserve to pass through the Leased Area generally in the location shown on the Plan to satisfy the anticipated future traffic requirements of DMR.

2.2 The Developer shall use its best endeavours to comply in all respects with the anticipated traffic requirements of DMR, which are set out in Schedule 2, to the satisfaction of DMR and any other potential requirements that may be imposed by DMR at a later stage.

2.3 In the event that the boundaries of the Road Reserve are to be changed in some way as a result of the determination of the Access Point to the Development then any such changes must be approved by DMR.

2.4 Any costs associated with the possible realignment of the boundaries of the Road Reserve shall be paid by the Developer.

2.5 In addition to the costs referred to in clause 2.4 any costs associated with alterations to the present road system that are required as a direct result of the construction of the Development shall be paid by the Developer.

2.6 The Developer shall comply with the access requirements of DMR during Phase 1 of the works and will pay the reasonable costs associated with the impact on the Proserpine - Shute Harbour Road caused during the reclamation stage of the Development.

2.7 The Developer acknowledges that further conditions may be imposed by the Chief Executive of DMR pursuant to s.40 of the *Transport Infrastructure Act 1994* at the time that the application for the Development is considered, if it has a significant impact on the Proserpine – Shute Harbour Road, which is a State-controlled road as defined in that Act.

3. **Traffic Management Plan**

3.1 The Developer shall prepare a Traffic Management Plan that sets out the proposed access requirements for the Development and the impact on the present road system of the Development prior to the commencement of Phase 2 and the Developer shall submit the Traffic Management Plan to DMR for its approval.

3.2 Any costs associated with the preparation of the Traffic Management Plan shall be paid by the Developer.

4. **Access to the Development**

4.1 The Developer must ensure that the Access Point to the Development is confined to one point of access only. If required, DMR may approve a temporary point of access for the construction of Stage 1 of the Development provided that the Developer constructs internal connector roads to Stage 2 of the Development. The temporary point of access can be removed at the time that the final Access Point is determined by the Developer in consultation with DMR.

4.2 The Access Point to the Development is to comply with the Austroads standards for intersection visibility and layout.

4.3 The Developer shall be responsible for any costs associated with any changes required to the boundaries of the Road Reserve to accommodate the intersection requirements.

5. **Construction of the Development**

5.1 The Developer must obtain any necessary consents and approvals from the Council and other relevant authorities prior to the construction of the Development.

5.2 DMR agrees that the Developer may reclaim and fill the land up to the seaward side batters that may be within the boundaries of the Road Reserve at any time during the construction of the Development.

6. **Construction of the Road Reserve**

6.1 During the establishment and construction of the Road Reserve in the Leased Area, if it becomes necessary for the boundaries of the Road Reserve to be realigned for any reason whatsoever then, the following clauses shall apply:-

(a) If the area required for the Road Reserve is **less than** the area shown on the Plan then the additional area shall form part of the Leased Area and the Developer shall do whatever is necessary to alter the boundaries of the Road Reserve and the Leased Area; or

(b) If the area of the Road Reserve is anticipated to be **more than** the area shown on the Plan then

(i) the Developer shall do whatever is necessary to ensure that the road works fit within the Road Reserve by the construction of retaining walls or other necessary structures; or

(ii) the Developer may realign the boundaries to increase the area of land available for the Road Reserve and the Developer shall do whatever is necessary to alter the boundaries of the Road Reserve and the Leased Area.

6.2 Any administrative or legal costs associated with the possible realignment of the boundaries of the Road Reserve or the construction of any retaining walls shall be paid by the Developer.

7. **Assignment**

7.1 Neither party to this Agreement may assign its rights and obligations without the prior written consent of the other party.

7.2 If the Developer wishes to assign the benefit of this Agreement then the Developer shall obtain a Deed of Covenant from the proposed Assignee to be bound by the terms and conditions of this Agreement including this clause.

