

# Operational Environmental Management Plan

St Patrick's Estate, Darley Road Manly

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Prepared for

Trustees of the Roman Catholic Church for the Archdiocese of Sydney

Initial Version Prepared by

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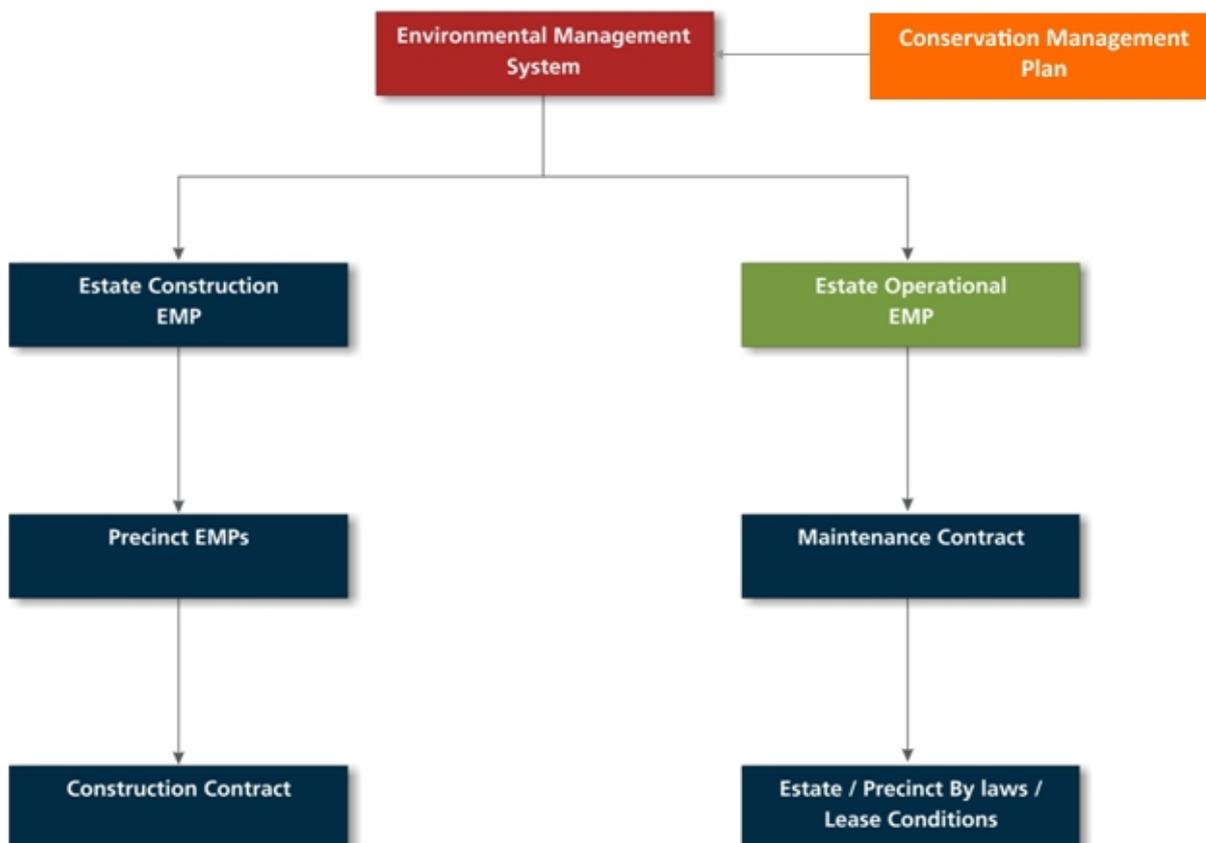
## 1.0 Overview

### 1.1 About this Document

This Operational Environmental Management Plan (OEMP) has been prepared for the operation of St. Patrick’s Estate (the Estate), Manly. This OEMP has been prepared for the Catholic Archdiocese of Sydney, the owners of the site, which is vested in the Trustees of the Roman Catholic Church for the Archdiocese of Sydney. The OEMP forms part of the documents that seek to ensure that the Archdiocese of Sydney satisfy their statutory obligations and comply with the adopted environmental policy.

The OEMP supports the Conservation Management Plan for the St Patrick’s Estate, which identifies the heritage significance of the site and provides management recommendations for maintenance of its significant built and landscape elements. The OEMP should be read in conjunction with the CMP and with the Landscape Management Plan prepared for the Estate.

The OEMP is an Estate-wide document which sets the framework for the perpetual operation of the Estate, and forms part of the Environmental Management System (EMS). Specifically the OEMP defines the environmental management, maintenance and monitoring responsibilities, and reporting channels for personnel involved in the operation of the Estate. All personnel are responsible for ensuring that their activities are conducted in accordance with all legislative requirements and the requirements of this OEMP at all times. The environmental management framework developed for the EMS is depicted below:



## 1.2 Background to OEMP

This OEMP is required as part of the conditions of consent issued for development applications previously submitted to Manly Council for the development of various Estate Precincts comprising Montpelier Place, Cerretti Crescent and Spring Cove. It also forms part of the EMS for the entire St Patrick’s Estate.

During the construction period, precincts in the Estate have been managed in accordance with the Construction Environmental Management Plan (CEMP), which provides the framework for management activities associated with construction works. Environmental management of each Precinct is transferred from the CEMP to this OEMP following the completion of site construction works and the issue of an Occupation Certificate pursuant to section 109 (1)(c) of the *Environmental Planning and Assessment Act 1979*, and in accordance with the Conditions of Consent.

In addition to the above, an OEMP was originally required as a condition of the consent granted by the NSW Land and Environment Court (LEC) for all precincts on the Estate, with the exception of Precinct 2. The environmental sensitivity of the Estate and its surroundings were the catalyst for the development of an Estate-wide environmental management framework.

## 1.3 Description of the Site

The Estate is located south-east of Manly city centre on a portion of the North Head known as The Eastern Hill. The location of the site is shown in **Figure 1**. The Estate was granted to the Roman Catholic Church in the 1860s, with the Archbishop’s residence and St Patrick’s Seminary subsequently established in the 1880s.

The Estate consists of approximately 22 hectares, divided into northern and southern portions by Darley Road. The Estate has been further divided into 14 precincts within the northern and southern portions based on land use. A number of development applications (DAs) have been approved over recent years for the residential development of a number of the precincts on the Estate. These have included the following developments:

- Precincts 1 and 13 – Montpelier Place, comprising 12 detached and 14 paired residential dwellings.
- Precincts 3 and 12 – Cerretti Crescent, comprising 44 apartments and 16 townhouses; and
- Precincts 5, 6 and 10 – Spring Cove, comprising subdivision and construction of 17 detached dwellings, 16 apartments and 5 townhouses.

## 1.4 Land Use Context

The land uses of the precincts are summarised in **Table 1** below. The location of each of the precincts is shown in **Figure 2**.

**Table 1: Current and Proposed Land Uses for Each Precinct**

Precinct	Land Use
Precinct 1	Montpelier Place residential development, gardens and landscaping (detached housing). Includes a natural (rehabilitated) Gulley which carries some stormwater from the Estate to Cabbage Tree Bay. Construction was completed during October 2013.
Precinct 2	College Court & College Green, including attached residential townhouses and apartments divided by a grassed area of open space.
Precinct 3	Cerretti Crescent residential development comprising mixed residential attached townhouses and apartments with landscaping and limited open space.
Precinct 4	Open space and secondary school (St Paul’s College).
Precinct 5	Spring Cove residential development comprising mixed residential houses, attached townhouses and apartments with landscaping. Construction was essentially completed November 2015 with some residential houses to be completed.

Precinct	Land Use
Precinct 6	Spring Cove residential development comprising mixed residential attached townhouses and apartment with landscaping. Construction was essentially completed November 2015 with some residential houses to be completed.
Precinct 7	Grassed and landscaped areas, International College of Management
Precinct 8	Undeveloped bushland.
Precinct 9	Existing residential precinct incorporating Bower Street, Reddall Street, Fairy Bower Road and a portion of Darley Road.
Precinct 10	Spring Cove residential development comprising mixed residential houses, attached townhouses and apartment with landscaping. Construction was essentially completed November 2015 with some residential houses to be completed.
Precinct 11	Archbishop’s Residence; southern portion occupied by playing fields used by the students of St Paul’s College (Precinct 4). Additional areas of open space.
Precinct 12	Cerretti Crescent residential development, comprising mixed residential attached townhouses and apartments with landscaping. Limited open space.
Precinct 13	Montpelier Place residential development, gardens and landscaping (detached housing). Construction of Precinct 13 is complete.
Precinct 14	Grassed and landscaped areas surrounding the International College of Management
Precinct 15	Bear Cottage

## 1.5 Heritage Context

The St Patrick’s Estate, Manly was the first ecclesiastical seminary in Australia and played a significant role in the education of Australian-born priests. The Estate retains a number of highly significant buildings within established settings as well as a number of significant landscape features including sandstone boundary, retaining and garden walls, gates, paths, driveways, stairs, lawn areas and tree plantings. The grotto and its associated gardens and the Bush Chapel are also of heritage significance.

The heritage significance of the built and landscape elements of the St Patrick’s Estate need to be retained and conserved as part of the ongoing management of the Estate.

The Conservation Management Plan for the St Patrick’s Estate identifies the key built and landscape elements and provides policies and guidelines for their ongoing management. Management of the environment of the Estate will need to be consistent with the policies and guidelines of the Conservation Management Plan. The Landscape Management Plan for the Estate has been prepared to ensure that the significant cultural landscape of the St Patrick’s Estate is appropriately retained and conserved. It includes a Landscape Maintenance Specification that details how the Estate will be maintained consistent with the Landscape Management Plan.

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## 2.0 Environmental Policy

**The objective of this policy for the Estate is to establish an ecologically sustainable community. The Estate is designed to achieve desirable living spaces which will foster a sense of community for the residents and lessees, whilst ensuring the protection of the surrounding environment and its significant built and landscape elements**

The parties responsible for managing the Estate are committed to managing and minimising potential impacts of operation on the local community, surrounding biophysical and natural environment and its built and landscape elements whilst ensuring that the Estate development delivers a desirable and liveable community.

The key policy objectives are:

- Compliance with all applicable laws, policies and regulations;
- Achieve best practice in environmental management during operation;
- Minimise environmental effects;
- Protection of local amenity for the development and surrounding community; and
- Continual improvement in environmental management.

The mechanisms adopted to achieve these objectives are:

- The establishment and maintenance of an EMS in accordance with ISO 14001:2004 for the construction and thereafter the lifetime of the Estate;
- The appointment of an Estate Manager or similar persons responsible for environmental management of the Estate;
- Development and implementation of a Construction Environmental Management Plan (CEMP) for any proposed major development works to be conducted on any Precincts within the Estate;
- Development and implementation of this OEMP for the ongoing management of Precincts within the Estate;
- The appointment of any future Estate maintenance or works contractors in accordance with relevant OEMP requirements, In this respect a Landscape Maintenance Specification has been prepared as part of a Landscape Management Plan for the Estate and shall be implemented in accordance with this OEMP; and
- Communication of environmental goals and policies to future site occupants or lessees will be via formal channels such as leases and by-laws.

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## 3.0 Environmental Objectives for Operation of the Estate

### 3.1 Principal Objectives

The principal environmental objectives of the Operation of the Estate are to:

- Ensure that environmental management objectives for the operation of the Estate are established in accordance with the relevant conditions of consent, relevant DCPs and other statutory requirements;
- Prevent, reduce or effectively manage the effects of potential pollutants to the surrounding environment;
- Strive for continual improvement in the environmental performance of the Estate; and
- Promote environmental awareness amongst residents, lessees, employees, contractors, other stakeholders and the community.

### 3.2 Purpose of the OEMP

The purpose of this OEMP is to provide an environmental manual for use by the management and operational staff, as well as residents and lessees working and living at the Estate. The OEMP will also support contractual agreements with lessees, future site workers, contractors, utility contractors, builders and/or landscape contractors.

