

ENVIRONMENTAL MANAGEMENT PLAN CASUARINA TOWN CENTRE

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1. INTRODUCTION

It is proposed to develop the subject site for the purposes of constructing an mixed use development, comprising residential, commercial and retail components.

This Environmental Management Plan (EMP) provides the environmental management requirements for the construction of the proposed development.

The EMP provides performance criteria that are to be met so that the impacts of the works on the physical and social environment are minimised. In particular, the EMP provides mechanisms whereby the environmental performance associated with the works can be measured and if required, provides procedures where agreed corrective actions are implemented.

2. PREAMBLE TO THE ENVIRONMENTAL MANAGEMENT PLAN

2.1 Terminology

The term **Principal** refers to Kings Beach No 2 Pty Ltd.

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

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

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

The term **DECC** refers to the Department of Environment and Climate Change

The term **EMP** refers to the Environmental Management Plan.

The term **Act** refers to the Protection of the Environment Operations Act 1997.

2.2 Program and Contractual Obligations

The EMP covers the construction phase of the works which is defined as the period from the commencement of works to the substantial completion of the works. The Contractor is generally responsible for ensuring that the provisions of the EMP are met, with the exception of certain planning or design issues, which are explicitly noted throughout the EMP as being the responsibility of the Principal or the Consultant.

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

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

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

Compliance with the EMP – whereby a person in the performance of their duties shall do so in a manner that ensures that the provisions of this EMP are complied with.

2.3 Non-Compliance with the EMP and Corrective Action Requirements

The Contractor shall assume responsibility for implementation of this EMP during the construction phase. Where the Contractor becomes aware of a site or operational condition that does not comply with stated performance indicator(s) of this EMP, there is a requirement for corrective action. A Corrective Action Request (CAR) form is to be completed and authorised where appropriate in general compliance with the example CAR form provided in Appendix A of this EMP. The Contractor is also required to maintain a register of CARs, which shall demonstrate that appropriate actions have been completed within a suitable timeframe.

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

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

ELEMENT 1 – PREPARATION OF A WORKS MANAGEMENT PLAN

RATIONALE It is the Contractor's responsibility to determine how the works will be conducted in compliance with this EMP and this determination is to be reported to the Principal.

POLICY To prepare a works plan that complies with all elements and requirements of this EMP.

MANAGEMENT STRATEGY The works site shall be maintained so that environmental harm or nuisance shall not be caused during construction of the proposed development.

TASKS / ACTIONS The Contractor shall prepare a draft works plan prior to conducting any activities associated with the physical construction of the proposed development. This will include a traffic management plan to address potential impacts of construction on vehicular and pedestrian movements in the vicinity of the site. However, it is noted that the works will not require movement of trucks or other construction equipment off of the site, other than to bring fill and construction materials to the work place.

The draft works plan is to contain the following elements:

1. Community Awareness.
2. Air Quality.
3. Noise Emission.
4. Erosion and Sedimentation Control.
5. Stormwater Quality.
6. Traffic Management
7. Waste Management.

The draft works plan is to be provided to the Principal. The Contractor is to have due regard for comments made by the Principal and/or the Consultant prior to the preparation of the final works plan.

The Principal is to issue its approval of the Contractor's draft works plan to the Contractor prior to the Contractor conducting any works.

PERFORMANCE INDICATORS Compliance with the elements of this EMP.

No situations where CARs are to be prepared and actioned.

FREQUENCY / DEADLINE Implementation is to be ongoing for the duration of the works.

REPORTING AND REVIEW Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION Non-conformance with the works plan shall be documented and a corrective action request (CAR) issued. All CARs shall be included in the CAR Register to be kept under the provisions of this EMP.

The Contractor shall implement the corrective action as required within the agreed time frame noted on the CAR.

ELEMENT 2 – COMMUNITY AWARENESS

RATIONALE Construction of the proposed development will involve the use of powered mechanical equipment that has the potential to impact upon land users adjacent to the site.

POLICY To minimise the impact of the works on the identified community.

MANAGEMENT STRATEGY Ensure that persons that may be affected by the works are aware of the nature and duration of the proposed works and proposed works program.

Conduct the works in compliance with the elements of the EMP.

TASKS / ACTIONS The Contractor is to address the issue of community awareness in its draft works plan required under Element 1 of this EMP.

The Contractor is to ensure that all management strategies detailed in the final works plan are complied with at all times during the conduct of the works.

The Contractor shall advise local residents (occupants of all dwellings that adjacent to the site) of the proposed works and proposed works program. The Contractor shall provide means to advise residents and landowners in advance of works that may impact upon them and provide a representative point of contact to receive questions or concerns from community members.