8. **Notices**

8.1 Notices under this Agreement may be delivered by hand, by registered mail, by telex or by facsimile to the addresses specified in clause 8.3 or any substitute address as may have been notified in writing by the relevant addressee from time to time.

Notice will be deemed to be given:-

(a) two (2) days after deposit in the mail with postage prepaid;
(b) when delivered by hand; or
(c) if sent by facsimile transmission, upon an apparently successful transmission being noted by the sender's facsimile machine prior to close of business at 5.00pm. Facsimile transmissions received after 5.00pm will be deemed to be received at the start of the next working day,

as the case may be.

8.2 The address for each party is:-

DMR

Address:	46 Gordon Street, Mackay
Postal Address:	PO Box 62, Mackay Qld 4740
Attention:	District Director
Telephone:	(07) 4951 8541
Facsimile:	(07) 4951 8500

The Developer

Address:	20 Laidlaw Pde East Brisbane Qld 4169
Postal Address:	as above
Attention:	Vic Trimble
Telephone:	(07) 3391 8084
Facsimile:	(07) 3391 8384

9. Governing Law

This Agreement will be governed by and construed according to the law of the State of Queensland and the parties agree to submit to the jurisdiction of the Courts of the State of Queensland.

10. Waiver

No right under this Agreement shall be deemed to be waived except by notice in writing signed by each party.

11. Variation

This Agreement may be varied at any time by a written agreement executed by both parties.

12. Costs

12.1 The Developer shall pay the costs of and incidental to the preparation of this Agreement.

12.2 Each party shall pay its own costs of and incidental to the negotiation and execution of this Agreement.

12.3 The Developer will pay any stamp duty payable on this Agreement.

13. Execution

13.1 The parties agree that if this Agreement is not executed by all parties on the same date, this Agreement shall commence on and from the last of the dates of execution.

13.2 The parties shall execute copies of this Agreement with each party retaining an original copy.

14. Entire Agreement

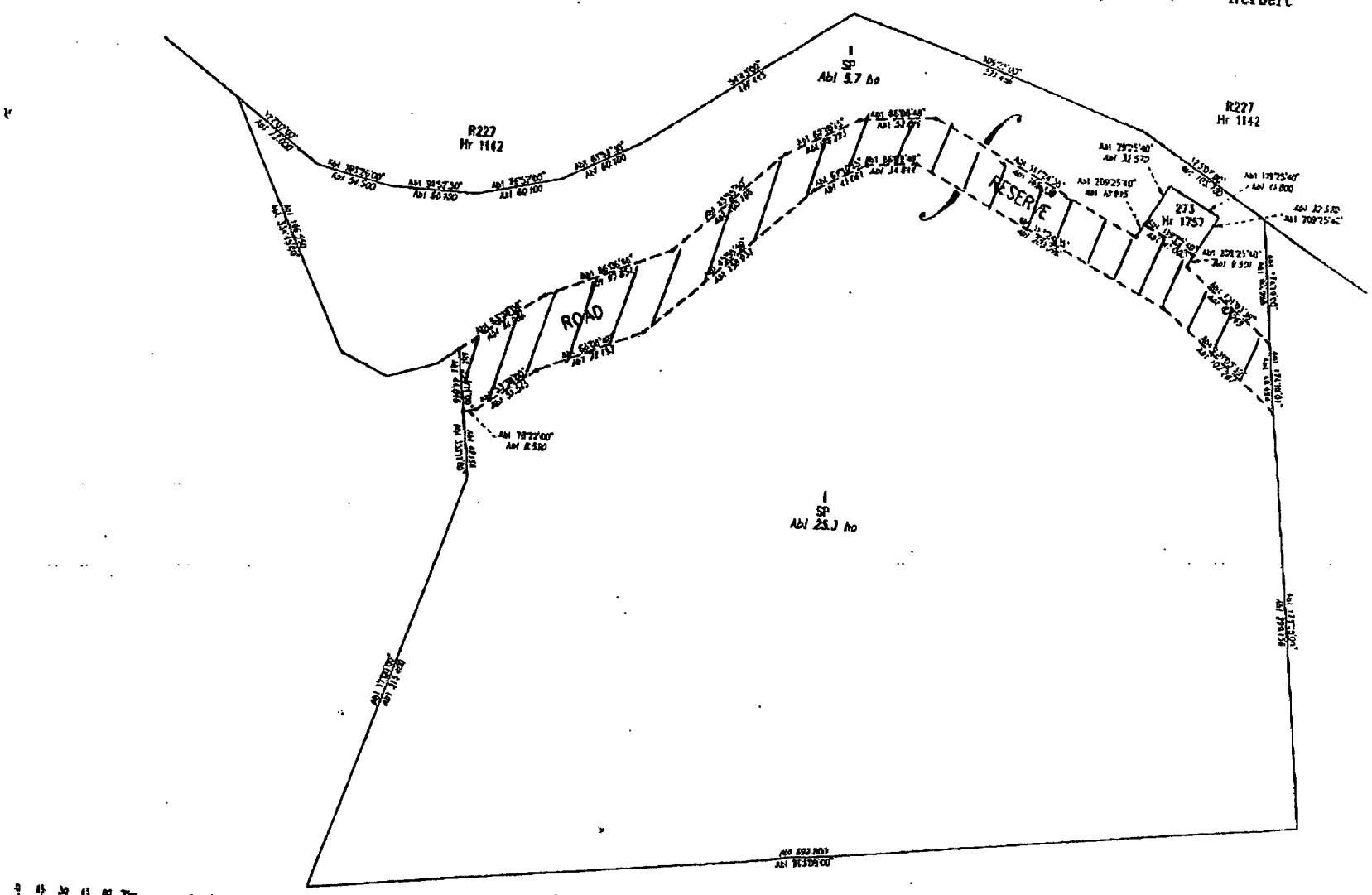
This Agreement constitute the entire agreement between the parties. Any prior arrangements, agreements, warranties, representations or undertakings are superceded.

Schedule 1

Plan prepared by Ullman & Nolan Pty Ltd showing the proposed Road Reserve

Parish of Conway

nty of Herbert



NOTE : ALL BEARINGS AND DISTANCES ARE SUBJECT TO SURVEY

SHUTE HARBOUR MARINA DEVELOPMENT PTY LTD
PROPOSED LOT 1 ON SP
CANCELING LOTS 1 & 2 ON CP 866441

Schedule 1.

Schedule 2

DMR's proposed requirements for the Construction of the Development

1. Access to the Development is to be confined to one point of access. Approval may be given to a possible temporary Access Point for Stage 1 of the Development, provided that internal connection roads are provided to Stage 2 of the Development, and the temporary Access Point removed when the final Access Point is constructed.

2. Access is to be located to meet the Austroads standards for intersection visibility and layout. The Developer is to be responsible for any changes to the Road Reserve to accommodate any intersection requirements.

3. It will be the Developer's responsibility to ensure that the initial stages of the Development do not compromise any future access requirements.

4. If the Development is to occur on both sides of the Road Reserve measures will need to be implemented by the Developer to minimise any potential crossing conflicts by the provision of a Pedestrian/Vehicle underpass.

5. The Conditions of the lease (if any) need to specify that the boundaries of the Road Reserve may change dependent on the access intersection requirements, and the provision of filling of the Licensed Area.

6. The Developer is to address any necessary noise attenuation issues.

7. The Road Reserve must provide an area for the installation of services. As the Development is to be constructed in 2 Stages it may be necessary for the Developer to provide for interim and final location of services with associated costs of relocation to be paid by the Developer.

8. DMR has the following road template requirements:-

   - 3/3.5m Lanes (2 Through lanes + an overtaking lane)
   - 2/2.0m Shoulders
   - 2.0m central median
   - Width for tables drains, cut slopes, fill slopes, and 3.0m clearance for maintenance, These widths must relate to current natural surface levels.