The OEMP outlines environmental management responsibilities, relevant legislation, incident management, corrective action procedures, complaint handling responsibilities, auditing requirements, training programs, environmental monitoring requirements, as well as specific environmental management actions to be undertaken on a regular basis.

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## 4.0 Environmental Management Responsibilities

### 4.1 Organisational Structure

The relationship of this OEMP to the overarching EMS is outlined in the figure shown in **Section 1**. The organisation of environmental management responsibilities is detailed below.

#### 4.1.1 The Trustees

The Trustees are the owners of the land which forms the Estate. Developed and occupied areas have been leased to organisations like schools, owner’s corporations, companies or individuals. The land includes open space as well as a number of buildings including Moran House, Cardinal Cerretti Chapel, Kelly House, the Convent, Archbishops Palace and the buildings that comprise St Paul’s School and others around the Estate. Much of the curtilage of the Estate has been previously subdivided for residential housing. Most of the land to the east and north of the main Seminary has been subdivided and sold on a long leasehold basis.

The Trustees as owners of the Estate, delegate day to day management to the lessees and owners’ corporations.

#### 4.1.2 The Estate Managers

The Estate Managers will be responsible for the maintenance of day to day activities and condition of the Estate, that is not the responsibility of any lessees or owners corporations and this includes all tasks which would normally be performed by the owner of the land. The Estate Managers will be responsible for the environmental performance of these parts of the Estate and for the ongoing compliance with consent conditions and legislative requirements. For operational activities the Estate Managers will be appointed by the Trustees.

#### 4.1.3 Lessees

Certain areas of the Estate have been:

- a) sold on a long leasehold basis to individuals and/or owners’ corporations; and
- b) leased to various corporate lessees.

Each are responsible for the environmental performance and ongoing compliance with consent conditions and legislative requirements.

#### 4.1.4 Contractors

Ongoing landscape maintenance and approved modifications will be required by a professional/registered service provider. A Maintenance Contractor/s would be engaged under the direct management of the Estate Managers to implement the Landscape Maintenance Specification, or under some circumstances, the lessee responsible for that area.

Each development within the Estate varies slightly, as does the procurement methodology. The developments include residential apartment buildings, single and semi-detached dwellings and serviced building blocks. The final mix will depend on approvals in each precinct as well as market considerations. Contractual services will be required during the operational stages for post development maintenance and compliance activities. These contractors would again be directed by the Estate Managers.

### 4.2 Responsibilities

The Estate Managers are responsible for the upkeep and management of the Estate in respect of those matters which are not the legal responsibility of lessees or owners’ corporations, and should carry out such management activities. The maintenance of residential development areas in the precincts are in most respects the responsibility of the lessees. As such, the Estate Managers and the lessees are responsible for the appropriate environmental management and maintenance of the site in accordance with the objectives of the OEMP.

The Estate Managers and lessees are also responsible for ensuring that contractors employed for incidental activities on the Estate conduct their operations in accordance with the environmental management principles in this plan and relevant statutory requirements. Training of personnel may be considered from time to time as appropriate.

The general environmental responsibilities of the key roles are outlined below.

### **Estate Managers**

The Estate Managers are ultimately responsible for the orderly operation and maintenance of the land in accordance with the Conservation Management Plan, Landscape Management Plan, relevant consents and environmental legislation. In relation to this OEMP, the Estate Managers will:

- Approve the OEMP;
- Ensure implementation of the OEMP;
- Initiate a review of the OEMP, if required;
- Maintain all necessary registers, databases, and records as required in the OEMP for the non leased areas;
- Be the first point of contact for either the community or regulatory authorities who may have queries in relation to the Estate operation;
- Ensure adequate training of all lessor / lessees, strata managers and contractors;
- Initiate non-conformance and corrective action reports and manage corrective measures as required; and
- Conduct regular site inspections.

During the initial stages following residential development work within certain precincts, the developer may act in the role of Estate Manager/s.

### **Maintenance Contractor**

Regular maintenance of landscaped and other areas on the Estate is the responsibility of the Maintenance Contractor engaged by the Estate Managers to implement the Landscape Maintenance Specification prepared in respect of the Estate. The general environmental responsibilities of the Maintenance Contractor include the following:

- Implementation of all relevant aspects of the OEMP in accordance with the Landscape Maintenance Specification;
- Complete all works in a manner mindful of potential environmental and cultural heritage impacts;
- Reporting all non-conformance and/or complaints to the Estate Managers or lessee; and
- Undertake corrective action in response to requests made by the Estate Managers or lessee regarding specific environmental safeguards.

These environmental responsibilities also apply to incidental contractors on the Estate engaged either by the Estate Managers or Lessees to undertake other works.

### **Lessees**

The lessees are responsible for the orderly operation and maintenance of the leased areas (as set out in their respective leases) in accordance with relevant consents and environmental legislation, including the following:

- Ensure implementation of OEMP;
- Maintain all necessary registers, databases and records as required in the OEMP;
- Initiate non-conformance and corrective action reports and manage corrective measures as required; and
- Conduct regular site inspections.

## 5.0 Statutory Requirements

### 5.1 Heritage Act 1977

The *Heritage Act 1977* (NSW) aims to conserve the environmental heritage of New South Wales. The Act established the State Heritage Register (SHR) to protect places of State heritage significance with particular importance to the people of New South Wales.

The St Patrick's Estate is included on the SHR and is therefore subject to the provisions of the *Heritage Act 1977*. Under Section 57(1) of the Act, Heritage Council approval is required to undertake any works on the site—a number of standard and site-specific exemptions apply.

The Heritage Act also includes provisions for the protection of significant historical (non-Aboriginal) archaeology—these provisions apply particularly to proposals involving excavation.

### 5.2 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NSW) provides for the care, control and management of all national parks, historic sites, nature reserves, Aboriginal areas and state game reserves.

The St Patrick's Estate is immediately adjacent to the Sydney Harbour National Park and contains some areas of indigenous vegetation along its boundary with the National Park and within Precinct 8. The provisions of the *National Parks and Wildlife Act 1974* therefore apply to the Estate. It is therefore important that management of the Estate does not result in the following:

- encroachment of buildings or open space into the national park;\rubbish disposal and litter entering the national park;
- invasion of the national park by domestic animals, garden weedx, exotic plant material, lawn clippings etc;
- fire generated from either side of the common boundary; and/or
- run-off by pollutants, sullage etc.

The potential for any impacts associated with the above is reduced by the presence of the high stone walls along the boundary with the national park. The potential for run-off to enter the national park from the Estate is also very low as the land generally slopes from the national park to the Estate.

A management plan for the Sydney Harbour National Park, including North Head was prepared in 2012. The NPWS (now part of OEH) has previously indicated that it would prefer that the existing landscape within the Estate, particularly areas of remnant natural vegetation, be retained.

The Act also includes provisions for management of Aboriginal objects and places. The Estate has not been identified as having any known Aboriginal places or objects. Nevertheless, should any potential Aboriginal objects be discovered at the site then all works in the vicinity would need to cease immediately and OEH contacted.

### 5.3 Threatened Species Conservation Act 1995

The Threatened Species Conservation Act 1995 provides for the conservation of threatened species, populations and ecological communities of animals and plants.

The Long-nosed bandicoots of North Head have been identified as a threatened or endangered population under the Act. The Archdiocese of Sydney is currently participating with OEH in formulation of, and participation in the implementation of, a North Head Management and Recovery Plan for the long-nosed bandicoots.

The only breeding colony of Little Penguins on the NSW mainland is in Spring Cove. The Little Penguin Colony in Spring Cove has been listed as an endangered population and areas of North Harbour, including the foreshore area of Spring Cove have been declared 'critical habitat'.

## 5.4 Local Environmental Planning Instruments

The principal Environmental Planning Instrument (EPI) applying to the Estate is the *Manly Local Environmental Plan 2013* (Manly LEP).

The St Patrick's Estate, Manly is included as a heritage item on Schedule 5 of the LEP and therefore approval to undertake works on the site will also be subject to the heritage provisions of the LEP.

The St Patricks Estate is also located within the habitat area for a threatened population of long-nosed bandicoots and is immediately adjacent to the little penguin critical habitat area on the foreshore of Spring Cove. The St Patricks Estate is also located within the Foreshore Scenic Protection Area as defined in the Manly LEP.

The Manly LEP sets out the provisions for managing heritage items and for development within the vicinity of heritage items and within conservation areas (Part 5.10 Heritage Conservation).

Clause 6.19 of the LEP establishes planning objectives for the Estate and specific provisions for each of its precincts. The key objectives are:

- (a) to protect the heritage significance, including the archaeological, natural and cultural heritage values, of St Patrick's Estate,
- (b) to ensure that development does not detract from the heritage significance of Moran House, Cerretti Chapel, St Therese's Convent and the Archbishop's Residence,
- (c) to ensure that any new buildings or structures in St Patrick's Estate are sympathetic in scale and built form to the heritage items that are situated in St Patrick's Estate.

Clause 6.13 Design Excellence establishes provisions to deliver the highest standard of architectural and urban design of buildings and public spaces in Manly.

Manly Council also administers the Manly Development Control Plan 2013 to support the Manly LEP with more detailed planning and design guidelines that also apply to the Estate. The DCP includes broader development controls for heritage items (Part 3.2). Part 5.3 of the DCP includes reference to the specific development controls for the St Patricks Estate, found in Part 6.19 of the Manly LEP (see above). The DCP also contains development controls for areas of critical habitat for little penguin and for the long-nosed bandicoot as well as for development within the Scenic Foreshore Protection Area (as defined in the Manly LEP).

The Manly Council Tree Preservation Order applies to all privately owned land in the LGA including the St Patricks Estate. Approval from Council is required to remove or prune trees—some exemptions apply.

## 5.5 Development Consent Conditions

Conditions of development consent are issued by the consent authority pursuant to provisions contained within the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). This OEMP incorporates the relevant conditions of consent issued for the Estate to date. The conditions of recent development consents requiring an environmental management framework are outlined below:

*"In order to achieve the environmental performance and outcomes proposed in the application, required by conditions of this consent and any subsequent statutory approvals, the applicant and owner shall deliver and implement an Environmental Management Plan and Environmental Management System. These shall be documented and submitted to council and approved by Group Manager, Land Use Management prior to the development commencing. The Environmental Management System shall be in accordance with International Standard ISO 14001 unless otherwise approved by Group Manager, Land Use Management. The EMP/ EMS shall address all relevant issues including:*

- *Management of environment risks;*
- *Vegetation and landscape management;*
- *Soil management;*
- *Stormwater management;*

- *Groundwater management;*
- *Sewage management;*
- *Management of habitat, ecological systems and conservation of fauna;*
- *Management of noise;*
- *Management of fire*
- *Management of both construction activities, maintenance activities and their associate impacts*
- *Transition from construction phase to permanent occupation phase*
- *In particular the EMP/EMS shall identify the following elements of the ongoing environmental management of the development:*
  - i) *organisational structure*
  - ii) *responsibilities and accountabilities*
  - iii) *ownership and management control*
  - iv) *resources and funding*
  - v) *environmental management policy (which shall be consistent with the proposal and this consent)*
  - vi) *proposed mechanisms for implementing the policy and the requirements of this consent*
  - vii) *performance indicators proposed and targets to be achieved*
  - viii) *methods of measuring performance and taking checking and corrective action*
  - ix) *a record system of actions taken to manage the environment, performance, monitoring results and consequent corrective actions such as records to be available for council inspection at any time*
  - x) *an audit system accessible to council to verify the EMS/EMP*
  - xi) *preparedness for emergencies*

In order to satisfy the broad range of the consent conditions, the environmental management framework was developed to take a holistic view of environmental management across the entire Estate. This OEMP provides the proposed mechanisms for implementing the Estate’s environmental policy (refer **Section 2**) in accordance with the relevant conditions of consent.