The Contractor shall comply with the elements of this EMP that relate to the protection of residential amenity.

PERFORMANCE INDICATORS Compliance with the elements of this EMP.

No situations where a community complaint causes CARs to be prepared and actioned.

FREQUENCY / DEADLINE Implementation is to be ongoing for the duration of the works.

REPORTING AND REVIEW Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION Non-conformance with the works plan shall be documented and a corrective action request (CAR) issued. All CARs shall be included in the CAR Register to be kept under the provisions of this EMP.

The Contractor shall implement the corrective action as required within the agreed time frame noted on the CAR.

ELEMENT 3 – AIR QUALITY

RATIONALE Construction of the proposed development will involve the use of powered mechanical equipment for excavation and movement of earth material to achieve the required landform for the proposed development, with subsequent storage and replacement of excavated earth material. The bulk handling of this material has the potential to create air impurity emissions by release of dust as suspended then deposited particulate matter. Odours from the construction site may also be released from the plant and machinery used on site.

POLICY To comply with the Act, Council By-Laws and health and safety requirements.

To minimise the emission of air impurities and odours associated with the works.

To comply with the stated performance indicators for air impurity levels in the locality of the works.

MANAGEMENT STRATEGY Conduct the works in such a manner that all reasonable and practical measures are utilised to minimise the emission of air impurities and odours.

TASKS / ACTIONS The Contractor is to address the issue of air impurity emission in its draft works plan required under Element 1 of this EMP.

The Contractor is to ensure that all management strategies detailed in the final works plan are complied with at all times during the conduct of the works.

Dust control measures shall be used on all processes that have the potential to generate dust.

Windbreak screens shall be employed where considered necessary between working areas and abutting residential areas. Oil must not be used for the suppression of dust. The use of recycled water treated to an appropriate level shall be considered for the suppression of dust.

Earthworks

Earthworks shall be managed to control dust. Specific control measures may include, but may not be limited to the following.

- Completion of vegetation clearing in stages, in order to minimise the area of open ground exposed at any one time.
- Early stabilisation and revegetation of any cut or filled areas and slope works using, for example, wood chip layers.
- Watering of all exposed areas as required.
- Provision of windbreaks and silt fences as required.

Stockpiles

Stockpiles shall be managed to control dust. Specific control measures may include, but may not be limited to the following.

- Minimisation and stabilisation of stockpile areas.
- Maintenance of stockpiles within designated areas and prevention of spread of stockpile material into adjacent areas.
- Creation of no more stockpiles than is necessary, and removal of all stockpiles upon completion of works at the site.
- Provision of windbreaks and silt fences as required.

Odours

All materials (eg. paints) or processes (eg. painting) that generate fumes or odours shall be properly stored and used with efficient equipment to established procedures.

Fumes

All equipment shall be efficient, operated in accordance with established operating procedures and maintained to minimise exhaust emissions. Engines shall not be left idling needlessly.

All vehicles and plant shall be properly maintained so as to ensure that emission levels are less than the limits defined by relevant Commonwealth Department of Transport and Regional Services Federal Office of Road Safety Australian Design Rules:

- ADR30 Diesel Engine Exhaust Smoke Emissions
- ADR36 Exhaust Emission Control for Heavy Duty Vehicles
- ADR37 Emission Control for Light Vehicles
- ADR70 Exhaust Emission Control for Diesel Engine Vehicles

PERFORMANCE INDICATORS

No complaint relating to excessive emission of air impurities or odours from the works site from any person.

In the event that a complaint relating to air impurity or odour emissions from the works site is received, then the Contractor is required to instigate procedures as specified through the preparation and action of the CAR.

If through the CAR process it is determined that on the balance of probabilities the Contractor's actions have brought about the complaint regarding air impurities, then monitoring of suspended particulate matter at the complainants' premises is required. A measured concentration of particulate matter exceeding the limits specified in the below table is the trigger for initiation of corrective action.

Air Quality Criteria

Parameter	Maximum Acceptable Concentration
Annual, 24 hour averaged dust concentration, total suspended particulate	90 $\mu\text{g}/\text{m}^3$
Annual, 24 hour averaged dust concentration, as PM_{10}	50 $\mu\text{g}/\text{m}^3$
24 hour average dust concentration, as PM_{10}	150 $\mu\text{g}/\text{m}^3$
Visibility	20 km
Average dust deposition rate	120 $\text{mg}/\text{m}^2/\text{day}$

Note: PM_{10} is suspended particulate matter less than 10 microns in aerodynamic diameter.