9. The width for provision of access intersection works will be in addition to the above and will be the responsibility of the Developer.

THE PARTIES HAVE EXECUTED THIS AGREEMENT ON THE DATES APPEARING BELOW.

SIGNED for and on behalf of the

STATE OF QUEENSLAND

this 13 day of JULY 1999

by IAN R HUSBAND
(full name)

a duly authorised officer
in the presence of:

THE COMMON SEAL of
Shute Harbour Development Pty Ltd

ACN 081 285 832 was duly affixed in
accordance with its Articles of Association

this 16TH day of JULY 1999

by VICTOR EDWARD TRIMBLE a Director/Secretary
(full name)

in the presence of:

SHUTE HARBOUR MARINA DEVELOPMENT PTY. LTD. A.C.N. 081 285 832
The Common Seal of

APPENDIX E

DMR Services Installation Guidelines

Queensland Government
Department of Main Roads

TRANSPORT PLANNING

INSTALLATION OF UNDERGROUND CONDUITS WITHIN THE BOUNDARIES OF STATE-CONTROLLED ROAD

1. General

This specification applies to the installation of underground conduits and associated plant on State-controlled roads declared under the Transport Infrastructure Act 1994.

"Owner" refers to the owner of the conduit.

"Main Roads" refers to the Queensland Department of Main Roads.

"District Director" refers to the District Director, North Coast-Hinterland District, Queensland Department of Main Roads.

This specification shall be applied together with any relevant codes of practice. Where there is any conflict between this specification and a code of practice, the Owner shall be responsible for resolving that conflict, with the District Director, before any works are commenced.

2. Application

A written application, with plans and specifications, shall be submitted to the District Director at least 6 weeks prior to the proposed date of commencement of work. The application shall include the following documents:

* Plans
* Specifications [1]
* Works Program [1]
* Traffic Management [1]

[1] When required in letter of approval

3. Approval

No work shall be commenced until the District Director issues an Approval to Commence Work in writing.

a) Approval by Main Roads shall not interpreted as approval by the Local Government or any other Government Department or Service Authority. Likewise, approval by any other body shall not be interpreted as approval by Main Roads.

b) If there are any conflicts between Main Roads conditions and conditions imposed by other bodies, the Owner shall bring them to the attention of the District Director for resolution prior to commencing the work.

c) Approved work shall be completed within a period of 2 years from the date of Main Roads approval. Should the approved work not be completed within this 2 year period, a new application will be required.

4. Motorways and Access Limited Roads

a) Installation of underground conduits along motorways and access limited roads will not generally be approved. In order to gain approval the Owner would be required to demonstrate that such installation would result in significant benefits to the community at large.

b) Any approval would be on the condition that all work associated with installation and maintenance of the conduit be carried out without direct access from the carriageways of the motorway or access limited road.

5. Supervision and Inspection

a) Public utility works shall be supervised by the Owner. Private works shall be supervised by a qualified Consulting Engineer retained by the Owner or developer and approved by the District Director.

b) The District Director shall be notified 1 week prior to the proposed commencement of the work so that Main Roads inspection can be arranged.

6. Correspondence

Correspondence should be addressed to : District Director, North Coast-Hinterland District, Department of Main Roads , P O Box 183, Gympie Qld 4570.

7. Installations

7.1 Specifications

Unless approved otherwise, all materials and processes shall be in accordance with current Main Roads Standard Specifications or, if there is no relevant Main Roads Standard Specification, in accordance with the appropriate Australian Standard.

7.2 Clearing

Clearing shall be in accordance with Main Roads Specification 11.04 - MRS "General Earthworks" and shall be kept to the absolute minimum required for construction. All cleared vegetation should be preferably milled, or chipped and returned to site or used in rehabilitation works or made available for community projects. Any disturbed ground surfaces must be reinstated with turf, seed or mulch and in accordance with all relevant Commonwealth and State Government Laws and Regulations and Local Government By-laws.

7.3 Drainage

a) The work shall be carried out so as not to detrimentally affect the existing drainage provisions of the roadway.

b) No existing drains or structures are to be altered without approval from the District Director.

c) Provisions shall be made for all work to be adequately drained so as not to cause damage to, or interference to the operation of, Main Roads infrastructure.

7.4 Cover

Unless otherwise approved, the minimum cover over conduit shall be:

a) 1200mm to the lowest point of existing or future road formation (including the design invert of existing drains).

b) 600mm to the lowest point of existing or future footpath.

c) 900mm elsewhere in the road reserve.

7.5 Road Crossings

a) Unless otherwise approved in writing, all road crossings shall be bored or jacked with no disturbance to the pavement or shoulders.

b) All boring or jacking work shall be carried out by a specialist contractor with experience in similar work and with Third Party Quality Assurance Accreditation.

c) Water jetting methods are not to be used for under road boring or jacking.

d) Where required by the District Director, a Main Roads representative will be present at during road crossing construction.

e) Conduits, enveloping pipes or service tunnels shall be used for all road crossings and shall extend for the full width of the current and future road formation as approved by the District Director.

f) Where the diameter of the bored hole exceeds the diameter of the conduit, enveloping pipe or service tunnel, the surrounding cavity shall be filled with grout as approved by the District Director.

g) Unless otherwise specified the annular void, between a services pipeline and enveloping pipe, shall be pressure grouted with lean mix concrete.

h) Service tunnels shall be provided with drains to remove liquids and heavy gases and shall be provided with vent pipes to remove light gases. The outlets to drains and vent pipes shall be clearly marked and shall be located clear of existing and future road maintenance operations.

i) Where trenching across a roadway is approved, the work shall be carried out in accordance with the conditions specified in Clause 7.6.

7.6 Trenching

a) Trenching shall be organised so as to cause minimum disruption to traffic, pedestrians, and accesses to adjacent properties.

b) Trenches shall not be left open overnight.

c) The conduit shall be bedded in and surrounded by 100mm (minimum) compacted sand or, where specified by the District Director, 150mm (minimum) 20MPa/20 concrete.

d) Prior to excavation across roadways with asphalt surfacing, straight saw-cuts shall be made for the full depth of the asphalt at least150mm clear of the trench walls and the saw-cut edges shall be maintained as neat, straight edges during the work.

e) Backfill in trenches shall be as follows: -

i. Trenches in sealed pavements.

The backfill above the bedding sand or concrete surround shall be lean mix, flowable fill concrete (20:1 mix) manufactured in accordance with AS 1379 Ready Mixed Concrete. The finished surface of the concrete shall be a minimum of 75mm below the existing roadway surface.

ii. Trenches in unsealed road shoulders.

The backfill above the bedding sand or concrete surround shall be lean mix, flowable fill concrete (20:1 mix) manufactured in accordance with AS 1379 Ready Mixed Concrete. The concrete shall be level with the bottom of the existing pavement.

iii. Trenches in unpaved areas of the road reservation.

Backfill above the pipe surround may be compacted sand, or earth compacted in uniform layers of 150mm maximum depth, to a finished level at least 100mm below the natural surface. The layers shall be compacted to at least 95% relative dry density (Standard Compaction Test MRD No. Q110A). The top 100mm of the trench shall be filled with an approved top soil unless otherwise approved by the District Director.

f) Reinstatement of pavement and surfacing shall be as follows: -

i. Trenches in sealed pavements.

The surface of the flowable fill concrete [refer to clause (e)(i) above] and the remaining sides of the trench shall be dry and given a thorough brooming before being uniformly covered with a sprayed coating of bitumen emulsion. The bitumen emulsion shall comply with the requirements of MRS 11.21- "Specification for Bitumen Emulsion".

The trench shall be filled with hot mixed asphalt which shall comply with the requirements of MRS 11.30 - "Dense Graded Asphalt Pavements". The finished surface of the asphalt shall join smoothly to the existing pavement surface.

This work shall be carried out under the supervision of the District Director's representative.

Alternatively, if approved by the District Director, temporary cold-mix reinstatement may be made, with the permanent surfacing being carried out by the Main Roads maintenance contractor at the Owner's expense.

ii. Trenches in unsealed road shoulders.

Shoulder pavement material shall be an approved soil aggregate material conforming with the requirements for base material Type 2.3, Grading C or D, contained in the Main Roads Standard Specification MRS 11.05 - "Unbound Pavements".

In addition, the material shall have a maximum particle size of 25mm and shall be compacted to 100% relative dry density (Standard Compaction Test MRD No. Q110A).

7.7 Attachment to Bridge Structures and Culverts

a) Attachment to bridges and culverts will not generally be approved. In order to gain approval, the Owner would be required to demonstrate that such installation would result in significant benefits to the community.

b) The District Director may approve the attachment of conduits to bridges or culverts subject to the following conditions:

i. The Owner shall remove or protect the conduit during any Main Roads rebuilding or maintenance operations.

ii. The Owner shall maintain the conduit in good order and condition to the satisfaction of the District Director.

iii. Unless specifically approved otherwise, closure of any part of the roadway or footpath or the parking of service vehicles on the bridge or culvert during installation or maintenance will not be permitted.

7.8 Install through Culverts

a) Where installation through a culvert is approved in writing, the conduit shall be attached to the soffit of the culvert so that there is no appreciable sag in the conduit. At the inlet and the outlet of the culvert the conduit shall be attached to the wings of the culvert.

b) Except as provided above, the conduit is not to interfere with the existing drainage system in any way.

8. Conduits Carrying Combustible Liquids or Flammable Fluids

a) Fireproof markers shall be installed to clearly indicate the conduit position and shall be fitted with clearly visible signs providing information on action to be taken in emergency situations.

b) Where a conduit is installed in a trench, marker tape shall be placed between 450mm and 600mm above the conduit for the full length of the trench.

9. Works Program

a) A Works Program shall be submitted to the District Director with the application and shall be approved by the District Director prior to the commencement of the work.

b) The Works Program shall show the start and finish dates of the work.

c) Where the work is to be carried out in stages, the Works Program shall show the start and finish dates of each stage.

d) If the Works Program is to be varied by more than 2 weeks, a revised Works Program shall be submitted to the District Director for approval.

10. Traffic Management

a) The Owner shall be responsible for traffic management wherever the normal flow of traffic is disrupted by the work.

b) A Traffic Management Plan shall be submitted to the District Director with the application and shall be approved by the District Director prior to the commencement of the work.

c) The Plan shall be consistent with the Manual of Uniform Traffic Control Devices (Queensland) and shall comply with the Main Roads Specification MRS 11.02- "Control of Vehicular Traffic at Roadworks".

d) The Plan shall show how provision will be made for the safe and orderly passage of traffic through the site during all stages of the work.

e) The District Director may require that the Plan be amended and may require that certain work be restricted to certain hours to minimise the disruption to traffic.

f) The work shall proceed without interruption to traffic and shall be organised so as to cause minimum disruption to traffic, pedestrians, and access to adjacent properties.

g) The Owner shall be responsible for the provision of all warning signs and other devices required for traffic control.

h) All temporary signs and other devices shall be promptly removed when no longer required.

i) The District Director may order additional traffic control measures to be implemented by Main Roads or by a third party and may recover the costs of those measures from the Owner.

11. Environmental Management

a) The Owner shall be responsible for compliance with all relevant Environmental Protection legislation.

b) The Owner shall undertake a site-specific Review of Environmental Factors (REF) which shall contain an assessment of the environmental impacts of the proposed work.

c) The Owner shall produce an Environmental Management Plan (EMP) which shall address all of the issues identified in the REF.

d) The REF and EMP shall be submitted to the District Director with the application and shall be accepted by the District Director prior to the commencement of the work. Such acceptance shall not remove the Owner's responsibilities under the relevant legislation.

12. Quality Management

a) All organisations involved in the work shall have current Third Party Accreditation for Quality Systems which comply with the requirements of AS/ISO 9001 or AS/ISO 9002 and which include the requirements of Clause 8 of Main Roads Specification MRS 11.50 - "Specific Quality Management Requirements". The interpretation of AS/ISO 9001 and AS/ISO 9002 for construction work shall be based on AS 3905.2.

b) Quality Plans from each organisation shall be submitted to the District Director with the application and shall be approved by the District Director prior to the commencement of the work.

c) The Quality Plans shall be consistent with Main Roads Specification MRS 11.50.

13. Construction Safety

The Owner shall be responsible for ensuring that the works comply with the requirements of the Workplace Health and Safety Act and Regulations.

14. Damage to Roadway and Maintenance

The Owner shall be required to repair, at no cost to Main Roads, any damage to the road due to the installation or existence of the conduits.

15. Privately Owned Conduits

a) Privately owned conduits will be treated as Ancillary Works and Encroachments under the provisions of the Transport Infrastructure Act 1994.

b) If approval is given for a privately owned conduit, a permit will be issued for a specific term and subject to the following conditions:

i. Payment of a fee

ii. Signing of an Indemnity Statement

iii. Provision and maintenance of Public Liability Insurance

iv. Removal of the conduit if required by the District Director

v. Removal or protection of the conduit during Main Roads construction or maintenance operations.

c) The permit is not transferable. A new owner must obtain a new permit.

16. Costs

All costs shall be payable by the Owner, including any additional traffic control ordered by the District Director.

17. Completion of Work

The District Director's representative will inspect the work and notify the Owner of any defects which require rectification.

18. Indemnity

The Owner, by accepting the above conditions, hereby indemnifies The Director-General, Department of Main Roads against any claim, action or process for damage and/or injury which might arise during the progress of the work and shall keep indemnified The Director General, Department of Main Roads against any claim, action or process for damage and/or injury which might arise due to the installation or existence of the conduit.

19. References

a) PACP69 Design Guide - Lighting

APPENDIX F

Suitable Landscape Species

Large trees (>15m)

milky pine *Alstonia scholaris*
hoop pine *Araucaria cunninghamii*
hard quandong *Elaeocarpus obovatus*
brush box *Lophostemon confertus*
beach almond *Terminalia catappa* (semi-deciduous)

Small trees (8-15m)
Red Eungella satinash *Acmena resa*
hairy alectryon *Alectryon tomentosa*
Whitsunday bottle tree *Brachychiton compactus*
tuckeroo *Cupaniopsis anacarinoides*
saffron heart *Halfordia kendak*
coastal screw palm *Pandanus spiralis*
canary beech *Polyalthia nitidissima*
braod-leaved lilly pilly *Syzygium hemilamprum* (syn. *Acmena hemilampra*)
a beach almond *Terminalia melanocarpa* (deciduous)

***Shrubs* (<7m)**
beach acronychia *Acronychia imperforata*
coogera *Arytera divaricata*
coast canthium *Cyclophyllum coprosmoides*
beach cherry *Eugenia reinweinwardtiana*
gardenia *Kailarsenia ochreata* (semi-deciduous)
cockatoo apple *Planchonia decarya* (semi-deciduous)
brown gardenia *Randia fitzilani*
a fan flower *Scaevola taccada* (syn. *S. sericea*)
blue lilly pilly *Syzygium oleosum*

Palms
alexandra palm *Archontophoenix alexandrae*
weeping cabbage palm *Livistonia decipens*
black palm *Normanbaya normanbayi*
foxtail palm *Wodyetia bifurcata*

Groundcovers
river lily *Crinum pedunculatum*
flax lilly(s) *Dianella spp.*
coastal boobioalla *Myoporum acuminatum*
a boobialla Myoporum ellipticum
a fan flower Scaveola caledulacea

Use of these species should focus on sourcing planting material developed from local genetic provenance (i.e. local nurseries).