It has been assumed that future consents would be similar to those already issued. Future development applications for the Estate would be in accordance with this OEMP.

## **5.6 Approvals, Licences and Permits**

Environmental approvals, licences and permits may be required to be obtained where required for certain development activities in the future. Activities requiring approval may include:

- Approval under Manly LEP 2013 for any proposed works within the Estate—some minor works with no or little impact on heritage significance may be exempt.
- Approval under Section 57(1) of the Heritage Act 1977 including for removal of trees or other landscape features, landscaping works and excavation—some exemptions apply.
- Approval under the National Park and Wildlife Act 1974 should any uncovered Aboriginal places or objects be proposed for removal.
- Approval under Section 68 of the Local Government Act 1993 for an activity requiring approval from Manly Council under that Act, including water supply, sewerage and stormwater drainage work, management of waste, and activities involving community land and public roads;

- Application for Construction Certificate prior to carrying out building work or subdivision work pursuant to section 109C (1)(c) of the *Environmental Planning and Assessment Act 1979*;
- Application for Occupation Certificate before a building which has been completed can be legally occupied pursuant to section 109 (1)(c) of the *Environmental Planning and Assessment Act 1979*; and Approval from Sydney Water Corporation relating to plumbing works including connection to mains, installation and alteration of systems, construction over or near existing water and sewerage services.

## 6.0 Environmental Issues Prioritisation

An environmental issues prioritisation has been undertaken for the Estate to identify and prioritise environmental issues and risks associated with the operation of the Estate. Prioritisation of issues promotes a more considered level of management, for issues of greater severity and consequence. The approach and environmental issues prioritisation are described below.

### 6.1 Approach

The prioritisation of issues for the OEMP is based on the need to recognise that the higher the potential severity of adverse environmental effects and the greater the consequence of those unmanaged effects, the higher the degree of monitoring and management required. Where a high potential effect was identified, the attribute or issue was allocated a higher priority management. **Table 1** shows the issues prioritisation matrix used to identify priorities. Each issue is given a ranking between one and three for the severity of effects and the perceived consequences of those effects if left unmanaged. These two numbers are added together to provide a numerical ranking for the issue, which is then used to categorise each issue into high, medium and low priorities.

**Table 1: Issues Prioritisation Matrix**

Severity Of Risk	Consequence of Unmanaged Effects		
	3 High	2 Medium	1 Low
1 Low	4 (Medium)	3 (Low)	2 (Low)
2 Medium	5 (High)	4 (Medium)	3 (Low)
3 High	6 (High)	5 (High)	4 (Medium)

The allocation of risk is based upon the following considerations:

#### **Severity of Risk**

- Low: localised implications; imperceptible or short term cumulative impacts
- Medium: regional implications; modest or medium term cumulative impacts
- High: inter-regional implications: serious or long term cumulative impacts

#### **Consequences of Unmanaged Effects**

- Low: minor environmental change; offsets readily available
- Medium: moderate adverse environmental change; offsets available
- High: important adverse environmental change, offsets not readily available

## 6.2 Assessment

The prioritisation of environmental issues identified during operation of the Estate is shown in **Table 2**. The assessment aims to prioritise issues prior to the implementation of management or monitoring measures. The measures that will be implemented for the operation of the Estate are described in detail in **Section 8**.

**Table 2: Environmental issues prioritisation**

Issue	Severity	Consequence	Priority
<b>Aspect: Noise and Air Quality Management</b>			
Noise nuisance to residents.	Low	Low	Low
Noise nuisance to native fauna (particularly bandicoots).	Medium	Medium	Medium
Degradation of air quality.	Medium	Low	Low
<b>Aspect: Stormwater Management</b>			
No maintenance on stormwater system.	Low	Medium	Low
Unmanaged stormwater leaving the Estate.	Medium	Medium	Medium
<b>Aspect: Soil and Erosion Control</b>			
Erosion occurring on site.	Low	Medium	Low
Destabilisation of watercourses from flooding.	Medium	High	High
Unmanaged runoff on site.	Medium	Medium	Medium
Sediment entering stormwater system.	Medium	Medium	Medium
<b>Aspect: Landscape and Vegetation Management</b>			
Degradation of landscaping.	Low	High	Low Medium
Alteration of planting (increase / decrease).	Medium	Medium	Medium
Encroachment into riparian areas.	Medium	High	High
<b>Aspect: Waste Management</b>			
Unauthorised waste disposal / dumping.	Low	Low	Low
Collection / Gathering of waste.	Low	Low	Low
<b>Aspect: Security and Pedestrian Management</b>			
Loss / restriction of access.	Low	Low	Low
Lack of signage.	Low	Low	Low
Light spill across site.	Low	Medium	Low
<b>Aspect: Bushfire</b>			
Poor Bushfire Management.	Medium	Medium -High	High
Poor fuel load maintenance.	Medium	Medium	Medium

Issue	Severity	Consequence	Priority
Inappropriate usage of the APZ.	Medium	Medium	Medium
<b>Aspect: Fauna Management</b>			
Removal of native vegetation.	Medium	High	High
Loss of bandicoots and their habitat.	High	High	High
Weed invasion.	Low	Medium	Low
Bushfire occurrence.	High	High	High
Loss of Little Penguins / habitat.	High	High	High
Loss of identified threatened species.	High	High	High
Loss of asset protection zones.	Medium	Medium	Medium
No fuel-managed habitat corridors.	Medium	Medium	Medium
Poor maintenance of vegetative links.	Low	High	Medium
Dogs and cats on the Estate.	Medium	High	High
<b>Aspect: Energy Efficiency</b>			
Limited use of energy efficient devices.	Low	Low	Low
Limited planting / maintenance of solar shading trees.	Low	Low	Low
<b>Aspect: Transport and Traffic</b>			
Neglect of roadways and parking areas.	Low	Low	Low
No speed enforcement.	Low	Medium	Low
No signage.	Low	Low	Low
<b>Aspect: Heritage Management</b>			
Damage or removal of Aboriginal objects or places.	High	High	High
Damage to significant buildings, structures and landscape elements including sandstone boundary, retaining and garden walls, paths, the Bush Chapel, the Grotto and tree plantings.	Medium/High	Medium/High	Medium/High

### **6.3 Key Environmental Risks**

Based on the above risk analysis and prioritisation, key environmental risks have been identified. All on-site personnel and service delivery providers must be aware of the following environmental risks:

- Noise nuisance to native fauna (particularly bandicoots).
- Allowing dogs and cats on the Estate.
- Loss of bandicoots / Little Penguins and their habitat.
- Loss of identified threatened species (Flora and Fauna).
- Poorly managed stormwater and sediment from the Estate.
- Destabilisation of watercourses.
- Alteration of landscaping areas and plantings (increase / decrease).
- Encroachment into riparian areas.
- Removal of native vegetation.
- Neglect / loss of bushfire asset protection zones (APZ) and fuel load maintenance.
- Poor bushfire management and non-compliance with Fuel Management Plan.
- Damage or removal of Aboriginal objects or places.
- Damage to buildings, structures and landscape elements of heritage significance including sandstone boundary, retaining and garden walls, paths, the Bush Chapel, the Grotto and tree plantings.

## 7.0 Key Environmental Objectives and Targets

The Estate is located in close proximity to sensitive marine environments, as well as terrestrial habitat for the long-nosed bandicoot. It is also a place of State heritage significance with many significant elements including buildings, structures and landscape elements such as boundary, retaining and garden walls, paths, the Grotto, the Bush Chapel and tree plantings. Operational activities within the Estate have the potential to pose the risk of degradation of water quality within receiving marine environments, principally Cabbage Tree Bay and Spring Cove, and the degradation and/or disturbance of terrestrial habitat and habitat linkages of the long-nosed bandicoot. Operational activities also have potential to damage significant built and landscape heritage elements of the Estate.

To achieve the environmental policy of ‘minimum-impact’, as set out in **Section 2**, strategies including monitoring and reporting requirements will be established and implemented to regulate activities occurring on the Estate. A series of objectives and targets (displayed in **Table 3**) have been established to guide activities associated with operation on the Estate, and provide all residents, lessees, and personnel working on the Estate with tangible goals.

**Table 3: Environmental Issues and Relevant Environmental Objectives and Targets**

Environmental Issue	Objectives	Key Performance Indicators
Fauna Management	<ul style="list-style-type: none"> <li>Minimise impacts on native fauna species on the Estate and within the adjacent Sydney Harbour National Park and the waters of Sydney Harbour.</li> <li>Maintain habitat connectivity within the Estate, and between the Estate and the National Park.</li> <li>Ensure the long-term persistence of bandicoot habitat on the Estate and within the surrounding Sydney Harbour National Park.</li> <li>Maintain existing landscaping and habitat/vegetation linkages within and surrounding the estate, with particular focus on Bandicoot habitat and the riparian zone of adjacent creek lines and Sydney Harbour National Park.</li> </ul>	<ul style="list-style-type: none"> <li>No significant change to the local bandicoot population resulting from ongoing operation of the Estate.</li> <li>Low prevalence of noxious weeds, in particular through vegetated corridors utilised by bandicoot populations.</li> <li>Landscaping maintained in accordance with the Landscape Maintenance Specification.</li> <li>No significant degradation of off-site water quality, in particular water quality within Spring Cove.</li> </ul>
Landscaping and Vegetation Management	<ul style="list-style-type: none"> <li>Maintain gardens and open spaces as designed in the Landscape Maintenance Specification to ensure that a balance between Landscape Maintenance and habitat preservation is achieved.</li> <li>Minimise disturbance to natural bushland areas both adjacent to and within the Estate, and preserve endemic species and habitat within the site.</li> <li>Monitor and protect threatened and endangered flora species within the boundaries of the Estate.</li> </ul>	<ul style="list-style-type: none"> <li>Landscaping maintained in accordance with the Landscape Maintenance Specification.</li> <li>No significant change to the local bandicoot population resulting from ongoing operation of the Estate.</li> <li>Low occurrence of noxious weeds and invasive plant species, in particular through vegetated corridors utilised by bandicoot populations.</li> <li>No significant degradation of off-site water quality, in particular water quality within Spring Cove.</li> </ul>

Environmental Issue	Objectives	Key Performance Indicators
Bushfire Management	<ul style="list-style-type: none"> <li>Minimise the potential for bushfire events to occur within the estate.</li> <li>Maintain protective measures.</li> </ul>	<ul style="list-style-type: none"> <li>APZ, riparian areas and vegetated corridors maintained in accordance with the Landscape Maintenance Specification.</li> <li>APZ fuel levels maintained in accordance with the Landscape Maintenance Specification (eg tonnes per hectare for each zone).</li> </ul>
Stormwater Management	<ul style="list-style-type: none"> <li>Minimise runoff volumes and pollutant loads generated on the Estate.</li> <li>Maximise reuse of stormwater and runoff for irrigation and site landscaping within the Estate.</li> <li>Minimise the potential for erosion across the Estate and the consequent deposition of sediment laden runoff into receiving waters.</li> <li>Zero net increase in stormwater pollutants in an average rainfall year.</li> </ul>	<ul style="list-style-type: none"> <li>No obvious surface standing water bodies, or blocked drains.</li> <li>No visible evidence of litter or coarse sediment leaving the Estate within the stormwater system.</li> <li>No damage to significant landscape elements including boundary, retaining and garden walls, paths, the Grotto and the Bush Chapel.</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>Encourage environmentally protective waste management practices in the operation of the Estate.</li> <li>Encourage the ongoing minimisation and management of waste generated and handled on the Estate.</li> <li>Ensuring appropriate disposal of wastes generated on the Estate.</li> </ul>	<ul style="list-style-type: none"> <li>Any imported fill must consist of certified clean materials.</li> <li>All waste contractors and receiving waste facilities must be appropriately licensed.</li> <li>Volumes of recycling are maximised in order to minimise land filling.</li> </ul>
Soil and Erosion Control	<ul style="list-style-type: none"> <li>Minimise the potential for erosion (across the Estate) and the consequential deposition of sediment into receiving waters.</li> <li>Minimise disturbance to the hydrologic regime of the surrounding landscape and maximise opportunities for stormwater recycling on the Estate.</li> <li>Protect the stability of watercourses and landscaping which could result in impacts off-site.</li> </ul>	<ul style="list-style-type: none"> <li>Effective operation of erosion and sediment control measures.</li> <li>No signs of erosion/degradation during typical runoff scenarios.</li> <li>Stable landforms and appropriate landscape coverage /density.</li> </ul>
Security and Pedestrian Management	<ul style="list-style-type: none"> <li>Provision of adequate security measures while maintaining ecological integrity.</li> <li>Maintain access and pedestrian usability.</li> </ul>	<ul style="list-style-type: none"> <li>Restricted access to sensitive areas for pedestrian activity.</li> <li>Security lighting will be maintained for protection of ecological values and residential safety.</li> <li>Pathways will be maintained for pedestrian safety.</li> </ul>

Environmental Issue	Objectives	Key Performance Indicators
Traffic Management	<ul style="list-style-type: none"> <li>• Maintain safe and effective traffic flows within the Estate boundaries.</li> <li>• Ensure sufficient services and amenities such as designated parking areas are available for motorists.</li> <li>• Avoid impacts to Bandicoot populations as a result of collisions between animals and vehicles.</li> <li>• Avoid disturbance to landscaping and vegetated corridors resulting from the movement of traffic and vehicle parking within the Estate.</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal occurrence of incidents / accidents.</li> <li>• Roads within the Estate maintained at a fully functional capacity, clean and free of obstruction.</li> </ul>
Noise and Air Quality Management	<ul style="list-style-type: none"> <li>• Manage noise on the Estate in order to minimise disruption to local fauna and to reduce amenity impacts on nearby residents, St Paul's College, Manly Hospital and Moran House.</li> <li>• Maintain the current levels of local air quality and minimise the potential for dust generation.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of amenity complaints received from residents, adjoining properties or statutory authorities.</li> <li>• No activity and quiet environs at appointed times.</li> <li>• No notices/warnings received from statutory authorities for exceeding noise levels or air quality criteria.</li> </ul>
Heritage Management	<ul style="list-style-type: none"> <li>• To retain and conserve significant built and landscape elements on the Estate.</li> <li>• To appropriately manage any found Aboriginal objects and places on the Estate.</li> <li>• To appropriately manage any found historical (non-Aboriginal) archaeology on the Estate.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant buildings, structures and landscape elements including retaining and garden walls, paths, the Grotto, the Bush Chapel and tree plantings are retained and conserved consistent with the provisions of the Conservation Management Plan</li> <li>• No breaches of the provisions of the <i>Heritage Act 1977</i>.</li> <li>• No breaches of the provisions of the <i>National Parks and Wildlife Act 1974</i>.</li> <li>• No breaches of the heritage provisions of Manly LEP 2013.</li> </ul>
Energy Efficiency	<ul style="list-style-type: none"> <li>• Reduce total energy use in residential buildings, by reducing heat loss and energy consumed for heating and cooling purposes.</li> <li>• Maintain energy efficient features of building designs on the Estate.</li> <li>• Ensure that residential site planning and building design optimise solar access to land and buildings.</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance with BASIX.</li> <li>• All energy saving devices in effective working order.</li> </ul>

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## 8.0 Environmental Management Activities

The following sections set out the environmental management activities and mitigation measures, which shall be undertaken or complied with during the operation / occupation phase of any Precinct within the St Patrick's Estate.

It is essential that prior to the commencement of works, the Estate Manager ensures that the personnel responsible for implementing the OEMP are aware of their designated tasks.

For clarity, the environmental aspects have been presented separately. Each aspect has been divided into two sections: a Strategy and an Implementation Plan. The Strategy section details the overall strategies used to achieve the objectives stated in the tables and to provide strategic guidance on training, monitoring and reporting requirements. The associated Implementation Plan for each environmental aspect provides detailed information about the tasks required to achieve the listed strategies. The Implementation Plan is designed to be altered at any time and modified to suit changing priorities and requirements as circumstances dictate.

Where the "Responsibility" column in a table in this **Section 8** refers to a "lessee", each lessee should assess the extent of their responsibility in light of the contents of their own lease.

### 8.1 Fauna (Bandicoot) Management

Environmental Management Strategy: Fauna (Bandicoot) Management
<b>Key Environmental Objectives:</b>
<ul style="list-style-type: none"> <li>• Minimise impacts on native fauna species on the Estate and within the adjacent Sydney Harbour National Park and the waters of Sydney Harbour.</li> <li>• Maintain habitat connectivity within the Estate, and between the Estate and the National Park.</li> <li>• Ensure the long-term persistence of bandicoot habitat on the Estate and within the surrounding Sydney Harbour National Park.</li> <li>• Maintain existing landscaping and habitat/vegetation linkages within and surrounding the estate, with particular focus on Bandicoot habitat and the riparian zone of adjacent creek lines and Sydney Harbour National Park.</li> </ul>
<b>Description:</b>
<p>The Estate straddles the ridge along North Head and comprises two catchments – Cabbage Tree Bay (Pacific Ocean) and Spring Cove (Sydney Harbour). Both catchments adjoin the National Park. The National Park supports endangered populations of the Long-nosed Bandicoot (<i>Perameles nasuta</i>) and the Little Penguin (<i>Eudyptula minor</i>). The North Head population of bandicoots is listed on Part 2 of Schedule 1 of the Threatened Species Conservation Act 1995. While the bandicoot is considered to be common in eastern Australia, the colony at North Head is significant as it is one of only a few populations located in the Sydney Region. The Little Penguin breeding colony is the only one found on the NSW mainland. The penguins are resident in Spring Cove and do not use areas of the Estate for habitat.</p> <p>The bandicoot population is found within the National Park and adjacent residential areas. A series of vegetated links have been established to provide movement corridors for bandicoots and other native species. In addition protected flora species exist within some precincts and these need to be maintained in accordance with the requirements of precinct specific conditions of consent.</p>

Environmental Management Strategy: Fauna (Bandicoot) Management
<b>Strategies:</b>
<ul style="list-style-type: none"> <li>• Minimise removal of native vegetation. Any removal required shall be strictly in accordance with the relevant Conditions of Consent.</li> <li>• Protect bandicoots and their habitat through the maintenance of bandicoot access between the Estate and adjacent bushland.</li> <li>• Adhere to Weed Management Strategy and Fuel Management Plans in the Landscape Maintenance Specification as part of the maintenance of bandicoot habitat.</li> <li>• Maintain and protect Little Penguin habitat at Spring Cove by controlling the quality of water leaving the site.</li> <li>• Maintain and protect identified threatened species.</li> <li>• Maintain appropriate asset protection zones (APZ), fuel-managed habitat corridors and landscaped areas in accordance with Landscape Maintenance Specification.</li> <li>• Restrict / prevent formal pedestrian or vehicular access through areas of known Bandicoot habitat.</li> </ul>
<b>Performance Indicators:</b>
<ul style="list-style-type: none"> <li>• No significant change to the local bandicoot population resulting from ongoing operation of the Estate.</li> <li>• Low prevalence of noxious weeds, in particular through vegetated corridors utilised by bandicoot populations.</li> <li>• Landscaping maintained in accordance with the Landscape Maintenance Specification.</li> <li>• No significant degradation of off-site water quality, in particular water quality within Spring Cove.</li> </ul>
<b>Training Requirements:</b>
<ul style="list-style-type: none"> <li>• Identification of protected fauna species within and surrounding the Estate.</li> <li>• Education for residents and contractors on the North Head population of bandicoots.</li> </ul>
<b>Key Legislation:</b>
<ul style="list-style-type: none"> <li>• <i>Protection of the Environment Operations Act 1997</i></li> <li>• <i>National Parks and Wildlife Act 1974</i></li> <li>• <i>Native Vegetation Conservation Act 1997</i></li> <li>• <i>Native Vegetation Act 2003</i></li> <li>• <i>Catchment Management Act 1989</i></li> <li>• <i>Threatened Species Conservation Act 1995</i></li> <li>• <i>Noxious Weeds Act 1993</i></li> </ul>

**Table 4: Fauna (Bandicoot) Management Implementation Plan**

Task	Description	Responsibility
<b>Property Maintenance</b>		
8.1.1	Traffic speed limits shall be established, signposted and adhered to in order to minimise the risk of traffic kills.	Estate Manager / Lessee
8.1.2	Light spill in backyards shall be minimised as bright lighting and motion detectors could discourage foraging by bandicoots and increase predation.	Lessee
8.1.3	Dogs or cats are prohibited on the Estate, as domestic animals may increase predation upon bandicoot populations.	Lessee
8.1.4	All fence lines along and within property boundaries shall be maintained above the ground to allow bandicoot movement between the National Park and the Estate.	Lessee
8.1.5	Maintenance of a path of access around dwellings for bandicoot access so as not to trap bandicoots in private yards. Pool fences shall be maintained to exclude bandicoots where possible.	Lessee
8.1.6	All residents and contractors on the Estate shall be provided information on the conservation of the bandicoot population, that addresses issues including: <ul style="list-style-type: none"> <li>• Feeding of bandicoots;</li> <li>• Use of insecticides, fertilisers, snail baits etc.;</li> <li>• Care when driving to avoid collision with bandicoots; and</li> <li>• Maintenance and management of vegetation on properties.</li> </ul>	Estate Manager / Lessee
8.1.7	All Office of Environment and Heritage (OEH) management actions outlined in the Conditions of Consent are to be adhered to. Co-operate with OEH in implementation of bandicoot recovery plan.	Estate Manager
8.1.8	All recommendations relating to fire management in Conditions of Consent and Fire Threat Assessment report are to be adhered to (refer to Section 8.2).	Estate Manager / Lessee
8.1.9	The Estate Manager shall consider participation in programs developed by DECCW that monitor the effectiveness of Consent Conditions in maintaining habitat values.	Estate Manager
8.1.10	Participate and contribute to pest fauna eradication programs implemented by DECCW from time to time at North Head.	Estate Manager / Lessee
<b>Asset Protection Zone</b>		
8.1.11	Protect and manage bandicoot habitat in the Asset Protection Zone (APZ) by prohibiting the removal or alteration of plantings, other than routine maintenance by the Maintenance Contractor, enforced through the inclusion of a covenant in lease agreements.	Lessee
8.1.12	The APZ shall remain integrated with other vegetated habitat links within the Estate in accordance with the Landscape Maintenance Specification.	Lessee
8.1.13	Species type, growth size and design of plantings on individual properties should be maintained in original condition to preserve bandicoot habitat.	Lessee
8.1.14	Maintain a 200 mm high natural stone edge where present to allow bandicoot access from Montpellier Place to adjacent vegetated links.	Lessee

Task	Description	Responsibility
8.1.15	The APZ and included habitat corridor shall be appropriately signed at the setback edge of the corridor and at main pedestrian access points to inform users of bandicoot habitat.	Lessee
<b>Landscaping</b>		
8.1.16	Existing landscaping is to be retained and maintained throughout the Estate to preserve Bandicoot habitat, in accordance with Landscape Maintenance Specification.	Lessee / Maintenance Contractor
8.1.17	Minimise disturbance to potential foraging habitat including grassed areas within 10 m of shelter.	Lessee / Maintenance Contractor
8.1.18	Species type, growth size and design of plantings on individual properties should be maintained in original condition by property owners / lessees to preserve bandicoot habitat.	Lessee / Maintenance Contractor
8.1.19	Plant species used on site should be non invasive to reduce the threat of colonisation on adjacent bushland or elsewhere on the site.	Lessee / Maintenance Contractor