FREQUENCY / DEADLINE

Implementation is to be ongoing for the duration of the works.

REPORTING AND REVIEW

Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

CORRECTIVE ACTION

Should a complaint relating to excessive emission of air impurities from the works site be received the following corrective actions are to be implemented.

- Identification of the source(s) of the excessive emission of air impurities;
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor; and
- Relevant validation monitoring of air impurity concentrations at nominated locations.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

ELEMENT 4 – NOISE EMISSION

RATIONALE Construction of the proposed development will involve the use of powered mechanical equipment. This equipment is to be operated at the site adjacent to neighbouring residential areas.

Appropriate management measures are required to ensure the noise produced at the site during the works does not result in annoyance or disturbance at the closest noise sensitive place.

POLICY To control noise generated by construction activities and to minimise the impact of noise to ensure acceptable levels of amenity for the local community.

MANAGEMENT STRATEGY To comply with the Act, Council By-Laws and recognised noise criteria as contained in Environmental Guidelines.

TASKS / ACTIONS The Contractor is to address the issue of noise emission in its draft works plan required under Element 1 of this EMP.

The Contractor is to ensure that all management strategies detailed in the final works plan are complied with at all times during the conduct of the works.

All noise generating mobile and stationary plant and equipment, and processes shall be controlled to minimise noise emission in accordance with AS 2436: *Guide to Noise Control on Construction, Maintenance and Demolition Sites*. In particular, all powered mechanical equipment shall be fitted with effective exhaust mufflers.

Working hours at the site shall be limited to between 7.00am and 7.00pm Monday to Saturday and 8.00am to 6.00pm Sundays and Public Holidays.

All vehicles entering or leaving the site or used at the site shall be operated and maintained in a manner which ensures that the noise levels produced by the vehicles are within the limits of the Commonwealth Department of Transport and Regional Services Federal Office of Road Safety Australian Design Rule ADR28- *External Noise of Motor Vehicles*.

In the event of the adjusted noise level for a single noise source or activity exceeding the background noise level by more than 10 dB(A), consideration shall be given to restricting the times during which the activity can take place to a number of separate hours each day. Persons affected by the noise shall be consulted with regard to suitable hours and advised of the agreed operations schedule.

PERFORMANCE INDICATORS The works shall be carried out by such practicable means necessary to prevent the emission of noise that constitutes "unreasonable" or "intrusive" noise.

FREQUENCY / DEADLINE Implementation is to be ongoing for the duration of the works.

**REPORTING
AND REVIEW**

Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

**CORRECTIVE
ACTION**

Should a complaint relating to excessive emission of noise from the works site be received the following corrective actions are to be implemented.

- Identification of the source(s) of the excessive emission of noise;
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor; and
- Relevant validation monitoring of noise levels as a result of the works at nominated locations.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

ELEMENT 5 – EROSION AND SEDIMENTATION CONTROL

RATIONALE	Construction of the proposed development will involve excavation of soils and alteration of landform at the site. Excavated areas and stockpiles are to be protected from erosion and at the completion of the works the ground surface is to be rendered stable to ensure erosion and sedimentation of receiving waters does not occur as a result of the works.
POLICY	To minimise the risk of soil erosion associated with the works.
MANAGEMENT STRATEGY	<p>Use of best available technology for prevention of erosion or release of contaminants to waters.</p> <p>Stabilise the works site upon completion of earthworks at the site so that the risk of erosion of the ground surface is minimised.</p>
TASKS / ACTIONS	<p>The Contractor is to address the issue of erosion and sedimentation control in its draft works plan required under Element 1 of this EMP.</p> <p>The Contractor is to ensure that all management strategies detailed in the final works plan are complied with at all times during the conduct of the works.</p> <p>A site specific Erosion and Sediment Control Plan has been developed for the site as part of the detailed design phase. All measures specified in the Erosion and Sediment Control Plan shall be adhered to at all times during the works.</p> <p>Measures shall be implemented in accordance with the requirements of the Soil Erosion and Sediment Control Guidelines, Institute of Engineers Australia and the erosion and sediment control plan. Such measures may include, but may not be limited to the following.</p> <ol style="list-style-type: none">1. The use of sediment fences around all areas of bare earth over the site during the works.2. The use of sediment retention basins where significant areas of bare earth are exposed.3. The use of a designated site office area with a gravel pad base for vehicles entering and leaving the works site.4. The use of stormwater diversion and transportation infrastructure over the site.
PERFORMANCE INDICATORS	No transport of erodable material from the works site to public roadways or watercourses.
FREQUENCY / DEADLINE	Implementation is to be ongoing for the duration of the works.
REPORTING AND REVIEW	Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

**CORRECTIVE
ACTION**

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance;
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor; and
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

ELEMENT 6 – STORMWATER QUALITY

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

Stormwater coming in contact with this material has the potential to transport sediment and/or other contaminants to natural drainage lines and receiving waters adjacent to the site.