## 8.2 Landscaping and Vegetation Management

Environmental Management Strategy: Landscaping and Vegetation Management
<b>Key Environmental Objectives:</b>
<ul style="list-style-type: none"> <li>Maintain gardens and open spaces as designed in the Landscape Maintenance Specification to ensure that a balance between landscape management and habitat preservation is achieved.</li> <li>Minimise disturbance to natural bushland areas both adjacent to and within the Estate, and preserve endemic species and habitat within the site.</li> <li>Monitor and protect threatened and endangered flora species within the boundaries of the Estate.</li> </ul>
<b>Description:</b>
Operational activities on the Estate involve the maintenance of vegetation and landscaping. This includes asset protection zones (APZ), vegetation linkages, fenced yards, public pathways, landscaped gardens, tree plantings of cultural heritage significance and natural bushland areas. Operational activities have the potential to disturb these areas through anthropocentric factors while vegetative growth can alter existing appearances and functions of landscaped and natural areas.
<b>Strategies:</b>
<ul style="list-style-type: none"> <li>All areas of landscape should be maintained in accordance with the Landscape Maintenance Specification.</li> <li>Do not remove or modify landscape elements of cultural heritage significance including sandstone boundary walls, retaining walls, garden walls, paths, the Grotto, the Bush Chapel and tree plantings.</li> <li>Minimise the use of insecticides, fertilisers, snail baits or similar and ensure they are used according to the Maintenance Specification and manufacturers' instructions.</li> <li>Retained vegetation should be monitored and inspected regularly for signs of damage, decay or death.</li> <li>Maintain and improve the natural ecotone and watercourse systems within and adjacent to the Estate.</li> <li>Establish an on site nursery area for the propagation of local endemic and threatened and endangered flora species to facilitate replacement.</li> </ul>
<b>Performance Indicators:</b>
<ul style="list-style-type: none"> <li>Landscaping maintained in accordance with the Landscape Maintenance Specification.</li> </ul>

Environmental Management Strategy: Landscaping and Vegetation Management
<ul style="list-style-type: none"> <li>No significant change to the local bandicoot population resulting from ongoing operation of the Estate.</li> <li>Low occurrence of noxious weeds and invasive plant species, in particular through vegetated corridors utilised by bandicoot populations.</li> <li>No significant degradation of off-site water quality, in particular water quality within Spring Cove.</li> </ul>
Training Requirements:
<ul style="list-style-type: none"> <li>A community awareness program will be implemented to identify hazards, educate, and create awareness of the potential impact on property.</li> <li>Education of habitat linkages and condition, including potential impacts to maintenance.</li> <li>Education of significant cultural landscape elements and the policies and guidelines contained in the Conservation Management Plan and Landscape Management Plan.</li> </ul>
Key Legislation
<ul style="list-style-type: none"> <li><i>Protection of the Environment Operations Act 1997</i></li> <li><i>National Parks and Wildlife Act 1974</i></li> <li><i>Native Vegetation Conservation Act 1997</i></li> <li><i>Native Vegetation Act 2003</i></li> <li><i>Catchment Management Act 1989</i></li> <li><i>Threatened Species Conservation Act 1995</i></li> <li><i>Noxious Weeds Act 1993</i></li> <li><i>Heritage Act 1977</i></li> </ul>

**Table 5: Landscaping and Vegetation Management Implementation Plan**

Task	Responsibility	
Landscaping		
8.2.1	Landscaped areas and significant landscape features would be maintained regularly and in accordance with the Landscape Maintenance Specification.	Maintenance Contractor
8.2.2	Maintenance of all newly installed plant species will occur for a minimum period of 3 months.	Maintenance Contractor
8.2.3	During the post construction phase the Estate will maintain vegetation exclusion fencing and erosion and sedimentation controls as per construction phase where necessary.	Lessee / Maintenance Contractor
8.2.4	There will be minimal alteration to landscaped or planted areas.	Estate Manager / Lessee
8.2.5	Tree works will be restricted to maintenance such as pruning, lopping, felling etc and for reasons of safety or as permitted under the Tree Preservation Order (TPO).	Estate Manager / Lessee
8.2.6	The use of insecticides, fertilisers, snail baits or similar should only be used on site in accordance with the Maintenance Specification and manufacturers' instructions.	Maintenance Contractor
8.2.7	Landscaping activities would have procedures implemented to minimise the potential spread of Phytophthora.	Maintenance Contractor

Task		Responsibility
8.2.8	Only certified weed free and contaminant free mulch will be used on the Estate.	Estate Manager / Maintenance Contractor
8.2.9	No mechanical excavation or building work should be undertaken within the critical root zone of trees. Excavation can be done by hand and should be inspected by a qualified Arborist.	Estate Manager / Maintenance Contractor
8.2.10	Significant modifications to landscapes and excavation generally will be avoided across the Estate. If unavoidable, then such works will be subject to approval under the Heritage Act 1977.	Estate Manager / Maintenance Contractor
<b>Flora</b>		
8.2.11	Ongoing monitoring and inspection is required for landscaped areas and vegetated corridors in accordance with the Landscape Maintenance Specification.	Estate Manager
<b>Habitat and Riparian</b>		
8.2.12	Riparian vegetation within the Estate will be preserved to maintain the natural ecotone and ecological systems and protect the water system. Machine and vehicular disturbance should be avoided.	Estate Manager
8.2.13	A balance between fuel management and habitat preservation will be maintained in accordance with the Landscape Maintenance Specification.	Estate Manager / Maintenance Contractor
8.2.14	Bandicoot habitat on the Estate would be maintained to be free of weed species and predominantly vegetated with native species.	Estate Manager / Maintenance Contractor

### 8.3 Bushfire Management

Environmental Management Strategy: Bushfire Management
<b>Key Environmental Objectives:</b>
<ul style="list-style-type: none"> <li>Minimise the potential for bushfire events to occur within the Estate.</li> <li>Maintain protective measures.</li> </ul>
<b>Description:</b>
Operational and maintenance activities on the Estate include the maintenance of bushfire protection measures and Asset Protection Zones (APZ) and residential standards to minimise the occurrence / impact of bushfires. Fuel Management Plans (FMP) have been prepared for the Estate. Vegetation and fuel management shall be undertaken in accordance with the measures and standards detailed in respective FMPs.
<b>Strategies:</b>
<ul style="list-style-type: none"> <li>Maintain bushfire protection measures including the restricted usage of APZs.</li> <li>Monitor and maintain fuel management levels.</li> <li>Implement a community awareness program.</li> <li>Regularly review maintenance and reporting procedures.</li> </ul>

<b>Performance Indicators:</b>
<ul style="list-style-type: none"> <li>APZ, riparian areas and vegetated corridors maintained in accordance with the Landscape Maintenance Specification.</li> <li>APZ fuel levels maintained in accordance with the Landscape Maintenance Specification (eg tonnes per hectare for each zone).</li> </ul>
<b>Training Requirements:</b>
<ul style="list-style-type: none"> <li>A community awareness program to identify hazards, educate, and create awareness of the potential impact on property.</li> </ul>
<b>Key Legislation</b>
<ul style="list-style-type: none"> <li><i>Rural Fires Act 1997</i></li> <li><i>Planning for Bushfire Protection 2001</i></li> </ul>

**Table 6: Bushfire Management – Implementation Plan**

Task		Responsibility
<b>Bushfire General</b>		
8.3.1	Bushfire protection measures will be maintained in perpetuity, and shall be in accordance with the Maintenance Specification and as shown in the Fuel Management Plan.	Estate Manager / Lessee
8.3.2	New plantings will need to comply with existing APZs and fire protection measures as detailed in the relevant FMP.	Estate Manager / Lessee
8.3.3	A review of the FMPs will be triggered by three scenarios: <ul style="list-style-type: none"> <li>a) the incidence of bushfires and changes in hazards or strategies,</li> <li>b) no fuel management occurring and falling behind in maintenance and</li> <li>c) ineffective fuel management resulting in high fuel levels.</li> </ul>	Estate Manager / Lessee
8.3.4	Areas of the Estate potentially affected by bushfires shall be managed in accordance with the APZ specified in the respective FMP and Landscape Maintenance Specification.	Estate Manager
<b>Asset Protection Zone (APZ)</b>		
8.3.5	The APZ will remain clear of structures, buildings, storage areas, materials and equipment at all times.	Estate Manager / Lessee
8.3.6	Maintenance activities within the APZ will utilise mechanical or physical means as detailed in the Landscape Maintenance Specification.	Estate Manager / Lessee
8.3.7	Fuel management will be in accordance with the Maintenance Specification through and will include regular mowing and maintenance.	Estate Manager / Lessee
8.3.8	Allowable vegetation structures within APZs will be maintained in accordance with the relevant FMP.	Maintenance Contractor
8.3.9	Annual inspections of the fuel load will be undertaken to provide accurate determination of prescribed recommendations with a complete review undertaken every 5 years.	Estate Manager

## 8.4 Stormwater Management

Environmental Management Strategy: Stormwater Management	
<b>Key Environmental Objectives:</b>	
<ul style="list-style-type: none"> <li>Minimise runoff volumes and pollutant loads generated on the Estate.</li> <li>Maximise reuse of stormwater and runoff for irrigation and site landscaping within the Estate.</li> <li>Minimise the potential for erosion across the Estate and the consequent deposition of sediment laden runoff into receiving waters.</li> <li>Zero net increase in stormwater pollutants in an average rainfall year.</li> </ul>	
<b>Description:</b>	
The operational phase of the Estate involves maintenance activities such as grey water recycling, stormwater management and irrigation which have the potential to impact water quality on the Estate and in receiving waters, predominantly Cabbage Tree Bay to the north of the Estate and Spring Cove to the South.	
<b>Strategies:</b>	
<ul style="list-style-type: none"> <li>All stormwater will be managed in accordance with Manly Council's relevant policies, including the Specification for Stormwater Drainage, 2003.</li> <li>The use of land affected by on site stormwater detention and absorption will be restricted.</li> <li>Stormwater and runoff from roadways and roofs will be collected in an on site detention system (where installed) to be reused for irrigation.</li> </ul>	
<b>Performance Indicators:</b>	
<ul style="list-style-type: none"> <li>No obvious surface standing water bodies, or blocked drains.</li> <li>No visible evidence of litter or coarse sediment leaving the Estate within the stormwater system</li> </ul>	
<b>Training Requirements:</b>	
<ul style="list-style-type: none"> <li>Correct maintenance of stormwater system components, including GPTs.</li> </ul>	
<b>Key Legislation</b>	
<ul style="list-style-type: none"> <li><i>Catchment Management Act 1989</i></li> <li><i>Protection of the Environment Operations Act 1997</i></li> </ul>	

**Table 7: Stormwater Management – Implementation Plan**

Task		Responsibility
<b>Stormwater General</b>		
8.4.1	All stormwater would be managed in accordance with the Stormwater Management Plans prepared for the Estate and Manly Council's relevant policies. In Precincts 5, 6 and 10, stormwater will be managed in accordance with the Spring Cove Stormwater Report (Mott MacDonald Hughes Trueman, December 2011) and Stormwater Quality Assessment Report (Mott MacDonald Hughes Trueman, December 2012).	Estate Manager / Lessee
8.4.2	Existing natural stormwater flow paths across the site shall be generally maintained.	Estate Manager / Maintenance Contractor

Task		Responsibility
8.4.3	The lease of the common property and the leases to individual dwelling and unit owners will comply with the Stormwater Management Plans.	Archdiocese of Sydney
8.4.4	A positive covenant and the restriction of use of land affected by the on site stormwater detention / absorption system will be maintained.	Archdiocese of Sydney / Estate Manager
8.4.5	The operation of the stormwater system and maintenance pumps will be maintained, including failsafe systems, at all times.	Estate Manager / Maintenance Contractor
<b>Stormwater Detention</b>		
8.4.6	Where on site detention tanks are installed, dwellings shall collect roof water for reuse on site in line with the environmental objectives of the proposed development.	Estate Manager / Lessee
8.4.7	Roof and stormwater will be collected and piped through the existing detention system in the manner approved.	Estate Manager / Lessee
8.4.8	Each house in Montpelier Place will incorporate a low, or no maintenance ‘rain water’ collection and filtering system on site that allows this water to be reused for toilet flushing and surface irrigation in line with the environmental objectives of the proposed development.	Estate Manager / Lessee
8.4.9	Capture of first flush runoff from Precincts 1, 2, 3, 12, and 13 by combining a temporary holding tank with the on-site detention tanks required to control the rate of discharge to Council’s piped stormwater drainage. The total temporary holding capacity for all precincts will be 305 m <sup>3</sup> .	Estate Manager / Lessee
<b>Stormwater Outlet</b>		
8.4.10	All surface water outlets will discharge at non-erosive velocities in not less than 20 year concentration events.	Estate Manager / Maintenance Contractor
8.4.11	All Gross Pollutant Traps (GPTs) will be inspected at frequent and regular intervals and cleared of debris until handover to Council.	Estate Manager /

## 8.5 Waste Management

Environmental Management Strategy: Waste Management
<b>Key Environmental Objectives:</b>
<ul style="list-style-type: none"> <li>Encourage environmentally protective waste management practices in the operation of the Estate.</li> <li>Encourage the ongoing minimisation and management of waste generated and handled on the Estate.</li> <li>Ensuring appropriate disposal of wastes generated on the Estate.</li> </ul>
<b>Description:</b>
Waste materials generated on the Estate during operation predominantly comprise organic and inert waste materials. Waste management should ensure that waste avoidance and resource recovery principles are applied, such that recycling is maximised and the volume of waste transported to landfill is minimised.
<b>Strategies:</b>

<ul style="list-style-type: none"> <li>• Segregate waste into waste streams with labelling, storage, and appropriate disposal of various waste types.</li> <li>• Maximise recycling and reuse where possible.</li> <li>• Ensure correct requirements for Trade Waste Disposal are continually met.</li> <li>• Develop a Waste Management Plan in accordance with Council’s Development Control Plan for Waste Minimisation and Management.</li> </ul>
<b>Performance Indicators:</b>
<ul style="list-style-type: none"> <li>• Imported fill must consist of certified clean materials.</li> <li>• All waste contractors and receiving waste facilities must be appropriately licensed.</li> <li>• Volumes of recycling are maximised in order to minimise landfilling.</li> </ul>
<b>Training Requirements:</b>
<ul style="list-style-type: none"> <li>• Educate all residents, lessees and contractors of waste management and handling strategies.</li> </ul>

<b>Environmental Management Strategy: Waste Management</b>
<b>Key Legislation:</b>
<ul style="list-style-type: none"> <li>• <i>Protection of the Environment Operations Act 1997</i></li> <li>• <i>Waste Avoidance and Resource Recovery Act 2001</i></li> </ul>

**Table 8: Waste Management – Implementation**

Task		Responsibility
8.5.1	Waste materials requiring removal from the site shall be collected by a contractor and disposed lawfully to a licensed landfill or waste management facility.	Lessee
8.5.2	Waste disposal and recycling shall be included in the induction training for new residents, lessees, employees/contractors to the Estate.	Estate Manager / Lessee
8.5.3	Where contractors are working on the Estate, they shall adopt practices which maximise recycling principles and minimise waste generation. Waste streams must be separated on site and disposed of or recycled.	Contractor
8.5.4	Only licensed waste contractors shall dispose of waste from site.	Contractor
8.5.5	All Gross Pollutant Traps (GPTs) shall be inspected at regular and frequent intervals and be cleared of floating rubbish and sediment.	Maintenance Contractor
8.5.6	Where appropriate, existing materials on site will be reused or recycled, including the following: <ul style="list-style-type: none"> <li>• green waste will be shredded and used for mulch on landscaping; and</li> <li>• uncontaminated sediment from sediment basins and detention tanks will be reused for landscaping where possible.</li> </ul>	Lessee / Maintenance Contractor
8.5.7	Hazardous or industrial waste shall only be transported by a licensed contractor who must be advised of the type of waste being transported.	Lessee / Contractor
8.5.8	Hazardous or industrial waste shall only be transported to a controlled waste facility or to a waste facility that can otherwise lawfully receive that waste.	Contractor / Lessee



## 8.6 Erosion and Sediment Control

Environmental Management Strategy: Erosion and Sediment Control	
<b>Key Environmental Objectives:</b>	
<ul style="list-style-type: none"> <li>• Minimise the potential for erosion (across the Estate) and the consequential deposition of sediment into receiving waters and the undermining of significant buildings and structures including sandstone boundary walls, retaining walls etc</li> <li>• Minimise disturbance to the hydrologic regime of the surrounding landscape and maximise opportunities for stormwater recycling on the Estate.</li> <li>• Protect the stability of watercourses and landscaping which could result in impacts off-site.</li> </ul>	
<b>Description:</b>	
<p>The operation phase on the Estate includes activities which have the potential to cause erosion and sedimentation within the Estate boundaries. These are generally day to day activities such as recreation, garden maintenance and general household activities. The landscaping, vegetation removal and proximity to watercourses contribute to a potentially high erosion potential and sediment load.</p>	
<b>Strategies:</b>	
<ul style="list-style-type: none"> <li>• Maintain and regularly monitor drains, gutters, roadways and access ways including erosion and sedimentation controls.</li> <li>• Minimise erosion and impacts on water quality by holding, treating and discharging runoff at low velocities.</li> <li>• Watercourse banks and beds shall be monitored for signs of instability or erosion.</li> </ul>	
<b>Performance Indicators:</b>	
<ul style="list-style-type: none"> <li>• Effective operation of erosion and sediment control measures.</li> <li>• No signs of erosion/degradation during typical runoff scenarios.</li> <li>• Stable landforms and appropriate landscape coverage /density.</li> </ul>	
<b>Training Requirements:</b>	
<ul style="list-style-type: none"> <li>• Identification of potentially unsuitable levels of water quality, particularly total suspended solids, total phosphorus, and total nitrogen.</li> <li>• Correct maintenance of soil erosion control measures for effective operation.</li> </ul>	
<b>Key Legislation</b>	
<ul style="list-style-type: none"> <li>• <i>Protection of the Environment Operations Act 1997</i></li> </ul>	

**Table 9: Erosion and Sediment Management – Implementation Plan**

Task		Responsibility
<b>Sediment Control</b>		
8.6.2	Sediment control mechanisms shall be monitored and remain in place until affected surfaces are stabilised.	Maintenance Contractor
8.6.3	Drains, gutters, roadways and access ways are to be maintained free of sediment.	Lessee / Maintenance Contractor
8.6.4	GPTs and other sediment controls will be adequately and regularly maintained.	Maintenance Contractor
<b>Runoff</b>		
8.6.5	Stormwater and runoff draining from the Estate excluding Spring Cove will be collected in on site detention tanks prior to discharge into Manly Council’s stormwater system.  A piped stormwater collection system will be provided within the Spring Cove Precincts to collect stormwater in accordance with Manly Council’s ‘Specification for Stormwater Drainage 2003’.  Runoff draining from roadways in Spring Cove will be collected into bio-retention swales and bio-retention basins consistent with the requirements in the Spring Cove Stormwater Report (Mott MacDonald Hughes Trueman, December 2011).	Estate Manager / Maintenance Contractor
8.6.6	All discharge outlets will be at non-erosive velocities at up to 20 year storm events.	Estate Manager
8.6.7	Water discharge into Cabbage Tree Bay will achieve zero net impact by total suspended solids, total phosphorus, and total nitrogen, in average runoff.	Estate Manager / Maintenance Contractor
8.6.8	Water discharge into Cabbage Tree Bay will achieve zero net impact in terms of 1, 5 10, 20, 50 and 100 year storm events and no change in probability of flood occurrence.	Estate Manager / Maintenance Contractor
<b>Bed / Bank stability</b>		
8.6.9	Operations shall not damage or interfere with stability of bed or banks of watercourses or associated environments, flow or quality of protected waters.	Estate Manager
8.6.10	Permanent rock scour protection must resist predicted velocities and hydraulic pressure and will not reduce the capacity of protected waters.	Estate Manager
8.6.11	All works undertaken within protected waters will be monitored after each major storm event.	Estate Manager

## 8.7 Security and Pedestrian Management

Environmental Management Strategy: Security and Pedestrian Management	
<b>Key Environmental Objectives:</b>	
<ul style="list-style-type: none"> <li>Provision of adequate security measures while maintaining ecological integrity.</li> <li>Maintain access and pedestrian usability.</li> </ul>	
<b>Description:</b>	
Operation activities on the Estate will combine a security and ecological focus to accommodate the ecological importance of the site and surrounds. Pedestrian access will be managed within the Estate to maintain accessibility and preserve the environmental condition of the site.	
<b>Strategies:</b>	
<ul style="list-style-type: none"> <li>Maintain the access and condition of public footpaths.</li> <li>Ensure that fences and security measures will not inhibit the movement of bandicoots.</li> <li>Erect signage in public areas, addressing restrictions such as access and domestic pets on site.</li> <li>Maintain appropriate lighting for safe passage which has a low visual impact on surrounding environments.</li> <li>Restrict changes to fencing and access within the Estate.</li> </ul>	
<b>Performance Indicators:</b>	
<ul style="list-style-type: none"> <li>Restricted access to sensitive areas for pedestrian activity.</li> <li>Security lighting will be maintained for protection of ecological values and residential safety.</li> <li>Pathways will be maintained for pedestrian safety.</li> </ul>	
<b>Training Requirements:</b>	
<ul style="list-style-type: none"> <li>Education of potential impacts of pedestrians in sensitive areas.</li> <li>Education of effects of lighting on bandicoot numbers and habitats.</li> </ul>	

**Table 10: Security and Pedestrian Management – Implementation Plan**

Task		Responsibility
<b>General</b>		
8.7.1	Public footpaths will be maintained at all times	Estate Manager / Lessee
8.7.2	Signs are to be erected on areas of public access, advising that dogs and cats are not permitted on the Estate.	Estate Manager / Lessee
8.7.3	Adequate legal access is to be maintained for garbage services.	Archdiocese of Sydney
8.7.4	Existing access between properties and throughout the Estate shall be maintained in its existing condition.	Archdiocese of Sydney
8.7.5	External perimeter property boundary fences should provide for bandicoot access, via gaps of 150mm at regular intervals, where through movement is practical and animals will not become trapped. New openings in the significant sandstone boundary walls will be avoided.	Lessee
8.7.6	Each dwelling, house / apartment building is to be allocated a street number which is located so that it is visible from the private road to both pedestrians and motorists.	Estate Manager / Lessee

Task		Responsibility
<b>Pedestrian Access</b>		
8.7.7	A pedestrian footpath of minimum 1.2 metres width is to be maintained at Cerretti Crescent.	Estate Manager
8.7.8	Access ways, pathways and cycleway are not to be located on the riparian zones within the Estate.	Estate Manager
8.7.9	There is to be a continuous accessible path of travel from the allotment boundary to an entrance of the individual dwellings in the apartment building to the entry of each unit at Cerretti Crescent.	Estate Manager
<b>Lighting</b>		
8.7.10	Lighting on the accessible paths of travel is to be even and low level and is to achieve 10 lux at ground level whilst minimising glare.	Estate Manager / Lessee
8.7.11	Only minimum road lighting levels required by relevant standards is to be used and flood lighting (over 200 watts) is not to be permitted in the development.	Estate Manager / Lessee
8.7.12	External illumination lights will be fitted with baffles to prevent light emissions being emitted onto roadways.	Estate Manager / Lessee
8.7.13	Installation of bright lighting or motion detectors to illuminate vegetation corridors must be avoided as this will discourage Bandicoots and increase predation.	Lessee
8.7.14	The numbering system is not to be illuminated apart from lighting sufficient to read the required information at night	Estate Manager / Lessee

## 8.8 Traffic Management

Environmental Management Strategy: Traffic Management	
<b>Key Environmental Objectives:</b>	
<ul style="list-style-type: none"> <li>Maintain safe and effective traffic flows within the Estate boundaries.</li> <li>Ensure sufficient services and amenities such as designated parking areas are available for motorists.</li> <li>Avoid impacts to Bandicoot populations as a result of collisions between animals and vehicles.</li> <li>Avoid disturbance to landscaping and vegetated corridors resulting from the movement of traffic and vehicle parking within the Estate.</li> </ul>	
<b>Description:</b>	
Operation activities will involve the use of vehicles within a residential area. This has the potential to impact on safety to residents, visitors, fauna and flora as well as significant buildings, structures and landscape elements	
<b>Strategies:</b>	
<ul style="list-style-type: none"> <li>Roads and parking areas will be regularly maintained, free of debris and sediment.</li> <li>A restricted speed limit shall be maintained in shared zones in accordance with RTA guidelines.</li> <li>Vehicle parking within the Estate shall be restricted to designated areas, as indicated by signage or other measures, to avoid impacts to landscaping and vegetated corridors.</li> </ul>	
<b>Performance Indicators:</b>	
<ul style="list-style-type: none"> <li>Minimal occurrence of incidents / accidents.</li> <li>No damage to significant buildings, structures and landscape elements.</li> <li>Roads within the Estate maintained at a fully functional capacity, clean and free of obstruction.</li> </ul>	

<b>Training Requirements:</b>
<ul style="list-style-type: none"> <li>Education of road hazards to residents and visitors.</li> </ul>
<b>Key Legislation</b>
<ul style="list-style-type: none"> <li><i>Roads Act 1993.</i></li> </ul>

**Table 11: Traffic Management – Implementation Plan**

Task		Responsibility
<b>Traffic General</b>		
8.8.1	Roadways will be maintained at all times.	Estate Manager / Lessee
8.8.2	Drains gutters and roadways will remain free of sediment with roads and gutters swept regularly.	Maintenance Contractor
8.8.3	Within pedestrian/vehicle zones a maximum 10-15 km/h speed limit will be enforced in accordance with RTA Guidelines for Shared Zones.	Estate Manager / Lessee
<b>Parking</b>		
8.8.4	Parking will only occur within designated parking areas to ensure accessibility.	Estate Manager / Lessee
8.8.5	Loading and unloading of vehicles and delivery of goods to the land shall at all times be carried out within the site.	Estate Manager/ Maintenance Contractor/ Lessee
8.8.6	Areas set aside for car parking shall be used for the parking of vehicles and for no other purpose.	Lessee
8.8.7	Any loading or unloading of materials with potential to cause environmental damage must be appropriately bunded with adequate spill response and equipment in place to ensure nil runoff from the site.	Lessee

## 8.9 Noise and Air Quality

<b>Environmental Management Strategy: Noise and Air Quality</b>
<b>Key Environmental Objectives:</b>
<ul style="list-style-type: none"> <li>Manage noise on the Estate in order to minimise disruption to local fauna and to reduce amenity impacts on nearby residents, St Paul’s College, Manly Hospital and Moran House.</li> <li>Maintain the current levels of local air quality and minimise the potential for dust generation.</li> </ul>
<b>Description:</b>
<p><b>Noise</b></p> <p>Noise generated on the Estate during ongoing operation will comprise noise emitted from equipments such as air conditioning units and pool filters. Some additional vehicle noise may be generated by the thoroughfare of vehicles using transport corridors on the Estate.</p> <p><b>Air Quality</b></p> <p>Exposed soils and vehicle access onto vegetated or disturbed areas may contribute to dust generation and affect local air quality, impact upon native fauna and flora and reduce resident amenity.</p>
<b>Strategies:</b>

Environmental Management Strategy: Noise and Air Quality	
<b>Noise</b>	
<ul style="list-style-type: none"> <li>Limit noise generated in accordance with the <i>NSW Industrial Noise Policy</i> (EPA, 2000).</li> <li>Schedule noisy works in accordance the Conditions of Consent granted for relevant Estate Precinct.</li> </ul>	
<b>Air Quality</b>	
<ul style="list-style-type: none"> <li>Ensure that sufficient vegetation is established and maintained to mitigate the effects of dust generation in respect of residential amenity.</li> </ul>	
<b>Performance Indicators:</b>	
<ul style="list-style-type: none"> <li>Number of amenity complaints received from residents, adjoining properties or statutory authorities.</li> <li>No activity and quiet environs at appointed times.</li> <li>No notices/warnings received from statutory authorities for exceeding noise levels or air quality criteria.</li> </ul>	
<b>Training Requirements:</b>	
<ul style="list-style-type: none"> <li>Complaints procedures.</li> <li>NSW Industrial Noise Policy.</li> </ul>	
<b>Key Legislation:</b>	
<ul style="list-style-type: none"> <li><i>Protection of the Environment Operations Act 199y.</i></li> <li><i>Occupational Health and Safety Act 2000.</i></li> </ul>	

Table 12: Noise and Air Quality – Implementation Plan

Task		Responsibility
<b>Noise</b>		
8.9.1	No noise shall be emitted from any process carried out on the Estate that will register more than 5 decibels above the background noise at any point more than 3 metres outside the Estate.	Lessees
8.9.2	All residential occupancies forming part of the proposal shall be maintained as designed and constructed so that the repeatable maximum internal LAeq, 1 hour level does not exceed design levels.	Lessees
8.9.3	Residents must not operate air conditioners in such a manner that emits noise that can be heard within a habitable room in any other residential premises between 10pm and 8am on weekends and public holidays, and between 10pm and 7 am any other day.	Lessees
8.9.4	Noise emitting motors such as pool filter pumps shall be suitably housed and located so as to reduce the possibility of noise nuisance to adjoining or nearby residents.	Lessees
8.9.5	Residents likely to be affected by noise emissions from particular operations must be advised at least five days in advance of the nature and extent of the work to be carried out. Such notice is to be conveyed by a letterbox drop or media release.	Lessee
8.9.6	All activities shall comply with DECCW guidelines on noise and vibration.	Lessees / Contractor
8.9.7	Establish a complaints register to record noise minimisation performance. Complaints to be recorded in a single location. Where it is noticed that certain weather conditions coincide with noise complaints, then future noisy activities should be avoided whilst adverse weather conditions prevail.	Estate Manager

Task		Responsibility
<b>Air Quality</b>		
8.9.8	Areas to be disturbed during maintenance works will be limited in order to minimise surfaces with the potential for dust generation.	Maintenance Contractor
8.9.9	Combustible organic and other waste material shall not be burnt on the Estate.	Estate Manager / Maintenance Contractor
8.9.10	Landscaped and grassed areas shall be maintained in accordance with the strategies outlined in Section 8.2 and the Landscape Maintenance Specification to ensure that dust is not generated.	Maintenance Contractor

## 8.10 Heritage Management

Environmental Management Strategy: Heritage Management
<b>Key Environmental Objective:</b>
<ul style="list-style-type: none"> <li>To retain and conserve significant buildings and structures and landscape elements including sandstone boundary walls, retaining walls and garden walls, paths, the Grotto, the Bush Chapel and tree plantings.</li> <li>To appropriately manage any Aboriginal objects and places that may be found on the Estate.</li> <li>To appropriately manage any historical (non-Aboriginal) relics that may be uncovered on the Estate.</li> </ul>
<b>Description:</b>
<p>The St Patrick’s Estate is included on the State Heritage Register as a place of heritage significance to the people of New South Wales. The majority of its buildings and structures and many of its landscape elements, including boundary walls, retaining walls and garden walls, paths, the Grotto, the Bush Chapel and tree plantings are of heritage significance for the contribution that they make to the significance of the Estate. These elements will need to be managed consistent with the policies and guidelines of the Conservation Management Plan and Landscape Management Plan prepared for the Estate.</p> <p>The Estate also has potential to retain some Aboriginal objects and places and significant historical (non-Aboriginal) archaeology that will need to be appropriately managed.</p>
<b>Strategies:</b>
<ul style="list-style-type: none"> <li>Undertake all works across the Estate consistent with the St Patrick’s Estate Conservation Management Plan (TKDA, 2015), in particular in the vicinity of Moran House (St Patrick’s College), the Archbishop’s Residence (and Archbishop’s Walk), the Cardinal Cerretti Memorial Chapel, the Cardinal Freeman Pastoral Centre and St Therese’s Covent.</li> <li>All newly-discovered archaeology will also need to be managed consistent with the requirements of the CMP, and the provisions of the Heritage Act 1977 and National Parks &amp; Wildlife Act.</li> </ul>
<b>Performance Indicators:</b>

- No removal, damage or unapproved modifications to significant buildings and structures and landscape elements including sandstone boundary walls, retaining walls, garden walls, paths, the grotto, the Bush Chapel and tree plantings.
- No breach of conditions or of the provisions of the Heritage Act 1977 and the National Parks and Wildlife Act 1974.
- 

**Training Requirements:**

- Provide residents, lessees, contractors and on-site personnel with an education and interpretation plan to ensure appreciation of the heritage significance of the Estate.
- Educate residents, lessees, contractors and on-site personnel of the heritage significance of the Estate and its buildings, structures and landscape elements and the potential to uncover Aboriginal objects and places and historical (non-Aboriginal) archaeology.
- Educate residents, lessees, contractors and on-site personnel of procedures to be taken to retain and conserve significant buildings, structures and landscape elements and upon discovery of Aboriginal objects and places and/or historical (non-Aboriginal) archaeology.

**Key Legislation:**

- *Heritage Act 1977*
- *National Parks and Wildlife Act 1974*
- *Manly LEP 2013*

**Table 13: Heritage Management – Implementation**

Task		Responsibility
8.10.1	In the event that a potential Aboriginal artefact, relic or site is discovered, work in the area of disturbance shall cease and the Metro LALC and DECCW shall be advised immediately.	Estate Manager / Lessee
8.10.2	The entire length of the existing sandstone boundary walls must be retained and conserved.	Estate Manager / Lessee
8.10.3	Any excavations or works required in the vicinity of the sandstone wall are required to be undertaken in a manner which retains the integrity and structural stability of the wall.	Estate Manager / Lessee
8.10.4	Landscaping surrounding existing buildings on the Estate should be maintained to minimise the visual impact of the contemporary dwellings from the setting of significant buildings.	Lessee / Maintenance Contractor
8.10.5	All permits to carry out archaeological investigations or excavations under the <i>Heritage Act 1977</i> are to be obtained prior to the commencement of any new works.	Estate Manager / Lessee

## 8.11 Energy Efficiency

Environmental Management Strategy: Energy Efficiency	
<b>Key Environmental Objectives:</b>	
<ul style="list-style-type: none"> <li>Reduce total energy use in residential buildings, by reducing heat loss and energy consumed for heating and cooling purposes.</li> <li>Maintain energy efficient features of building designs on the Estate.</li> <li>Ensure that residential site planning and building design optimise solar access to land and buildings.</li> </ul>	
<b>Description:</b>	
Residential dwellings have been designed to incorporate energy efficiency measures in accordance with the <i>DCP for Energy Efficient Buildings 1998</i> .	
<b>Strategies:</b>	
<ul style="list-style-type: none"> <li>Appropriately maintain all energy efficient devices including light fixtures, solar shading devices, water saving devices and other measures within the development.</li> <li>Maintenance of landscaping and trees designed to act as solar shading devices.</li> </ul>	
<b>Performance Indicators</b>	
<ul style="list-style-type: none"> <li>Compliance with BASIX.</li> <li>All energy saving devices in effective working order.</li> </ul>	
<b>Training Requirements:</b>	
<ul style="list-style-type: none"> <li>Educate residents, lessees and contractors of energy efficiency measures incorporated into the design of dwellings on the Estate.</li> </ul>	
<b>Key Legislation:</b>	
<ul style="list-style-type: none"> <li><i>Environmental Planning and Assessment Act 1979</i></li> <li><i>State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004</i></li> </ul>	

**Table 14: Energy Efficiency – Implementation Plan**

Task		Responsibility
8.11.1	Landscaped works surrounding buildings intended to provide penetration of filtered sunlight into the grounds surrounding dwellings should be maintained.	Estate Manager / Lessee
8.11.2	The materials, finishes and colours of dwellings should be maintained in accordance with original architectural designs where they have been intended to reflect or absorb heat.	Estate Manager / Lessee

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## 9.0 Monitoring and Reporting

### 9.1 Monitoring and Reporting

Monitoring and reporting requirements for each of the relevant environmental aspects will be carried out in accordance with relevant consent conditions, the Landscape Maintenance Specification and this OEMP. Each of the environmental aspects that are the subject of ongoing monitoring are shown in **Table 15**.

**Table 15: Monitoring and Reporting Requirements**

Environmental Aspect	Monitoring Requirement	Reporting Frequency
Fauna Management	<ul style="list-style-type: none"> <li>Incidental observations of fauna, key habitat features and condition.</li> <li>Preparation of bandicoot amelioration reports addressing cumulative impacts on bandicoot populations for a period of 12 months following the completion of construction activities.</li> <li>Strict adherence measures for bandicoot conservation.</li> </ul>	Quarterly  Annually as required following construction activities Quarterly
Landscape and Vegetation Management	<ul style="list-style-type: none"> <li>Monitoring of landscaped areas in accordance with the Landscape Maintenance Specification.</li> <li>Identification and removal of weeds / noxious species.</li> <li>Incidental observation of threatened flora populations.</li> </ul>	Quarterly  Quarterly Quarterly
Bushfire Management	<ul style="list-style-type: none"> <li>Inspections of the fuel load within APZs.</li> <li>A complete review of the Fuel Management Plan.</li> </ul>	Annually Every 5 years, and as required.
Stormwater Management	<ul style="list-style-type: none"> <li>Inspection of stormwater detention areas and associated pumps, pipes and basins sediment control devices and sediment load in sediment basins.</li> <li>Stormwater system operated and maintained in accordance with the Stormwater Management Plan.</li> </ul>	Quarterly  Annually
Waste Management	<ul style="list-style-type: none"> <li>Copies of all relevant waste dockets/receipts maintained.</li> <li>Report all spill incidents to relevant authorities.</li> </ul>	Quarterly  As required
Erosion and Sediment Management	<ul style="list-style-type: none"> <li>Monitoring and recording of erosion and sedimentation controls effectiveness.</li> <li>Monitoring of sediment control mechanisms until affected surfaces are stabilised.</li> </ul>	As required  As required
Security and Pedestrian Management	<ul style="list-style-type: none"> <li>Monitoring of lighting to ensure compliance with illumination guidelines.</li> <li>Monitoring of pedestrian activity in relation to sensitive areas.</li> <li>Incidental inspection of hard landscape areas including pedestrian pavements, walls, fixtures, fencing, gates and Estate boundary wall.</li> </ul>	Annually  Quarterly  Quarterly
Traffic Management	<ul style="list-style-type: none"> <li>Enforcement of speed zones.</li> <li>Accident / Incident procedures.</li> </ul>	Ongoing  Ongoing

Environmental Aspect	Monitoring Requirement	Reporting Frequency
Noise and Air Quality	<ul style="list-style-type: none"> <li>Any complaints or feedback from residents pertaining to impacts on amenity shall be recorded and monitored and appropriate follow-up conducted.</li> </ul>	As required
Heritage Management	<ul style="list-style-type: none"> <li>Monitor significant buildings, structures and landscape elements for damage and effectiveness of protective measures.</li> <li>Monitor excavation works (when required) for potential Aboriginal objects and places and historical (non-Aboriginal) archaeology relics</li> <li>Report any archaeological discoveries to the Estate Manager and relevant authorities.</li> </ul>	Annually As required  As required
Energy Efficiency	<ul style="list-style-type: none"> <li>Monitoring and maintenance of electrical and lighting infrastructure in accordance with Landscape Maintenance Specification.</li> </ul>	As required

## 9.2 Non-Conformance and Corrective Action Reports

Non-conformances noted by, or reported to the Estate Manager are to be recorded in a Non-Conformance and Corrective Action Report. A copy of the Non-Conformance Report is provided in **Appendix A**. Details of the non-conformance, including any immediate corrective actions undertaken, are to be recorded by the Estate Manager. The Estate Manager may also initiate a Non-Conformance and Corrective Action Report. The report should be signed, dated and filed appropriately.

## 9.3 Incident Management Reports

Incidents on site that are likely to cause pollution or have resulted in damage to significant buildings and structures and landscape elements shall be reported immediately to the Estate Manager. The Estate Manager will meet with the notifying party as soon as practicable following an incident in order to commence investigations and make recommendations. Any spills, accidents or damage, and the corrective actions undertaken, shall be documented in a Non-Conformance and Corrective Action Report (**Appendix A**).

**Any incident that has the potential to generate off-site environmental impacts shall be reported to the Estate Manager who shall then report the incident and mitigation measures to DECCW immediately on 131 555.**

## 9.4 Complaint Reporting

All complaints regarding pollution and environmental and heritage impact issues caused by activities on the Estate shall be referred to the Estate Manager immediately. In the absence of the Estate Manager, the Estate Manager’s office is to be notified. Details of the complaint are to be documented in the Estate’s Complaints Register (sample register included in **Appendix A**). The Estate Manager shall respond to any complaints within 24 hours and provide (at least) an interim solution to the potential environmental issue. If it is impractical to generate a solution within 24 hours, then a second response, including a reasonable solution, is to be developed and communicated to the complainant as soon as possible. This follow-up contact should also be recorded in the complaints register.

If a complaint identifies a non-conformance, a Non-Conformance and Corrective Action Report is to be initiated (**Appendix A**). These are to be stored in a central register and referred to when recurring environmental issues are first identified in order to generate solutions in the minimum amount of time.

## 10.0 OEMP Auditing

A suitably qualified environmental specialist shall conduct audits on the implementation of the OEMP. An initial audit will be conducted upon receipt of occupation certificate or full occupancy and every 2 years thereafter.

Audits of the OEMP shall involve a review of all environmental documents, records, monitoring results, and ECPs to ensure compliance with the requirements of the OEMP. If any deficiency is detected, the Estate Manager shall initiate the appropriate corrective action. Key environmental and procedural issues to be covered by the audit shall include, but may not be limited to:

- The environmental aspect strategies and implementation plans presented in **Section 8**;
- General site issues;
- Adherence to reporting procedures;
- Complaint management;
- Consents, licences and leases; and
- Environmental education and training.

Performance Indicators, identified within each Strategy table in **Section 8** of this OEMP, are to be reported on, where practicable, in the audit reporting documents to be compiled annually.

Records can be made available to Council, where required to allow Council to review the results of the audits and assess compliance with relevant conditions of consent.

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## 11.0 Environmental and Heritage Education

The Estate Manager will be responsible for ensuring that relevant residents, lessees, employees and contractors living and working on the Estate receive environmental and heritage education in relation to the environmental aspects and issues identified in this OEMP, the Conservation Management Plan, Landscape Management Plan and as required by consent conditions.

A covenant on the title of all individual properties within the Estate will control the alteration of existing landscaping, fencing / walls to boundaries and removal / planting of trees by present or future landholders, lessors or lessees.

The covenant will ensure the continued reduction of potential fire hazards and fuel loads in accordance with the relevant plans and policies and maintain the provision of access for the Rural Fire services.

The preservation of bandicoot habitat will be a requirement with the prevention of alterations to plantings and removal of vegetation and prohibition of unauthorised fencing. The Estate manager will be allowed entry to all properties for the purpose of managing bandicoot habitat.

A positive covenant and the restriction on the use of land shall be imposed over the area of land affected by on site stormwater absorption/detention system and/or pump system. The standard wording of the positive covenant shall be obtained from Council's "Specification for on-site Stormwater Management 2003".

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## 12.0 Records

The Estate Manager shall ensure that records of all documentation are maintained arising from implementation of the OEMP. Records will include:

- Approvals, licences and permits;
- Monitoring results;
- Environmental reports;
- Audit results;
- Complaints register;
- Environmental correspondence; and
- Miscellaneous items.

All records shall be maintained in a legible state and stored by the Estate Manager. Records shall be made available to authorised Council officers upon submission of a formal request.

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## 13.0 Emergency Response and Contacts

In the event of any incident, the first priority shall be the safety of all personnel and the community in the immediate vicinity. Following this, further environmental impact shall be prevented / minimised by stabilising the situation and following the appropriate incident management procedures. The Estate Manager shall then be contacted and emergency procedures enacted.

Emergency procedures and contact telephone numbers shall be displayed in a prominent position within each site working area.

**Table 16: Emergency Response Contacts for St Patrick’s Estate**

Position	Name	Phone/email
Estate Manager North Side	Matthew Chapman – PROACT FM	0415 293 197 matt@proactfm.com.au
Estate Manager South Side	Matthew Chapman – PROACT FM	0415 293 197 matt@proactfm.com.au
Local Government Authority	Northern Beaches Council	1300 434 434
Department of Environment, Climate Change and Water (DECCW)	Pollution Line	131 555
Emergency Services	Fire Brigade	000
	Police	000
	Ambulance	000

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# Figures

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Figure 1: Site Location



Figure 1 Location of St Patrick's Estate, Manly. The estate boundary is marked in red. (Not to scale).  
Source: [www.googlemap.com](http://www.googlemap.com) with TKD Architects overlay.



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Figure 2: Precinct Layout

St Patrick's Estate, Manly • Conservation Management Plan



Site plan for St Patrick's Estate, Manly (Not to scale).  
Source: TKD Architects, 2010.

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## Appendix A

# Schedules

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## Sample Non-Conformance and Corrective Action Report

<b>Date:</b>	
<b>Reported By:</b>	
<b>Time:</b>	
<b>Site/Area:</b>	
<b>Nature of Non-conformance:</b>	
<b>Cause:</b>	
<b>Report to:</b>	
<b>Corrective Action:</b>	
<b>Signed by Estate Manager upon completion:</b>	
<b>Date:</b>	

## Sample Complaints Register

<b>Date:</b>		<b>Time:</b>	
<b>Incident Reported By</b>			
<b>Name:</b>		<b>Phone Number:</b>	
<b>Type of Communication:</b>			
<b>Nature of complaint:</b>			
<b>Response:</b>			
<b>Response Completed By</b>			
<b>Name</b>		<b>Date:</b>	
<b>Position:</b>		<b>Signature:</b>	

<b>Date:</b>		<b>Time:</b>	
<b>Incident Reported By</b>			
<b>Name:</b>		<b>Phone Number:</b>	
<b>Type of Communication:</b>			
<b>Nature of complaint:</b>			
<b>Response:</b>			
<b>Response Completed By</b>			
<b>Name</b>		<b>Date:</b>	
<b>Position:</b>		<b>Signature:</b>	

**Note:** This register should be used for complaints received from the Public, Council or Statutory Authorities. Should a compliant identify a non-conformance that cannot be immediately rectified, please initiate a Non-Conformance and Corrective Action Report.

## Sample Environmental Incidents Register

<b>Date:</b>		<b>Time:</b>	
<b>Incident Reported By</b>			
<b>Name:</b>		<b>Phone Number:</b>	
<b>Type of Communication:</b>			
<b>Nature of Incident:</b>			
<b>Response:</b>			
<b>Consultation Required? – If yes, provide details including Name, Department and Date Consulted</b>			
<b>Response Completed By:</b>			
<b>Name</b>		<b>Date:</b>	
<b>Position:</b>		<b>Signature:</b>	

**Note:** Should an incident identify a non-conformance that cannot be immediately rectified, please initiate a Non-Conformance and Corrective Action Report.



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