POLICY To ensure that the existing qualities of the receiving surface and ground waters in the locality of the works are not adversely affected by activities associated with the works.

MANAGEMENT STRATEGY To minimise the risk of any release of contaminants originating from the site entering surface and ground waters in the locality of the site.

TASKS / ACTIONS The Contractor is to address the issue of stormwater quality in its draft works plan required under Element 1 of this EMP.

The Contractor is to ensure that all management strategies detailed in the final works plan are complied with at all times during the conduct of the works.

The Contractor shall provide temporary control measures as required during the course of the works to prevent soil erosion, scouring, sediment transport and deposition. Suitable temporary control measures are identified in the Soil Erosion and Sediment Control Guidelines [Institution of Engineers, Australia, 1995]. Further details are contained in the *Stormwater Management Plan* prepared for the site.

All chemicals and other materials stored at the site shall be in an appropriately covered and bunded area away from any identified stormwater drainage paths to prevent contamination of stormwater runoff from the site.

PERFORMANCE INDICATORS Any waters being discharged from the works site are to comply with the following quality characteristics.

Water Quality Parameter	Release Criteria
Suspended Solids	< 50 mg/L
pH	6.5 to 8.5
Oil and Grease	No visible film No detectable odour
Floating Matter	None visible

FREQUENCY / DEADLINE Implementation is to be ongoing for the duration of the works.

**REPORTING
AND REVIEW**

Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

**CORRECTIVE
ACTION**

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance;
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor; and
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

ELEMENT 7 – WASTE MANAGEMENT

RATIONALE Waste management at the works site is to focus on appropriate methods to prevent, treat and dispose of waste materials generated as a result of the works.

POLICY To ensure that all materials used to conduct the works do not cause unlawful environmental harm.

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

MANAGEMENT STRATEGY To carry out appropriate tasks and actions throughout the duration of the works to comply with the stated objective.

TASKS / ACTIONS The Contractor is to address the issue of waste management in the draft works plan required under Element 1 of this EMP.

The Contractor is to ensure that all management strategies detailed in the final works plan are complied with at all times during the conduct of the works.

The Contractor shall provide appropriate methods for the collection and lawful disposal of any wastes produced at the site during the works.

Solid wastes shall be stored in suitable refuse containers to prevent contamination of stormwater. Waste containers shall be located in convenient areas over the site.

Hazardous materials shall not be disposed of into general waste bins. Licensed waste removal contractors shall be employed to remove any hazardous wastes produced and stored on the site.

Waste shall not be incinerated on site.

General waste shall only be disposed of to a licensed waste transfer station or waste disposal facility.

Any flammable or combustible liquids as defined by Australian Standard AS1940 involved with the works are to be stored and handled in accordance therewith.

PERFORMANCE INDICATORS No waste of any type to be released from the works site in an uncontrolled manner.

FREQUENCY / DEADLINE Implementation is to be ongoing for the duration of the works.

REPORTING AND REVIEW Reporting to the Principal upon requirement to complete a CAR and the actions taken in respect of the CAR.

**CORRECTIVE
ACTION**

Should there be non-compliance with the stated performance indicator the following corrective actions are to be implemented.

- Identification of the cause of the non-compliance;
- Implementation of appropriate mitigation measures as determined by the Principal and Consultant in consultation with the Contractor; and
- Relevant validation monitoring to confirm that the nominated corrective actions have been effective.

The Contractor shall implement the corrective action(s) as required within the agreed time frame noted on the CAR.

APPENDIX A

Sample Corrective Action Request Form

CORRECTIVE ACTION REQUEST

Report no;

Date;

DETAILS OF NON-CONFORMANCE:

Inspected by:

DETAILS OF PROPOSED ACTION

Passed to Principal (as applicable):y/n
Reply required by:

Date:

CONSULTANT/PRINCIPAL ADVICE (as required):

Date action required by (if applicable):

Signed (by Principal or Principal's representative):

Date:

AUTHORITY TO PROCEED

Sign:

Date:

ACTION CARRIED OUT

Sign:

Date:

ELEMENT RE-INSPECTED BY

Sign:

Date:

COPY ISSUED TO PRINCIPAL

Date:

Sign: