Dorrigo Waste Management Centre
Landfill Environmental Management Plan
**Document Check Off and Disclaimer**

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<tr>
<th>DATE</th>
<th>DRAFT</th>
<th>AUTHOR</th>
<th>CHECKED</th>
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<tbody>
<tr>
<td>12/01/2014</td>
<td>1</td>
<td>Thomas Freeman</td>
<td>Greg Freeman</td>
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<td>14/02/2014</td>
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<td>Thomas Freeman</td>
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<td>FINAL</td>
<td>Thomas Freeman</td>
<td>Greg Freeman</td>
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Bellingen Shire Council

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ENVIRONMENTAL MANAGEMENT
POST CLOSURE MANAGEMENT
CLOSURE PLAN
REMEDIATING LANDFILL GAS EMISSIONS
LANDFILL GAS
SURFACE WATER POLLUTION DETECTION
SURFACE WATER
LEACHATE
GROUNDWATER POLLUTION DETECTION
LOCATION POINTS AND MONITORING
RECORDS
FINANCIAL ASSURANCE
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHD</td>
<td>Australian Height Datum</td>
</tr>
<tr>
<td>BSC</td>
<td>Bellingen Shire Council</td>
</tr>
<tr>
<td>Council</td>
<td>Bellingen Shire Council</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
</tr>
<tr>
<td>EPL 13105</td>
<td>Dorrigo Waste Management Centre Environmental Protection Licence</td>
</tr>
<tr>
<td>EPA</td>
<td>New South Wales Environmental Protection Authority</td>
</tr>
<tr>
<td>LCP</td>
<td>Landfill Closure Plan</td>
</tr>
<tr>
<td>LEMP</td>
<td>Landfill Environmental Management Plan</td>
</tr>
<tr>
<td>LEP</td>
<td>Bellingen Local Environment Plan</td>
</tr>
<tr>
<td>Licence</td>
<td>Environmental Protection Licence</td>
</tr>
<tr>
<td>OEH</td>
<td>Office of Environment and Heritage</td>
</tr>
<tr>
<td>DWMC</td>
<td>Dorrigo Waste Management Centre</td>
</tr>
<tr>
<td>SEPP</td>
<td>State Environmental Planning Policy</td>
</tr>
</tbody>
</table>
PART 1 INTRODUCTION

1.1 BACKGROUND

Impact Environmental Consulting was contracted by Bellingen Shire Council (“Council”) to produce a Landfill Environmental Management Plan (“LEMP”) for the Dorrigo Waste Management Centre (DWMC). The locality of the DWMC is shown below in Figure 1.

Council has recently retaken control of the DWMC after it was previously operated by Eco Mountain Pty Ltd under contract. Council is committed to improving management operations generally at the Landfill through the adoption and implementation of sound environmental management practices and required infrastructure.

This LEMP provides a general framework for Council to:

i. Undertake remediation of staged landfill areas;
ii. Make efficient use of available airspace
iii. Ascertain and continually improve existing environmental management practices at the landfill in accordance with industry guidelines\(^1\);
iv. Assess the current impact by the landfill on the surrounding environment; and
v. To minimise any future impact on the natural environment caused by the landfill.

This LEMP is integral to the planning phase at the landfill ensuring that existing and future activities at the landfill are sustainable, performed in an environmentally sound and appropriate manner and in accordance with the conditions prescribed under Council’s Environmental Protection Licence (EPL).

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\(^1\) NSW EPA, Environmental Guidelines: Solid Waste Landfills, January 1996
1.2 WHAT IS A LEMP?

A LEMP contains site specific strategic approaches that an organisation can implement to ensure a facility is managed and operated in an environmentally responsible manner.

These approaches are based on industry best practice and on guidelines such as:

- For landfills; the Environmental Guidelines - Solid Waste Landfills (Guidelines), NSW Environmental Protection Authority 1996.
- For resource recovery and transfer stations; the Handbook for the Design and Operation of Rural and Regional Transfer Stations produced by the OEH, 2006.

The guidelines provide environmental goals and management benchmark techniques that provide an illustration of the level of environmental protection that is recommended for each aspect of a facility’s operation.

These guidelines adopt a performance based rather than prescriptive approach that are designed to encourage operators to use their initiative to develop integrated, appropriate and relevant solutions for their landfill and/or transfer station (using either benchmark techniques or alternatives) to achieve environmentally beneficial outcomes in a cost effective manner.

1.3 PURPOSE OF THE LEMP

The LEMP has been prepared as a tool to assist Council in the management of the DWMC in an environmentally responsible manner and in accordance with best practice and industry guidelines. Council will ensure that operations undertaken at the Landfill are in accordance with regulatory requirements including any conditions of consent for further expansion and development of the landfill cell and associated infrastructure, and the conditions imposed under its EPL.

The objectives of the LEMP are to ensure that the existing site, environmental practices and operations at the DWMC are improved, to minimise any off-site effects caused to the surrounding environment and neighbouring communities. The LEMP also provides a guide to staff employed at the landfill site regarding general operational procedures.

The LEMP aims to address the following areas:

- Legislative and Other Requirements;
- Site overview including the physical environment;
- Approvals and Licensing;
- Landfill design and operations;
- Waste management practices;
- Environmental management issues and monitoring requirements;
- Post closure and remediation of the landfill; and
- Reporting requirements.
1.4 DOCUMENT CONTROL

A copy of BSC’s EPL for the site and this LEMP shall be kept on site at all times and shall be made available for inspection to the EPA upon request.

BSC shall ensure that all staff and sub-contractors at the site are familiar with the relevant requirements described in this LEMP.

1.5 REVIEWS AND UPDATES

BSC will review and update the LEMP (as necessary) after every review of the site EPL or at least every 3 years to ensure that it reflects the facilities and operations at the Dorrigo Waste Management Centre and any changes in regulatory requirements. This shall include undertaking revisions and updates due to changes in the site’s EPL or due to changes in operations or directives from BSC or the EPA.
## PART 2  KEY DRIVERS OF THE LEMP

### 2.1  COMPLIANCE WITH EPA LICENSE

This LEMP has been structured to address each and every EPL condition as shown below in *Table 1*.

<table>
<thead>
<tr>
<th>Administrative Conditions</th>
<th>Addressed in Section of LEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>What the licence authorises and regulates</td>
</tr>
<tr>
<td>A2</td>
<td>Premises to which this licence applies</td>
</tr>
<tr>
<td>A3</td>
<td>Other activities</td>
</tr>
<tr>
<td>A4</td>
<td>Information supplied to the EPA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Discharges to Air and Water and Applications to Land</th>
<th>Addressed in Section of LEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Location of monitoring/discharge points and areas</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Limit Conditions</th>
<th>Addressed in Section of LEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>Pollution of waters</td>
</tr>
<tr>
<td>L2</td>
<td>Load limits</td>
</tr>
<tr>
<td>L3</td>
<td>Concentration limits</td>
</tr>
<tr>
<td>L4</td>
<td>Volume and mass limits</td>
</tr>
<tr>
<td>L5</td>
<td>Waste</td>
</tr>
<tr>
<td>L6</td>
<td>Noise Limits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Conditions</th>
<th>Addressed in Section of LEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1</td>
<td>Activities must be carried out in a competent manner</td>
</tr>
<tr>
<td>O2</td>
<td>Maintenance of plant and equipment</td>
</tr>
<tr>
<td>O3</td>
<td>Closure plan</td>
</tr>
<tr>
<td>O4</td>
<td>Management of surface waters</td>
</tr>
<tr>
<td>O5</td>
<td>Covering of waste</td>
</tr>
<tr>
<td>O6</td>
<td>Control of pests, vermin and weeds</td>
</tr>
<tr>
<td>O7</td>
<td>Fire extinguishment</td>
</tr>
<tr>
<td>O8</td>
<td>Dust</td>
</tr>
<tr>
<td>O9</td>
<td>Potentially offensive odour</td>
</tr>
</tbody>
</table>

**Monitoring and Recording Conditions**  
| M1 | Monitoring records | 11.1 |
| M2 | Requirement to monitor concentration of pollutants discharged | N/A |
| M3 | Testing methods - concentration limits | N/A |
| M4 | Recording of pollution complaints | 11.6 |
| M5 | Telephone complaints line | 11.6 |
| M6 | Requirement to monitor volume or mass | N/A |

**Reporting Conditions**  
| R1 | Annual return documents | 13.2 |
| R2 | Notification of environmental harm | 13.3 |
| R3 | Written report | 13.3 |

**General Conditions**  
| G1 | Copy of licence kept at the premises |

*Source: Environment Protection Licence Number 13105*
### 2.2 COMPLIANCE WITH LANDFILL GUIDELINES

This LEMP has been structured to address the relevant environmental goals stated in the Environmental Guidelines: Solid Waste Landfills as shown below in Table 2.

#### Table 2 – ENVIRONMENTAL GUIDELINES: SOLID WASTE LANDFILLS

<table>
<thead>
<tr>
<th>ENVIRONMENTAL GOALS</th>
<th>ADDRESSED IN SECTION OF LEMP</th>
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<tbody>
<tr>
<td><strong>Water Pollution</strong></td>
<td></td>
</tr>
<tr>
<td>Preventing pollution of water by leachate</td>
<td>10.1.1</td>
</tr>
<tr>
<td>Detecting water pollution</td>
<td>11.2, 11.3, 11.4</td>
</tr>
<tr>
<td>Remediating water pollution</td>
<td>11.2, 11.4</td>
</tr>
<tr>
<td><strong>Air Pollution</strong></td>
<td></td>
</tr>
<tr>
<td>Preventing landfill gas emissions</td>
<td>10.6</td>
</tr>
<tr>
<td>Detecting landfill gas emissions</td>
<td>11.5</td>
</tr>
<tr>
<td>Remediating landfill gas emissions</td>
<td>11.5</td>
</tr>
<tr>
<td><strong>Land Management and Conservation</strong></td>
<td></td>
</tr>
<tr>
<td>Assuring quality of design, construction and operation</td>
<td>8.16</td>
</tr>
<tr>
<td>Assuring quality of incoming waste</td>
<td>8.6</td>
</tr>
<tr>
<td>Recording of wastes received</td>
<td>8.7</td>
</tr>
<tr>
<td>Minimising landfill space used</td>
<td>8.8</td>
</tr>
<tr>
<td>Maximisation of recycling</td>
<td>9</td>
</tr>
<tr>
<td>Remediating landfill after closure</td>
<td>12</td>
</tr>
<tr>
<td><strong>Hazards and Loss of Amenity</strong></td>
<td></td>
</tr>
<tr>
<td>Preventing unauthorised entry</td>
<td>8.5</td>
</tr>
<tr>
<td>Preventing degradation of local amenity</td>
<td>10.4</td>
</tr>
<tr>
<td>Preventing noise pollution</td>
<td>10.2</td>
</tr>
<tr>
<td>Adequate fire fighting capacity</td>
<td>8.13</td>
</tr>
<tr>
<td>Adequate staffing and training</td>
<td>8.2</td>
</tr>
</tbody>
</table>

*Source: Environmental Guidelines: Solid Waste Landfills, 1996*
PART 3 RELEVANT LEGISLATION, POLICIES AND GUIDELINES

Activities carried out at the Bellingen Waste Management Centre must comply with the relevant provisions of all legislation relating to the operation of the Facility. This includes but is not limited to the following:

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2005
- Clean Energy Act 2011
- Protection of the Environment Operations (General) Regulation 2009
- Soil Conservation Act 1938
- Dangerous Goods Act 1975
- Environmental Restoration and Rehabilitation Act 1990
- Environmentally Hazardous Chemicals Act 1985
- Waste Minimisation and Management Act 1995
- Ozone Protection Act 1989
- Rivers and Foreshores Improvement Act 1948
- Heritage Act 1977
- Water Act 1912
- Bushfire Act 1949
- Native Vegetation Act 2003
- Threatened Species Conservation Act 1995
- Environmental Planning and Assessment Act 1979
- Fisheries Management Act 1998
- Waste Management Act 2000

The Environment Protection Authority’s “Environmental Guidelines; Solid Waste Landfills, 1996” has significant importance and forms part of the regulatory framework for the operation and management of the DWMC.

The DWMC is also licensed and regulated under an Environmental Protection Licence pursuant to the Protection of the Environment Operation Act 1997 (POEO Act) as outlined under Part 4 of this LEMP.
PART 4 SITE OVERVIEW

4.1 LOCATION

The Dorrigo Waste Management Centre is located on Lot 167 on D.P. 752813 which is approximately 1.3km east of the township of Dorrigo. The entrance is off Old Coramba Road as shown below in Figure 2 which connects to Waterfall Way. The total area of the landfill site is 4.92 hectares.

![Image of landfill site](Old Coramba Road)

Source: SIX Maps, 2013

Figure 2 – NSW SPATIAL EXCHANGE AERIAL PHOTOGRAPH OF LOT167 D.P. 752813

The services provided by the Centre include:

- Dorrigo Reuse Shop which is a waste collection and sorting building
- Small Vehicle Transfer Station:
  - 34m$^3$ domestic putrescible waste skip
  - 34m$^3$ commingled recyclables skip
- Hazardous chemical storage shed
- Waste oil storage shed
- Collapsible E-waste skip bin
- Greenwaste stockpile
4.2 LAND USE AND ZONING

The DWMC is situated within RU1 zoning.

<table>
<thead>
<tr>
<th>Zone RU1 Primary Production: Objectives of zone</th>
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<tbody>
<tr>
<td>- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.</td>
</tr>
<tr>
<td>- To encourage diversity in primary industry enterprises and systems appropriate for the area.</td>
</tr>
<tr>
<td>- To minimise the fragmentation and alienation of resource lands.</td>
</tr>
<tr>
<td>- To minimise conflict between land uses within this zone and land uses within adjoining zones.</td>
</tr>
</tbody>
</table>

Land zoned RU1 forms a buffer of approximately 450 m between the site and land zoned for General Residential (R1) and Environmental Management (E3) to the west of the site. The land immediately to the south of the site is zoned for Environmental Management (E3). There are no land use conflicts for this area and the landfill.

4.3 NEIGHBOURING LAND USES

Generally lands to the north, south and east of the site are predominantly rural. Land to the west is also rural, forming an 820 m buffer between the site and outskirts of Dorrigo. The closest residence is located approximately 370 m from boundary of the DWMC.

4.4 OWNERSHIP

Crown Lands is the owner Lot 167 D.P. 752813 upon which DWMC is located.

4.5 SITE HISTORY

It is understood that the site was originally used by residents for nightsoil disposal in the early 1900’s. During the 1960’s and 1970’s municipal solid waste began to be deposited by residents. Council took over operation of the site during the 1980’s and formalised its status as a waste disposal facility.

**PLANNING CONSENT**

According to Crown Land records Lot 167 D.P. 752813 was gazetted for night soil and rubbish disposal on the 19th of April 1911.
4.6 LICENCING

The Dorrigo Waste Management Centre is currently licensed under the Protection of the Environment Operations Act 1997 (POEO Act) (Licence No, 13105).

Scheduled Activity: Waste storage, waste disposal (application to land)
Fee Based Activity Scale: Waste disposal (application to land) Scale 0 – All.

A copy of the current licence is annexed in Appendix 1.
PART 5  PHYSICAL ENVIRONMENT

5.1  CLIMATE AND METEOROLOGICAL CHARACTERISTICS

The site is located in a temperate climate with warm to hot, humid summers and mild, dry winters with the occurrence of high intensity rainstorms. Rainfall predominantly occurs in the summer months. The average annual rainfall is 2010.3mm² as measured at the Dorrigo (Old Coramba Road) station.

The mean daily pan evaporation rate is not measured at the Dorrigo (Old Coramba Road) station. The nearest measurement is located at the Coffs Harbour MO station at 4.4mm/day. Wind conditions are variable throughout the year. As a general pattern winds are predominantly from the north or south in the morning and from the south or south east in the afternoon. Table 3 below contains the climate data available online from the Coffs Harbour MO.

Table 3 – CLIMATE DATA: COFFS HARBOUR MO

<table>
<thead>
<tr>
<th></th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
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<tbody>
<tr>
<td>Temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1997-2013</td>
</tr>
<tr>
<td>Mean maximum</td>
<td>24</td>
<td>23.7</td>
<td>22</td>
<td>20</td>
<td>17</td>
<td>15</td>
<td>14</td>
<td>16</td>
<td>19</td>
<td>21</td>
<td>22</td>
<td>24</td>
<td>19.8</td>
</tr>
<tr>
<td>mean temperature (°C)</td>
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</tr>
<tr>
<td>Mean minimum</td>
<td>14.9</td>
<td>15</td>
<td>13</td>
<td>11</td>
<td>7.2</td>
<td>5.2</td>
<td>4.4</td>
<td>5</td>
<td>7.6</td>
<td>9.7</td>
<td>12</td>
<td>14</td>
<td>9.9</td>
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<tr>
<td>mean temperature (°C)</td>
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<tr>
<td>Rainfall</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1997-2013</td>
</tr>
<tr>
<td>Mean rainfall</td>
<td>309</td>
<td>289</td>
<td>328</td>
<td>141</td>
<td>88</td>
<td>135</td>
<td>64</td>
<td>97</td>
<td>83</td>
<td>112</td>
<td>204</td>
<td>168</td>
<td>2010.3</td>
</tr>
<tr>
<td>(mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decile 5</td>
<td>272</td>
<td>235</td>
<td>269</td>
<td>92</td>
<td>63</td>
<td>96</td>
<td>47</td>
<td>28</td>
<td>59</td>
<td>99</td>
<td>198</td>
<td>172</td>
<td>2125.4</td>
</tr>
<tr>
<td>median) rainfall (mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean number of days of rain &gt;= 1 mm</td>
<td>14.4</td>
<td>15.2</td>
<td>16</td>
<td>12</td>
<td>9.9</td>
<td>8.9</td>
<td>8.2</td>
<td>7</td>
<td>7.6</td>
<td>11</td>
<td>15</td>
<td>16</td>
<td>140.5</td>
</tr>
<tr>
<td>Mean number of days of rain &gt;= 10 mm</td>
<td>7</td>
<td>7.6</td>
<td>7.4</td>
<td>4.8</td>
<td>2.9</td>
<td>3.6</td>
<td>1.6</td>
<td>2</td>
<td>2.2</td>
<td>3.8</td>
<td>5.8</td>
<td>5.8</td>
<td>54.7</td>
</tr>
</tbody>
</table>

² Mean average rainfall as measured at Bellingen Post Office is 1520.4mm. Measurements ceased in 2002.
<table>
<thead>
<tr>
<th>Mean number of days of rain</th>
<th>&gt;= 25 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3</td>
<td>3.5</td>
</tr>
</tbody>
</table>

**Other Daily Elements**

1997-2013

| Mean number of clear days for years | 6.1 | 5.4 | 6.6 | 8.3 | 12 | 12 | 13 | 15 | 13 | 9.9 | 5.4 | 5.5 | 111 |
| Mean number of cloudy days for years | 12.2 | 10.9 | 12 | 12 | 9.1 | 10 | 8.9 | 6 | 7.1 | 9.5 | 13 | 13 | 123.2 |

**Evaporation**

Mean daily evaporation (mm) (Coffs Harbour)

| 6.2 | 5.6 | 4.8 | 3.9 | 2.8 | 2.3 | 2.5 | 3 | 4.5 | 5.2 | 5.7 | 6.2 | 4.4 |

**9am Conditions**

1997-2010

| Mean 9am temperature (°C) | 18.6 | 18.1 | 17 | 15 | 12 | 9.9 | 9.2 | 11 | 14 | 16 | 16 | 18 | 14.6 |
| Mean 9am relative humidity (%) | 83 | 87 | 89 | 80 | 78 | 77 | 74 | 68 | 66 | 66 | 78 | 78 | 77 |
| Mean 9am wind speed (km/h) for 0 | 5.3 | 4.1 | 3.9 | 4.4 | 4.3 | 4.4 | 5.6 | 6 | 6.4 | 6 | 6 | 5.2 | 5.2 |

**3pm Conditions**

1997-2010

| Mean 3pm temperature (°C) | 22.4 | 22.1 | 21 | 18 | 15 | 13 | 13 | 14 | 17 | 19 | 20 | 22 | 18 |
| Mean 3pm relative humidity (%) | 73 | 75 | 75 | 73 | 68 | 65 | 60 | 55 | 57 | 61 | 70 | 70 | 67 |
| Mean 3pm wind speed (km/h) | 4.9 | 4.2 | 4.3 | 3.9 | 4.2 | 5.4 | 5.7 | 7 | 6.5 | 6.8 | 5.8 | 5.4 | 5.3 |

*Source: Bureau of Meteorology Coffs Harbour MO Station, 2013*
5.2 FLORA AND FAUNA

Much of the site has been disturbed as a result of more than 50 years of landfill operations. A search of the NSW Office of Environment and Heritage’s Atlas Database revealed no threatened species sightings within 10km of the landfill site.

5.3 TOPOGRAPHY

The DWMC is located towards the top of a valley formed by Rocky Creek. A 2013. A detailed survey of the site was undertaken in 2013 by Hopkins Consultants on behalf of Impact Environmental. Drawing 6836-0002-01 in Appendix 2 displays the existing topography.

The current surface of the landfill has been raised to an elevation of around 750 m AHD and is generally flat with gradients around 2%. Site topography is characterised by steep slopes of around 30% to 50% running down to the southern and south eastern boundary. Slightly gentler slopes of between 17% and 25% run towards the northern, north eastern and north western boundaries. The elevation of the site varies from maximum heights of approximately 750 AHD on capped areas of the landfill to 725 m AHD in the far north eastern corner.

5.4 GEOLOGY AND SITE SOILS

The DWMC is situated on the far eastern border of the Dorrigo Tertiary Basalt Plateau which comprises teholeilitic and alkaline basalts, minor trachytes and dolerite. Borehole drilling logs available from the Department of Primary Industries provide an indication of the likely substrata below the site. The subsurface investigation conducted during the installation of groundwater bore number GW300146 is shown below in Table 4. GW300146 is located approximately 1km north west of the DWMC.

<table>
<thead>
<tr>
<th>FROM (M)</th>
<th>TO (M)</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>Topsoil</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>Loam</td>
</tr>
<tr>
<td>8</td>
<td>32</td>
<td>Weathered Basalt</td>
</tr>
<tr>
<td>32</td>
<td>44</td>
<td>Basalt</td>
</tr>
<tr>
<td>44</td>
<td>52</td>
<td>Weathered Basalt</td>
</tr>
<tr>
<td>52</td>
<td>54</td>
<td>Basalt</td>
</tr>
</tbody>
</table>

Table 4 – GW300146 DRILLING LOG

Source: Department of Primary Industries, 2013

3 Dorrigo-Coffs Harbour 1:250 000 Geological Sheet (1971)
Dorrigo Plateau Surface Water Source and Dorrigo Basalt Groundwater Source:

“The Tertiary Basalt Plateau overlies older meta-sedimentary rocks (Nambucca/Coffs/Wollombi Blocks) of various formations and abuts in part at least 3 granite intrusive sequences, that being Round Mountain Leucoadamellite to the west of Ebor, the Dundurrabin Granodiorite north of Dorrigo and the Dorrigo Mountain Complex intrusive to the south. The basalt plateau caps the underlying rocks and tends to be elevated above the rest of the landscape, with steep incised valleys at its periphery.”

5.5 SURFACE WATER HYDROLOGY

The Dorrigo landfill site is located within Zone 2: Bielsdown River management zone as specified in the Dorrigo Plateau Surface Water Source and the Dorrigo Basalt Groundwater Source Water Sharing Plan developed by the NSW Office of Water. Runoff from the DWMC enters into Rocky Creek which flows north into Bielsdown River which then joins the Nymboida River as shown below in Figure 4.

Figure 3 – DORRIGO PLEATU SURFACE WATER SOURCE 2004

Source: NSW Office of Water, 2013
Runoff from the southern 3ha of the site drains south and east. The southern boundary is between 15m and 40m from a small gully that drains directly into Rocky Creek. This flow path is approximately 300m.

Runoff from the northern 2.6 ha drains north into a cut drain which runs along Old Coramba Road before passing under the road through a culvert, entering a small gully which drains into Rocky Creek. This flow path is approximately 900m.

5.6 GROUNDWATER HYDROLOGY

Groundwater in the Dorrigo area is stored in the fractured rock basalt aquifers, known as the Dorrigo Basalt Aquifer. Borehole drilling logs available from the Department of Primary Industries indicate that groundwater is present in weathered basalt between 24 m to 32 m and 44 m to 52 m below the surface.5

Groundwater is believed to flow from east to west from Dorrigo Township approximately 40km to Ebor6 as shown below in Figure 5.

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5 Groundwater bore number GW300146 is approximately 1km north west of the DWMC
6 Department of Primary Industries and Water (2004): Dorrigo Plateau Surface Water Source and Dorrigo Basalt Groundwater Source

---

Figure 4 – DORRIGO BASALT GROUNDWATER SOURCE 2004
Six groundwater bores exist within 1 km of the landfill boundary. Five to the north west and one to the south east as shown below in *Figure 6*.

![Nearby groundwater bore locations](source: NSW Office of Water, 2013)

*Figure 5 – NEARBY GROUNDWATER BORE LOCATIONS*

**GROUNDWATER USE**

Groundwater is extracted for various purposes from sites down gradient from the landfill such as agricultural purposes.

**5.7 FORESTRY**

The NSW Natural Resource Atlas indicates that Dorrigo National Park at its closest points is approximately 2km to the south and 2.9 km to the east of the site. The park is part of the New England Group of the World Heritage Site Gondwana Rainforests of Australia and was added to the Australian National Heritage List in 2007. It contains a mixture of sub-tropical rainforest and warm temperate rainforest along with smaller areas of cool temperate rainforest and patches of dry rainforest.

Junuy Juluum National Park is approximately 4km to the north. It is a warm temperate rainforest on the slopes of Mt Campion.
5.8 **ACOUSTIC ENVIRONMENT**

The existing acoustic environment is characterised by:

- rural activities
- traffic generated by the landfill
- plant operations within the landfill
- the re-use centre
- traffic along Old Coramba Road

There has been no noise modelling undertaken for the site.

5.9 **VISUAL AMENITY**

The DWMC is located towards the top of a valley formed by Rocky Creek. A 780m AHD ridge running north-south shields the site from Dorrigo Township. The site is visible from Old Coramba Road as shown below in *Figure 7*. It is also visible from the opposite side of the valley.

![Figure 6 – VIEW FROM OLD CORAMBA ROAD](image)

*Source: Impact Environmental 2013*

The visual character of the landfill itself is dominated by exposed earth, plant, waste piles and dust surrounded by open eucalypt forest and scarred hill slopes. As expected the landfill has a low visual aesthetic value and hence low visual amenity.

The area of the landfill has a moderately low aesthetic value due mainly to inaccessibility and the fact that it does not form part of any wider view. As the landfill progresses toward the north east it has the potential to become more visually accessible from the valley to the north and east. The visual impact will be minimised through revegetation.

5.10 **CULTURAL AND HERITAGE VALUES**

Archaeological sites in the Dorrigo region indicate that the Gumbaynggirr nation have lived in the area for around five thousand years.

No items of cultural significance have been discovered on site. This is most likely as a result of extensive clearing and waste disposal since the 1950’s.
6.1 GENERAL
Bellingen Shire has a population of approximately 12,819. Dorrigo Township has a population of around 3,402\(^7\). The waste catchment for the landfill comprises the following areas:
- Township of Dorrigo
- Cascade
- Tallowwood Ridge
- North Dorrigo
- Bostobrick
- Deer Vale
- Fernbrook
- Megan
- Bielsdown Hills
- Darkwood
- Brinerville

6.2 WASTE TYPES AND QUANTITIES
Only municipal self haul waste is disposed of at the Dorrigo landfill. Bellingen Shire Council is an alliance partner along with Nambucca Shire Council and Coffs Harbour Council in the Coffs Coast Waste Services. This is a regional approach to the management of waste whereby kerbside dry recyclables, organics and residual wastes from the Bellingen Shire are taken to the Coffs Harbour Resource Recovery Park at Englands Road for processing.

The predominant source of waste in the catchment is domestic refuse due to a lack of heavy industries. There is some commercial and light industry waste, none of which is accepted at the DWMC.

The range of materials accepted at the DWMF includes:
- Domestic mixed solid waste (putrascible and non-putresciable)
- Commingled recyclables
- Construction and demolition material
- Greenwaste
- Metals for recycling
- Tyres
- Waste Oil
- E-waste

\(^7\)Australian Bureau of Statistics: 2011 Census
There was limited waste stream data captured by the previous contractor responsible for managing the DWMC. The amount of waste deposited to landfill is estimated via a volumetric survey conducted before the end of the reporting period. Table 5 below contains the waste tonnage data for the DWMC.

Table 5 – WASTE TYPES AND QUANTITIES

<table>
<thead>
<tr>
<th>Waste Received – DWMC</th>
<th>Units</th>
<th>Jun 2012 - May 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Solid Waste</td>
<td>tonnes</td>
<td>391.52</td>
</tr>
<tr>
<td>Commercial and Industrial Waste</td>
<td>tonnes</td>
<td>N/A</td>
</tr>
<tr>
<td>Construction and Demolition Waste</td>
<td>tonnes</td>
<td>N/A</td>
</tr>
<tr>
<td>Transferred Waste</td>
<td>tonnes</td>
<td>158.96</td>
</tr>
<tr>
<td>VENM</td>
<td>tonnes</td>
<td>N/A</td>
</tr>
<tr>
<td>Total Waste to Landfill</td>
<td>tonnes</td>
<td>232.56</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resource Recovery – DWMC</th>
<th>Units</th>
<th>Jun 2012 - May 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden Waste</td>
<td>tonnes</td>
<td>No data</td>
</tr>
<tr>
<td>Scrap Metal (ferrous)</td>
<td>tonnes</td>
<td>No data</td>
</tr>
<tr>
<td>Scrap metal (non-ferrous)</td>
<td>tonnes</td>
<td>No data</td>
</tr>
<tr>
<td>Bricks and Concrete</td>
<td>tonnes</td>
<td>No data</td>
</tr>
<tr>
<td>Waste Oil</td>
<td>litres</td>
<td>No data</td>
</tr>
<tr>
<td>Co-mingled recycling</td>
<td>tonnes</td>
<td>123.84</td>
</tr>
<tr>
<td>E-waste</td>
<td>tonnes</td>
<td>No data</td>
</tr>
<tr>
<td>Total Resource Recovery</td>
<td>tonnes</td>
<td>123.84</td>
</tr>
</tbody>
</table>

Source: Bellingen Shire Council, 2013

Since resuming operational management of the DWMC Council has reviewed and updated the data collection methods to allow these waste streams to be monitored.

Household waste collected by the kerbside collection is taken to Coffs Harbour for processing and as such does not enter the DWMC. Tonnages are shown below in Table 6.
Table 6 – BELLINGEN SHIRE KERBSIDE COLLECTION

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling</td>
<td>1,101.68</td>
<td>1,224.80</td>
<td>1,180.68</td>
<td>1,209.74</td>
<td>1,239.84</td>
<td>1,228.21</td>
<td>1,345.89</td>
</tr>
<tr>
<td>Organic</td>
<td>1,513.08</td>
<td>1,597.20</td>
<td>1,433.62</td>
<td>1,351.28</td>
<td>1,398.82</td>
<td>938.88</td>
<td>-</td>
</tr>
<tr>
<td>MSW</td>
<td>1,325.20</td>
<td>1,150.68</td>
<td>1,193.96</td>
<td>1,433.48</td>
<td>1,243.14</td>
<td>1,153.53</td>
<td>1,766.91</td>
</tr>
</tbody>
</table>

Source: Bellingen Shire Council, 2013

6.3 WASTE GROWTH

With no heavy industry and limited light industry in the Dorrigo area waste growth is dependent on domestic refuse. The historic Bellingen Shire growth in population is shown below in Table 7.

Table 7 – BELLINGEN SHIRE POPULATION GROWTH

<table>
<thead>
<tr>
<th>YEAR ENDING JUNE 30</th>
<th>NUMBER</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>12,634</td>
<td>--</td>
</tr>
<tr>
<td>2002</td>
<td>12,673</td>
<td>+0.31</td>
</tr>
<tr>
<td>2003</td>
<td>12,705</td>
<td>+0.25</td>
</tr>
<tr>
<td>2004</td>
<td>12,672</td>
<td>-0.26</td>
</tr>
<tr>
<td>2005</td>
<td>12,682</td>
<td>+0.08</td>
</tr>
<tr>
<td>2006</td>
<td>12,716</td>
<td>+0.27</td>
</tr>
<tr>
<td>2007</td>
<td>12,773</td>
<td>+0.45</td>
</tr>
<tr>
<td>2008</td>
<td>12,787</td>
<td>+0.11</td>
</tr>
<tr>
<td>2009</td>
<td>12,837</td>
<td>+0.39</td>
</tr>
<tr>
<td>2010</td>
<td>12,891</td>
<td>+0.42</td>
</tr>
<tr>
<td>2011</td>
<td>12,923</td>
<td>+0.25</td>
</tr>
<tr>
<td>2012</td>
<td>12,819</td>
<td>-0.80</td>
</tr>
</tbody>
</table>

Source: Australian Bureau of Statistics, Regional Population Growth, Australia 2012

The population of Bellingen Shire has remained relatively steady in the years 2001-2012; the amount of waste disposed at the DWMC has dropped significantly during this period. The large decrease can be attributed to the introduction of a three bin collection system as part of the Coffs Coast Waste Services (CCWS) partnership between Handybin Waste Services, Coffs Harbour City Council, Bellingen Shire Council and Nambucca Shire Council.
PART 7  FACILITY DESIGN

7.1  ACCESS AND LAYOUT

The Dorrigo Waste Management Centre is located approximately 2km east of Bellingen off Old Coramba Road. Drawing 6836-0002-01 in Appendix 2 displays the general layout.

The main features of the existing landfill site include the following:
- Small vehicle transfer station;
- Reuse centre;
- Waste oil shed;
- Stockpile areas for garden waste, scrap metal and soil;
- Landfilling area for general solid waste;

7.2  FACILITIES

SMALL VEHICLE TRANSFER STATION

The small vehicle transfer station is located a short distance from the entrance of the facility. It comprises a covered rectangular pad including two large 34m³ hook lift bins. One bin is provided for domestic putrescible municipal solid waste, the other is for commingled recyclables.

All material collected is transported by Handybin Waste Services to Coffs Coast Resource Recovery Facility on Englands Road, Coffs Harbour under the Coffs Coast Waste Services regional contract.

REUSE CENTRE

The reuse centre is located opposite the small vehicle transfer station. DWMC staff collect and sort incoming waste, diverting reusable items such as furniture into the reuse centre.

BULKY GARDEN WASTE PROCESSING AREA

Greenwaste is stockpiled towards the north of the site on land that has not been landfilled. At present there are no stormwater controls to minimise:
- Leachate runoff from the greenwaste stockpile
- Surface water runoff entering the greenwaste stockpile area.

SCRAP METAL STORAGE AREA

The scrap metal is stockpiled in the south western area of the DWMC on capped landfill. It is separated into ferrous and non-ferrous. Once the stockpile reaches sufficient size it is collected by Matthews Metal Management.
WASTE OIL SHED
Waste oil is stored in a lockable shed adjacent to the small vehicle transfer station. It is collected by Australian Waste Oil.

E-WASTE CAGE
E-waste items are stored in collapsible cages next to the waste oil. They are collected by Matthews Metal Management.

7.3 FINAL LANDFORM
The final landform will have a minimum 5% (1V:20H) grade to shed water. Batters running along the northern and north eastern boundaries will have a maximum gradient of 33% (1V:3H).
The proposed final landform is annexed in Appendix 2: Drawing 6832-0002-02.

7.4 STAGING
Currently, landfilling operations are occurring towards the north of the landfill area. Filling of the landfill will be in progressive lifts of 1.5 to 2.0m. In general it is proposed to fill from south to north. As the landfill will be advancing downhill bunds will be used to prevent surface water runoff entering the active tip face.

A staging and filling plan is annexed in Appendix 2: Drawing 6832-0002-04.

STAGE 1
Stage 1 will involve filling towards the north eastern boundary.

STAGE 2
Stage two will involve relocating the greenwaste stockpile and filling towards the northern boundary.

7.5 FUTURE USE
The final land use options for the completed landfill are considered limited due to:
   - The crossfall on the finished surface and the steep batters
   - The potential for ongoing surface settlement and displacement due to the nature of the waste being landfilled
   - The limited width of the finished surface.

The concepts for the future use of the landfill site have therefore been identified as:
   - Passive recreation including walking tracks and viewing platforms
   - Informal active recreation areas.
7.6 STORMWATER DRAINAGE

At present, there are limited stormwater drainage structures place. Runoff from the landfilled areas drain across approximately 50m of grassland swale on site which help remove suspended solids. Council plans to upgrade the stormwater management system as detailed in Appendix 2: Drawing 6832-0002-02 which includes:

- Construction of swale drains along the northern and north eastern boundary to intercept runoff before it enters the cut drain along the Old Coramba Road;
- Construction of a stormwater detention pond which will capture all stormwater runoff that drains north on the site from the final landform.

Recent works include:

- Reconfiguring the tipping area to minimise the active face and reduce stormwater run-on.

7.7 LEACHATE MANAGEMENT SYSTEM

Leachate generation has not been evaluated for the site. However, except during significant rainfall events, leachate generation is expected to be relatively low due to the minimal amount of waste (less than 400 tonnes per year) and small active landfill face.
PART 8 FACILITY OPERATION

The Dorrigo Waste Management Centre shall be operated by BSC in accordance with the site’s EPL, this LEMP, and other relevant regulatory requirements.

The primary activities carried out in the Facility shall include:
- Receival of waste other than hazardous waste
- Retrieval of recyclable resources and their redistribution
- The separation, storage and transfer of received waste
- Monitoring of waste movement and maintenance of records of that movement
- The control of the aspects of the Facility and its operations that may affect the environment
- Management of the Facility to ensure the safety of the public, the operators and the environment

8.1 OPENING HOURS

The DWMC shall be open to the public as advertised by Council. It will be closed on nominated public holidays and as advertised by Council. The DWMC EPL 13105 does not set limitations on opening hours.

The current operating hours are:
- Monday & Tuesday - Closed
- Wednesday, Thursday, Friday - 8.00am - 1.00pm & 2.00pm - 4.00pm
- Saturday & Sunday - 9.00am - 1.00pm & 2.00pm - 4.00pm

The waste disposal facility is closed:
- New Years Day
- Australia Day
- Good Friday
- Easter Sunday
- Easter Monday
- Anzac Day
- Queen's Birthday
- Labour Day
- Christmas Day
- Boxing Day

The site will remain in operation until no later than 5:00 pm so that staff may undertake required earthmoving activities such as compaction of deposited waste, separation of waste materials and application of daily cover material. This ensures that landfill activity disturbance impacts such as noise, dust and odour will be minimised during times where the majority of staff and residents would be onsite.
8.2 MANAGEMENT, SUPERVISION AND STAFFING

The Dorrigo Waste Management Centre is to be supervised by suitably trained staff at all times during operating hours. Council will provide as a minimum one (1) staff member on site any given time to ensure that the overall management, supervision, operation and maintenance of the site and operations at the landfill are achieved such as:

- Directing the public to designated stockpile areas and tip face ensuring public safety and access;
- Supervision of any active disposal of waste to designated waste disposal and stockpile areas;
- Design, maintenance and construction of roads, firebreaks, leachate and stormwater ponds and associated drainage works as required;
- Waste screening and recording;
- Ensuring that incoming collected waste is appropriately spread, separated, compacted and covered using earthmoving equipment as required;
- Weed, vermin, fire and litter management practices are undertaken by staff appropriately and in accordance with this LEMP; and
- Security of the site preventing unauthorised entry and illegal dumping.

The DWMC management structure is as follows:

```
Manager Environment and Sustainability

 Waste Management Coordinator

 DWMC Waste Attendant
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All DWMC staff will be appropriately qualified and trained to conduct tasks allocated by the Manager Environment and Sustainability and the Waste Management Coordinator in a safe and proper manner.

At a minimum, staff training is to ensure that:

1. All operators of compaction or earthworks plant are skilled at undertaking all tasks required of them
2. All those who inspect or direct the placement of incoming wastes are capable or accurate data recording and skilled at identifying wastes that are unacceptable.
3. All those who operate gas testing, water sampling or testing apparatus are familiar with required testing and sample preservation procedures, to a standard approved by the EPA

Staff training procedures will be documented and recorded in Councils corporate database system.
8.3 TRAFFIC MANAGEMENT

The DWMC Waste Attendant is empowered to direct the movement of vehicular and pedestrian traffic to ensure their safety. This shall be noted as a condition of entry on the gate signage. Traffic control signage shall be erected as directed by the Manager Environment and Sustainability or the Waste Management Coordinator. The signage shall include:

- Conditions of entry
- Hours of operation
- Acceptable and prohibited wastes signage
- Speed restriction signage (10 km/h max)
- Directional signage
- Material drop off points signage
- Notification that it is the vehicle operator’s responsibility to ensure that the remnants of their load or the material stuck to the underside of the vehicle or the wheels does not litter public roads

There is no vehicle wash bay in operation at the DWMC.

8.4 PUBLIC AND STAFF SAFETY

Council will ensure that all staff and contractors are provided with training in workplace, health and safety issues as it relates to the duties performed at the DWMC. All staff will be made aware of the potential hazards and risks present at the landfill and the provisions of the Work Health and Safety Act 2011 (WHS Act) and regulations.

Council will also ensure that staff are provided with personal protective equipment as required to perform their duties in a safe and responsible manner, in particular when handling hazardous waste materials such as asbestos or operating machinery.

Signage relating to safety on site will be clearly displayed for the public, staff and contractors visiting the site ensuring that safety precautions are adhered to. The types of signage include but not limited to:

- The types of wastes not accepted on site, e.g. combustible materials, unauthorised chemical drums;
- Location of first aid and fire extinguishers; and
- Excluded or barricaded areas e.g. around active tipping areas and ponds.

Plant and equipment will be operated in such a way as to minimise risk to persons delivering waste for disposal or transfer.

8.5 SITE SECURITY

The site is currently gated and surrounded by a:

- 1.5 metre high chain link fence along the western and southern boundary
- 1 metre high 5 strand barb wire fence along all other boundaries
Council will maintain adequate security on the DWMC during its life. This will include:

- Access gates being locked at all times outside opening hours
- Maintenance of boundary fences
- Maintenance of lockable gates

Staff and contractors will be provided with keys to the main gate and site buildings as deemed necessary for after hour access.

### 8.6 WASTE ACCEPTANCE AND SCREENING

All wastes entering the DWMC are inspected before disposal to ensure they are not hazardous, and their entry is to be recorded. If the load is suitable for the disposal, the drivers are subsequently advised as to which section of the Waste Management Centre each component of their load should be taken.

#### ACCEPTED WASTES

The total quantity of waste disposed of at the premises in accordance with Council’s EPL must not exceed 5000 tonnes per year. The Dorrigo Waste Management Centre is licensed to accept the following wastes as shown below in Table 8:

**Table 8 – ACCEPTABLE WASTES**

<table>
<thead>
<tr>
<th>CODE</th>
<th>WASTE</th>
<th>DESCRIPTION</th>
<th>ACTIVITY</th>
<th>OTHER LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>General Solid Waste (Putrescible)</td>
<td>As describes in Schedule 1 of the POEO Act, in force from time to time</td>
<td>Waste disposal (application to land)</td>
<td>Total tonnage of waste disposed of at the premises must not exceed 5,000 tonnes per year</td>
</tr>
<tr>
<td>NA</td>
<td>General Solid Waste (Non-putrescible)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asbestos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste Tyres</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NA</td>
<td>Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Bellingen Shire Council will not permit or allow any waste to be received at the premises except for those expressly referred to in the EPL.

The material listed below will not be accepted for burial at the DWMC. Council staff will be responsible for preventing their acceptance.

1. Liquid wastes
2. Radioactive wastes
3. Medical Waste
4. Any explosive, flammable material including material derived from grease, oil, tar, petroleum or oil
5. Any sludge or refuse material (unless it can be shown to be harmless) from any:
   i. Tanning or leather processing plant
   ii. Petroleum or petrochemical plant
   iii. Chemical plant
   iv. Paint manufacturing plant
   v. Metal treatment plant
   vi. Vegetable oil or mineral oil plant
   vii. Pharmaceutical or drug manufacturing plant
6. Any material containing:
   i. Arsenic
   ii. Cadmium
   iii. Cyanide
   iv. Lead (including batteries)
   v. Mercury
   vi. Selenium
   vii. Sulphide
7. Any toxic inorganic material, including any soluble salt or the following:
   i. Barium
   ii. Boron
   iii. Chromium
   iv. Copper
   v. Manganese
   vi. Silver
   vii. Zinc
8. Fertilisers in quantities greater than 1 kg
9. Any toxic organic material, including any pesticide or weedicide, in particular containing:
   i. Chlorinated hydrocarbons
   ii. Fluorinated hydrocarbons
   iii. Organophosphates
   iv. Carbamates or thiocarbamates
   v. Phenols
10. Any soluble acid or alkali or acidic or basic compound, unless it can be shown that it may be beneficial to the operation of the depot.
WASTE SCREENING AND HANDLING

Residents will be encouraged by staff at the DWMC entrance to sort waste materials into designated stockpiles or transfer bins at the point of access. Material suitable for sale in the Dorrigo Reuse Centre is to be identified and placed aside for processing.

All staff members that monitor the site entrance shall be trained in the identification and classification of waste. New staff will undergo at least one week of supervised training in the identification of materials not accepted at the DWMC. Vehicles with unacceptable loads of waste will be refused entry to the site. Waste handling will be undertaken in accordance with relevant industry guidelines and standards.

The following activities are carried out for waste screening purposes:

1. Signs will clearly be in place showing types of waste accepted and those not accepted at the landfill.
2. The DWMC staff will visually inspect all waste loads for materials not accepted at the landfill. Staff shall also enquire to the customer whether hazardous materials, such as lead acid batteries, gas bottles, solvents, paints etc, are contained within the load. Empty chemical containers should be checked for triple rinsing before accepting for recycling.
3. Where there is any uncertainty regarding whether soil is contaminated the Waste Management Coordinator will require NATA accredited lab testing before accepting the material on site. This process will enable Council to screen out any single amount of hazardous waste greater than 200 mL/tonne or 200 g/tonne. Soil which has acid sulphate potential must be pH stabilised before it is accepted.
4. Records of all inspections are to be maintained for at least 4 years.
5. The regional EPA office will be notified if any unauthorised hazardous wastes have been discovered on-site. The identity of the person/s found dumping the waste must be reported to the EPA if known.
6. Hazardous waste should be handled by appropriately trained staff. It is the Waste Management Coordinators responsibility to ensure that staff is appropriately trained and that a record of the training is maintained.

UNACCEPTABLE WASTE PROCEDURE

Vehicles that are deemed by BSC staff to be carrying unacceptable waste will be refused entry, redirected, and details of the incident recorded. Details to be recorded include:

- Date and time
- Waste type
- Source of waste
- Appropriate waste management facility and results of contact
- EPA contact if required

BSC personnel will advise the driver of the vehicle of appropriate waste management facilities, or to contact the EPA for advice on appropriate management of the unacceptable waste.
8.7 RECORDING OF WASTES RECEIVED

All waste loads that come into the DWMC will be inspected by Council staff at the gate. As there is no weighbridge Council has approval from the EPA to use a volumetric survey for the recording of wastes received. This involves the council surveyors surveying the tip face green waste and scrap metal stockpiles at the end of each reporting period.

8.8 WASTE COMPACTION

Council will float in plant and equipment as required to ensure that waste is adequately compacted; the small size of the site and low tonnages cannot justify dedicated plant. Currently on site is a 22 tonne Caterpillar excavator which will be remaining for the foreseeable future.

Waste deposited will be spread evenly in layers within the lift and compacted. Generally, the plant will make 3 to 5 passes over the waste and will not operate on slopes exceeding 1:3 (V:H) due to reduced compaction and operational safety considerations. Heavy vehicles may also be directed over completed areas to aid in compaction of the waste.

Council will aim to the desired waste density (>650 kg/m³) required for landfills receiving less than 50,000 tonnes per year. Council is seeking to improve its landfilling efficiency through additional plant such as a tracked loader to be based at the Raleigh Waste Management Centre (RWMC) and floated up to the DWMC as required.

8.9 FILLING PLAN

Conceptual filling plans have been developed for the site by Impact Environmental and are annexed as Drawing 6836-0002-04 in Appendix 2.

Progression towards the final landform will be assessed by the Manager of Environment and Sustainability and the Waste Management Coordinator during the annual volumetric survey.

8.10 COVER MATERIAL

The EPA EPL 13105 states the following with regard to covering of waste:

O5 Cover material must be virgin excavated natural material (VENM) or an alternative cover material approved in writing by the EPA.

(a) Daily cover: Cover material must be applied to a minimum depth of 15 centimetres over all exposed landfilled waste prior to ceasing operations at the end of each day.

(b) Intermediate cover: Cover material must be applied to a depth of 30 centimetres over surfaces of the landfilled waste at the premises which are to be exposed for more than 90 days.

(c) Cover material stockpile At least two weeks cover material must be available at the premises under all weather conditions. This material may be won on site, or alternatively a cover stockpile must be maintained adjacent to the tip face.
**DAILY COVER**

At the end of each day a layer of compacted soil or other EPA approved material will be applied to active surfaces to a minimum depth of 150 mm.

Daily cover is excavated on site and stockpiled near the active face of the landfill. This is supplemented with clean fill delivered to site by residents and small commercial operators. Council will ensure that a stockpile of clean fill is to be kept in sufficient quantities and stockpiled in a readily accessible location for the daily application cover to the active landfill cell.

The filling plans annexed in Appendix 2 indicate that there is potentially 11,696 m³ of airspace remaining at the DWMC landfill. Putrescible landfills tend to require 20 to 25 percent of the available airspace as daily cover. This percentage can increase substantially at smaller landfills where there are low tonnages and an absence of specialised landfill plant. *Table 9* below provides estimates of the daily cover required at the DWMC.

<table>
<thead>
<tr>
<th>COVER MATERIAL</th>
<th>DAILY COVER REQUIRED (M³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 %</td>
<td>2,339</td>
</tr>
<tr>
<td>30 %</td>
<td>3,508</td>
</tr>
<tr>
<td>40 %</td>
<td>4,678</td>
</tr>
</tbody>
</table>

These estimates will require continued revision to reflect the landfill volume consumption rates experienced and the amount of cover used. In order to reduce the need for cover material Council will examine the following measures where practicable:

- Alternative daily cover to be used on non-traficable areas
- Areas of the landfill that will be accessed by vehicles such as the tip face will be covered to a maximum thickness of 150mm; to be thickened to 300mm if it will not be landfilled for 90 days.

**ALTERNATE DAILY COVER**

The use of alternate daily cover (ADC) would enable BSC to minimise cover material requirements and conserve clean fill.

Landfill occupiers are free to specify any alternative cover material (foams, mulch, etc.) provided they can demonstrate compliance with the performance goals specified in benchmark Technique 33 of the Environmental Guidelines: Solid Waste Landfills 1996:

- limiting run-on and infiltration of water
- controlling and minimising risk of fire
- minimising emission of landfill gas
- suppressing site odour
- reducing fly propagation and rodent attraction
- decreasing litter generation

A number of ADC options exist, and one or more of the following could be used at the Dorrigo Landfill subject to EPA approval:
- Tarpaulin style covers and lid style covers for non trafficable areas;
- Fibre mulch applied by spray (potentially including a seed mix) for non trafficable areas;
- Other spray on cover products for non trafficable areas;
- Composts & mulches blended with 10% VENM for non trafficable areas; and
- Crushed brick /concrete/ asphalt for trafficable and non trafficable areas.

BSC may apply to the EPA to trial alternative daily cover. A report on the trial must be submitted to the EPA within 60 days of the trial being completed before approval is granted and an EPL variation awarded.

**INTERMEDIATE COVER**

Intermediate cover is used to close off a cell that will not receive additional lifts of refuse or final cover for some time. Areas of the landfill that remain inactive for a period of greater than 90 days will be covered by 300 mm of compacted soil or other suitable material approved by the EPA.

Upon resuming waste deposition the cover material will be stripped back to a thickness of 100-150mm and stockpiled for reuse as daily cover in subsequent lifts.

**8.11 FINAL CAPPING LAYER**

Council will supply, construct and install landfill capping system at the premises in accordance with Australian Standard HB90.3 (2000) or an alternative construction quality assurance program approved in writing by the EPA in advance.

At the conclusion of landfilling the landfilled areas will be levelled, graded and capped. The cap specifications were provided by the Coffs Harbour Office of the NSW EPA. It will comprise:

- A seal bearing layer (>250mm)
- 500mm Clay sealing layer with permeability less than \( K=10^{-8} \text{ms}^{-1} \)
- 250mm revegetation layer sown with a mixture of native and introduced shallow rooted grasses. Fertiliser and mulch will be applied to assist establishment.

At the current filling rate the landfill has a predicted life of 13 years. During this time new capping techniques such as Phytocapping may become preferable or Government Policy may change. Any alterations to the final proposed capping layer must be approved in writing by the EPA in advance.

The final site contours and landscaping are annexed in Appendix 2.
8.12 WET WEATHER OPERATIONS

The stormwater management and collection systems on site will be constructed and maintained in such a way that minimises the risk of flood events and spills. Access into the landfill will be maintained during all weather conditions without compromising the environmental management of the site. The access roads will be levelled, graded and where practicable sealed to ensure traffic is maintained in a safe manner and damage to the environment and property are minimised.

8.13 FIRE PREVENTION AND CONTROL MEASURES

Council personnel at the landfill will be trained in fire safety practices and are made aware of the location of fire safety equipment on site such as fire extinguishers. Council will work in collaboration with NSW Rural Fire Service who are to be contacted immediately in the event of a fire outbreak. Any fire incidents are to be recorded in detail and reported immediately to the EPA.

The incidence of accidental fires occurring at the site will be minimised by the implementation of the following measures:

1. Signage on display advertising to the public that flammable liquids are not permitted on site;
2. Regular fire break maintenance around the perimeter of the site;
3. Internal fire breaks around combustible stockpiles;
4. Combustible materials such as fuels and other flammables are separated into small secure storage areas away from the active tipping areas;
5. Greenwaste materials are stored separately in small windrows to minimise combustion;
6. Council staff to man the site during operating hours preventing residents from deliberately lighting fires;
7. The regular compaction and covering of the landfill cell to prevent the escape of methane gas;
8. All staff insitu are trained in fire management procedures;
9. A fire log book to record any fire incidents and relevant contact numbers for fire fighting authorities and the OEH will be in a central location readily accessible for staff;
10. All machinery will contain fire extinguishers and staff will be appropriately trained in the use of fire fighting equipment.
11. Clear signage for visitors and staff relating to types of flammable materials not accepted, prohibition of deliberate burning and access to firefighting equipment;
12. Designated non-smoking areas.

In the event of a fire Council will notify the EPA as soon as practical by telephoning the Environment Line service on 131 555 and providing written details of the notification to the EPA within 7 days of the date on which the fire occurred. Under the site’s EPL, Council as licensee will record the following data in relation to fires occurring at the premises:

- Time and date when the fire started;
- Whether the fire was authorised by the licensee, and, if not, the circumstances which ignited the fire.
- The time and date that the fire burnt out or was extinguished;
- The location of fire (e.g clean timber stockpile, putrescibles garbage cell, etc..);
8.14 EQUIPMENT

Council will maintain, hire or purchase required machinery, plant and equipment sufficient to undertake the following:

- Separating and maintaining stockpiles of metals, tyres, timber, concrete and demolition wastes;
- Compaction of landfill lifts;
- Application of daily cover material to exposed waste;
- Landforming and shaping of existing landfill area;
- Spreading of waste;
- Levelling, grading, tidying of landfill areas;
- Closure of landfill cell including capping and revegetation.

All plant and equipment will be maintained in a proper and efficient manner and in accordance with relevant Australian Standards. Maintenance and monitoring of equipment will be undertaken by on-site staff daily. Servicing of equipment and machinery will be undertaken regularly by a suitably qualified third party mechanic as required.

8.15 ASBESTOS HANDLING

Although the DWMC is licensed to receive asbestos as specified in the EPL 13105 none is presently accepted due to site works and lack of staff training in the management procedures. When Council resumes accepting asbestos it will be limited to small domestic loads. All asbestos material accepted at the DWMC will be handled in accordance with Clause 42 of the Protection of the Environment Operations (Waste) Regulation 2005.
Protection of the Environment Operations (Waste) Regulation 2005

(1) This clause applies to any activity that involves the transportation, disposal, re-use or recycling of any type of asbestos waste, regardless of whether the activity is required to be licensed.

(2) A person who carries on an activity to which this clause applies must comply with the requirements specified in this clause in relation to the activity concerned.

Maximum penalty: 400 penalty units in the case of a corporation, 200 penalty units in the case of an individual.

(3) The requirements relating to the transportation of asbestos waste are as follows:

   a. bonded asbestos material must be securely packaged at all times,
   b. friable asbestos material must be kept in a sealed container,
   c. asbestos-contaminated soils must be wetted down,
   d. all asbestos waste must be transported in a covered, leak-proof vehicle.

(4) The requirements relating to the offsite disposal of asbestos waste are as follows:

   a. asbestos waste in any form must be disposed of only at a landfill site that may lawfully receive the waste,
   b. when asbestos waste is delivered to a landfill site, the occupier of the landfill site must be informed by the person delivering the waste that the waste contains asbestos,
   c. when unloading and disposing of asbestos waste at a landfill site, the waste must be unloaded and disposed of in such a manner as to prevent the generation of dust or the stirring up of dust,
   d. asbestos waste disposed of at a landfill site must be covered with virgin excavated natural material or other material as approved in the facility’s environment protection licence:
      i. initially (at the time of disposal), to a depth of at least 0.15 metre, and
      ii. at the end of each day’s operation, to a depth of at least 0.5 metre, and
      iii. finally, to a depth of at least 1 metre (in the case of bonded asbestos waste or asbestos-contaminated soils) or 3 metres (in the case of friable asbestos material) beneath the final land surface of the landfill site.

(5) A person must not cause or permit asbestos waste in any form to be re-used or recycled.

(6) In this clause:
   "bonded asbestos material" means any material (other than friable asbestos material) that contains asbestos.
   "friable asbestos material" means any material that contains asbestos and is in the form of a powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry.

Asbestos will only be accepted at the DWMC after Council staff has received at least 24 hours prior notice, with Council scheduling a time for disposal. The burial of asbestos waste will be carried out immediately with the pit already having been excavated and the cover material nearby.
Council staff will record the amount and the GPS coordinates of the burial pit.
Resident access to the tip face will be restricted until the pit has been covered in 0.5m of soil. The asbestos waste will not be compacted before it is covered, and will not come into direct contact with earthmoving equipment tracks at any time.

8.16 QUALITY ASSURANCE
Council will implement an appropriate quality assurance program for key construction works at the site such as the landfill capping layer. The Australian Standard HB90.3(2000) provides guidance in the application of the ISO 9001:2000 standards for the construction industry. Alternative construction quality assurance programs will be discussed with the EPA.
PART 9 RECYCLING AND RESOURCE RECOVERY

9.1 GENERAL
Bellingen Shire Council will continue to assess methods to maximise materials recovery and minimise the amount of waste going to landfill. Council will continue its involvement in community campaigns to educate the public about separation of waste at the kerb and on site.

9.2 COMINGLED RECYCLABLES
DWMC Field Staff will direct customers to deposit any commingled recyclables into a 34m$^3$ skip bin near the entrance to the facility. The skip bin is serviced by Handybin Waste Services.

9.3 GREENWASTE
DWMC Field Staff will direct customers to deposit any greenwaste adjacent to the greenwaste stockpile. Field Staff will be responsible for periodically inspecting the deposited greenwaste before it is pushed up into the stockpile.

The greenwaste stockpiles shall not exceed a height of two metres. All works required to keep the stockpiles within these size constraints shall be conducted by BSC. Once the stockpiles have reached an adequate size then Council will either engage a contractor to shred the material or transport it to the Biomass facility in Coffs Harbour.

9.4 SCRAP METAL & CAR BATTERIES
Customers will be directed to separate their scrap metal into ferrous metal, non-ferrous metals and batteries upon entering the DWMC.

Ferrous metals are stockpiled along the eastern ridge of the site. Non-ferrous metals comprising mainly aluminium and copper are stockpiled near the southern ridge. Batteries are currently being stored undercover on a bunded pallet. Council is seeking to upgrade the DWMC with dedicated problem waste storage, preferably through the ‘Waste Less, Recycle More’ funding program.

Scrap metal stockpiles will be kept tidy and located in an accessible location for recyclers. All works required to keep the stockpile within these size constraints shall be conducted by DWMC Field Staff. DWMC Field Staff will be responsible for preventing the public from scavenging directly from the scrap metal stockpile.

All arrangements for the removal of scrap metal and batteries, including all income, reside with BSC.

9.5 WASTE OIL
Customers will be directed to place their waste oil containers adjacent to the waste oil shed which is located next to the Reuse Centre (see Appendix 2). DWMC Field Staff will be responsible for decanting containers into the waste oil collection tank provided. Customers are not permitted to have access to the oil collection tank for any reason.
9.6 CONCRETE BRICKS AND TILES
Concrete, bricks and tiles are not specifically separated for recovery due to low volumes and high crushing costs. They are used for engineered fill on site or mixed in with soil for daily cover.

9.7 CLEAN FILL
Residents or contractors delivering clean fill will be directed to the daily cover stockpile area.

9.8 REUSE CENTRE
Items of value that may be sold back to the public and avoid going to landfill include:
- Bulky items such as couches and furniture of a reasonable condition;
- Childrens toys;
- Bikes;
- Drainage pipes of a reasonable condition;
- Carpet of a reasonable condition (as determined by staff);
- Kitchen crockery; and
- Star pickets and tomato stakes;
- Reusable construction materials.
PART 10 ENVIRONMENTAL MANAGEMENT ISSUES

10.1 WATER

10.1.1 LEACHATE MANAGEMENT

The leachate on site consists of stormwater run-off from the active landfill area and greenwaste stockpiles.

Leachate from the Facility will be generally managed by:

- Application of daily cover to waste;
- Diversion of stormwater from the active face of the landfill via a system of bunds on the landfill surface. Stormwater will be directed into the perimeter drainage swale as shown in Drawing 6836-0002-01 Appendix 2;
- Diversion of stormwater from the greenwaste stockpile are via a system of bunds on the landfill surface. Stormwater will be directed into the perimeter drainage swale as shown in Darwing 6836-0002-01Appendix 2;
- Minimising the amount of water used to clean the transfer station and storage areas generally;
- Only operating one active landfill face;
- Intermediate covering of landfilled areas that will be inactive for a period of 90 days or more, to be thickened to 300mm if it will not be landfilled for 90 days.
- Denying the deposition of prohibited wastes.

The small size of the facility, low tonnages (less than 400 tonnes per year) and operational legacy limit the leachate collection and treatment options. Council will be focused on leachate minimisation as the primary method of leachate management. It is expected that any leachate entering the perimeter swale will have its TSS, metals and nutrients reduced as detailed below.

A literature review undertaken by the United States Environmental Protection Agency (USEPA) found that “the effectiveness of grass swales was also quite good for both pollutant removal and runoff volume reduction. A study of three different sites in the United States revealed similar results despite the differences in location. In general, performance of swales is dependent on not only channel length, but also longitudinal slope and the use of check dams to slow flows and allow for greater infiltration. Further, the removal of metals was found to be directly related to the removal rate of total suspended solids, and the removal rate of metals was greater than removal of nutrients.”

The USEPA’s Nationwide Urban Runoff Program (1983) also found that grassed swales reduced soluble and particulate heavy metals by 50% and COD, nitrate and ammonia nitrogen by about 25% when compared to standard curb and gutter.

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8 Low Impact Development, United States EPA, 2000
Should the EPA require dedicated leachate collection infrastructure in the future Council will investigate constructing a collection pond with a leachate barrier of either compacted clay or other liner meeting the required permeability coefficient specified in *Benchmark 1 of the Environmental Guidelines: Solid Waste Landfills*. Leachate generated from the active landfill face would be directed via a system of bunds to the pond. Limiting leachate capture to the active face would allow the footprint of the collection pond to be minimised.

The pond would operate either as an evaporation pond or as a collection and reuse point for dust suppression at the premises. Preliminary calculations by Impact Environmental indicate an evaporation pond surface area of 144 m² and a depth of 1 m would be required. This size would have to be refined in a dedicated leachate generation model. The preliminary calculations are annexed in Appendix 3.

### i. UPGRADES

The following works will be undertaken to improve leachate management:

- Narrowing the active face of the landfill to minimise the surface area able to generate leachate runoff;
- Upgrade of stormwater diversion bunds to divert surface water runoff away from the tipping face;
- Construction of stormwater diversion bunds up-gradient of the greenwaste stockpile area to prevent stormwater run-on;
- Excavation and seeding of a swale drain along northern and north eastern boundary.
LEACHATE MANAGEMENT RESPONSIBILITIES

DWMC Waste Attendant is responsible for:
- Applying daily cover to the active landfill face
- Minimising the surface area of the tipping face
- Regular monitoring of the landfill batters to identify potential areas of leachate seepage
- On receipt of a complaint documenting and advising the Waste Management Coordinator of:
  i. The nature of the complaint
  ii. The date and time of the complaint
  iii. The name and address of the complainant
- Advising the Waste Environment & Operations Manager of any leachate management complaint received
- Complying with the procedures and practices outlined in the LEMP

Waste Management Coordinator is responsible for:
- Regular monitoring of day to day operations to ensure compliance with the EMP
- Investigating any leachate management complaints
- Documenting the results of the investigation and the actions taken
- Maintaining the records of the leachate management complaints on Councils corporate records system
- Implementing this procedure

Manager Environment and Sustainability is responsible for:
- Auditing the DWMC on a regular basis to ensure compliance with the LEMP
- Overall management of the site and the activities carried out in the DWMC

10.1.2 STORMWATER

Stormwater gathered on the site is managed to ensure it is not contaminated with leachate and is free of sediment prior to discharge. The stormwater on site consists of:
- Clean stormwater from roofs, undisturbed and revegetated areas:
- Leachate contaminated stormwater run-off from the active landfill area and greenwaste stockpiles;
- Sediment laden stormwater from disturbed areas; and
- Stormwater runoff from the transfer station.
Council generally will manage contamination of surface water by:

- Constructing and maintaining a series of temporary stormwater drains during landfilling operations to prevent stormwater run-off from entering the active waste disposal area or greenwaste stockpile area;
- Constructing and maintaining a series of bunds to prevent surface water coming into contact with the active face of the landfill;
- Revegetating disturbed areas as soon as practicable;
- Minimising disturbance of areas on site;
- Ensuring swale drains and stormwater detention ponds are cleaned/desilted and functional; and
- Controlling vehicle movements.

Infiltration of surface water will be minimised by maintaining a minimum 1% grade towards all drainage structures. Drainage structures will be constructed at grades no steeper than 3% to minimise scouring. Where the drain slopes exceed 3% the drains shall be suitably lined with crushed rock, grassed or otherwise stabilised to prevent erosion.

It is proposed that Council construct a swale drain and surface water detention pond to minimise the offsite migration of stormwater from the final landform. The swale drain will be constructed along the northern and north eastern boundary as annexed in Drawing 6836-0002-02 Appendix 2. The surface water detention basin will be constructed in the north eastern corner as annexed in Drawing 6836-0005-02 Appendix 2. The pond will have a volume of 378 m³ and an average depth of 1.5 m to contain all runoff expected from a 75th percentile 5-day rainfall event (34.4 mm for Coffs Harbour). Calculations are annexed in Appendix 4.

During storm events the overflow from the stormwater detention pond will exit the site into the drain running along Old Coramba Road. The flow path crosses 900m of grassland before reaching Rocky Creek which will allow for settling of suspended sediments. The sediment pond is designed to evaporate dry during no-flow periods to minimise the retention of poor quality water.

**ii. UPGRADES**

The stormwater management infrastructure will be upgraded, encompassing the following:

- Upgrade of stormwater diversion bunds to divert surface water runoff away from the tipping face;
- Excavation and seeding of a swale drain along northern and north eastern boundary;
- Construction of a surface water detention basin in the north east of the site to limit the amount of runoff exiting the site. Sizing assumptions are annexed in Appendix 4;
- Regrading previously capped areas of the landfill to promote water shedding;
- Revegetating of degraded areas.
SURFACE WATER RESPONSIBILITIES

DWMC Waste Attendant is responsible for:
- Regular monitoring for damage to the surface water management structures on the days the DWMC is open to the public
- Removal of litter from the surface water drainage structures on a weekly basis
- Reporting damage to surface water management structures to the Waste Coordinator.
- Advising the Waste Coordinator of the need to reduce the water level in the containment structures when it reaches the agreed level
- On receipt of a complaint documenting and advising the Waste Management Coordinator of:
  i. The nature of the complaint
  ii. The date and time of the complaint
  iii. The name and address of the complainant
- Advising the Waste Environment & Operations Manager of any surface water management complaint received
- Complying with the procedures and practices outlined in the LEMP

The Waste Management Coordinator is responsible for:
- Co-ordinating the repair of surface water management structures
- Arranging for the cleaning/desilting of surface water management structures to ensure the agreed capacity is maintained
- Investigating any surface water management complaints
- Documenting the results of the investigation and the actions taken
- Maintaining the records of the surface water management complaints on Council's corporate records system
- Implementing this procedure

Manager Environment and Sustainability is responsible for:
- Auditing the DWMC on a regular basis to ensure compliance with the LEMP
- Overall management of the site and the activities carried out in the DWMC
10.2 NOISE MANAGEMENT

DWMC’s EPL 13105 does not specify any noise limits. Council will seek to ensure that the noise generated from the site is minimised by implementing the following measures:

- Plant and equipment is to be used within specified working hours that will have the least impact on surrounding residents, i.e. sometime between the standard working hours of 9.00am – 5.00pm;
- All landfill machinery, plant and equipment is to be maintained regularly in a proper and workmanlike manner;
- Traffic to be controlled by Council staff ensuring that residents accessing the site use designated roads away from work areas.

The landfill site is not in close proximity to neighbouring residents and there have been no recorded complaints received by Council regarding noise pollution. Generally there are small movements of vehicles at any one given time and the traffic into and out of the site is relatively minor. Plant and equipment on site is generally run infrequently. Noise measurements will only be taken should valid complaints be received.

### NOISE MANAGEMENT RESPONSIBILITIES

**DWMC Waste Attendant is responsible for:**
- Regular monitoring of the noise levels on the days the DWMC is open to the public and informing the Waste Management Coordinator if it is believed that the license conditions are being exceeded
- On receipt of a complaint documenting and advising the Waste Coordinator of:
  - The nature of the complaint
  - The date and time of the complaint
  - The name and address of the complainant
- Complying with the procedures and practices outlined in the EMP

**The Waste Management Coordinator is responsible for:**
- Monitoring of noise levels on the days the DWMC is open to the public
- Taking steps to limit noise levels if it is believed that the license conditions are being exceeded
- Investigating any noise complaints
- Documenting the results of the investigation and the actions taken
- Maintaining the records of the noise complaints on Councils corporate records system
- Implementing this procedure

**Manager Environment and Sustainability is responsible for:**
- Auditing the DWMC on a regular basis to ensure compliance with the EMP
- Overall management of the site and the activities carried out in the Facility
10.3 ODOUR CONTROL

The landfill is not in close proximity to neighbouring residents and there have been no recorded complaints regarding odour arising from the landfill that can be found on Councils records. Operations at the landfill are undertaken in such a manner so as to minimise the generation of odour and impacts on surrounding landholders.

At present, all animal carcasses are directed to Raleigh but Council may review this decision in the future.

All practicable measures will be implemented to minimise future offensive odours escaping the site. These include:

- Application of daily cover to putrescible waste as detailed in 8.10;
- Covering all animal carcasses deposited a dedicated animal burial pit with daily cover material;
- Maintenance of surface water control structures to ensure that stormwater does not enter the active landfill face.

Any odorous identified will be covered immediately with cover material.

ODOUR CONTROL RESPONSIBILITIES

DWMC Waste Attendant is responsible for:
- Regular monitoring of odour levels on the days the DWMC is open to the public
- Cleaning of the waste receiveal bin bays and the transfer station generally
- On receipt of a complaint documenting and advising the Waste Coordinator of:
  i. The nature of the complaint
  ii. The date and time of the complaint
  iii. The name and address of the complainant
- Complying with the procedures and practices outlined in the EMP

The Waste Management Coordinator is responsible for:
- Monitoring of odour levels on the days the DWMC is open to the public
- If necessary, taking steps to limit odour levels
- Investigating any odour complaints
- Documenting the results of the investigation and the actions taken
- Maintaining the records of the noise complaints on Councils corporate records system
- Implementing this procedure

Manager Environment and Sustainability is responsible for:
- Auditing the DWMC on a regular basis to ensure compliance with the EMP
- Overall management of the site and the activities carried out in the Facility
10.4 LITTER CONTROL

Council will take all practical measures to prevent the incidence of wind-blown litter at the Dorrigo Waste Management Centre Landfill site.

Other measures that are currently adopted by Council to control litter on site include:

- Litter fence and screen patrols on a daily basis;
- Vehicles entering the landfill must be covered. Council will enforce the covering of loads to prevent escaped litter;
- Intermediate covering of waste layers at the end of each day and as often as required.

LITTER CONTROL RESPONSIBILITIES

DWMC Waste Attendant is responsible for:

- Applying daily cover to the active landfill face
- Conducting litter patrols on the days the DWMC is open to the public
- Notifying residents of the requirement to cover loads when entering the DWMC
- Inspecting perimeter fencing for areas where litter has migrated offsite
- Cleaning of the waste receival bin bays and the transfer station generally
- On receipt of a complaint documenting and advising the Waste Coordinator of:
  i. The nature of the complaint
  ii. The date and time of the complaint
  iii. The name and address of the complainant
- Complying with the procedures and practices outlined in the EMP

The Waste Management Coordinator is responsible for:

- Monitoring of litter levels on the days the DWMC is open to the public
- If necessary, taking steps to limit litter generation
- Investigating any litter complaints
- Documenting the results of the investigation and the actions taken
- Maintaining the records of the noise complaints on Councils corporate records system
- Implementing this procedure

Manager Environment and Sustainability is responsible for:

- Auditing the DWMC on a regular basis to ensure compliance with the EMP
- Overall management of the site and the activities carried out in the Facility
10.5 DUST CONTROL

Council will maintain the facility in a condition which minimises the emission of dust from the premises. The primary access road is bitumen sealed which reduces potential dust generation. The waste transfer station reduces the total number of vehicle movements on the internal unsealed roads.

Council will ensure that dust generation at the site is minimised where practicable by adhering to the following practices:

- Use of water cart as required on dusty roads, and loads as required;
- Maintenance and enforcement of careful speed limits within the site to avoid disturbance of roads and dust generation;
- Landfill machinery and equipment to be washed frequently;
- To delay or suspend earthmoving activities when excessive dust is being generated that may affect neighbouring residents; and
- To rehabilitate and revegetate landfill areas as soon as practicable after works have been completed.

DUST CONTROL RESPONSIBILITIES

DWMC Waste Attendant is responsible for:

- Regular monitoring of dust generation on the days the DWMC is open to the public
- On receipt of a complaint documenting and advising the Waste Coordinator of:
  i. The nature of the complaint
  ii. The date and time of the complaint
  iii. The name and address of the complainant
- Complying with the procedures and practices outlined in the EMP

The Waste Management Coordinator is responsible for:

- Monitoring of dust generation on the days the DWMC is open to the public
- Taking steps to limit dust generation if it is believed that the license conditions are being exceeded
- Investigating any dust complaints
- Documenting the results of the investigation and the actions taken
- Maintaining records of that dust complaints on Councils corporate records system
- Implementing this procedure

Manager Environment and Sustainability is responsible for:

- Auditing the DWMC on a regular basis to ensure compliance with the EMP
- Overall management of the site and the activities carried out in the Facility
10.6 LANDFILL GAS MANAGEMENT

The landfill will be operated to minimise the generation and effect of odours arising from the waste management operations. Council will ensure that landfill gas generation at the site is minimised by adhering to the following practices:

- Regular compaction of exposed waste at the active landfill as discussed in section 8.8;
- Application of daily cover to exposed waste as discussed in section 8.10;
- Animal waste (offal) and putrescibles material is to be deposited into the designated animal pit and covered immediately with soil.

There has been a rapid decline in the amount of putrescible material landfilled since the beginning of the Coffs Coast Waste Services collection contract in 2007. The contract saw the addition of a third bin allowing for the source separation of household organics which are sent to the Biomass facility in Coffs Harbour for composting. Kerbside putrescible MSW is also directed to the same facility where the organic fraction is recovered. This lack of putrescible material limits the availability of nutrients for methane-generating bacteria.

Under the EPL 13105 landfill gas monitoring is not required at the DWMC. Landfill gas measurements will only be taken in the event of persistent odours or as requested by the EPA.

LANDFILL GAS MANAGEMENT RESPONSIBILITIES

DWMC Waste Attendant is responsible for:

- Ensuring daily cover is applied to waste
- Informing the Waste Management Coordinator of persistant strong odours on the landfill surface or in the site buildings
- Maintenence of stormwater diversion structures as detailed in 10.1.2 Stormwater.
- On receipt of a complaint documenting and advising the Waste Coordinator of:
  i. The nature of the complaint
  ii. The date and time of the complaint
  iii. The name and address of the complainant
- Complying with the procedures and practices outlined in the EMP

The Waste Management Coordinator is responsible for:

- Investigating any landfill gas complaints
- Documenting the results of the investigation and the actions taken
- Maintaining the records of the landfill gas complaints on Councils corporate records system
- Implementing this procedure

Manager Environment and Sustainability is responsible for:

- Auditing the DWMC on a regular basis to ensure compliance with the EMP
- Overall management of the site and the activities carried out in the Facility
10.7 **FERAL PESTS AND VERMIN CONTROL**

The compaction and covering of waste will minimise the incidence of feral pests such as cats, rats and foxes. Council will manage pest and vermin numbers through the use of baits, traps and bird scares where required. Should the use of chemicals be deemed necessary, care will be exercised to ensure that chemicals are not subject to stormwater or leachate runoff or not susceptible to becoming air borne and posing an environmental pollution hazard.

Areas of the DWMC that will require particular attention will be the:

- tipping face;
- scrap metal, tyre and greenwaste stockpiles

### FERAL PESTS AND VERMIN CONTROL RESPONSIBILITIES

**DWMC Waste Attendant is responsible for:**

- Ensuring daily cover is applied to waste
- Regular monitoring of feral pests and vermin on the days the DWMC is open to the public
- On receipt of a complaint documenting and advising the Waste Coordinator of:
  1. The nature of the complaint
  2. The date and time of the complaint
  3. The name and address of the complainant
- Complying with the procedures and practices outlined in the EMP

**The Waste Management Coordinator is responsible for:**

- Monitoring of dust feral pests and vermin on the days the DWMC is open to the public
- Ensuring DWMC staff are trained in the identification of relevant pests and vermin of concern in order to effectively manage landfill site
- Arranging for baiting and trapping and bird scares when required
- Investigating any feral pests or vermin complaints
- Documenting the results of the investigation and the actions taken
- Maintaining the records of the feral pests or vermin complaints on Councils corporate records system
- Implementing this procedure

**Manager Environment and Sustainability is responsible for:**

- Auditing the DWMC on a regular basis to ensure compliance with the EMP
- Overall management of the site and the activities carried out in the Facility
10.8 WEED MANAGEMENT

Weed management is required to be undertaken as frequently as deemed necessary to sufficiently control numbers. Council will undertake regular patrols and spray weeds as deemed necessary. To minimise the incidence of weed growth, disturbed landfill areas will be revegetated as soon as practicable. Green waste material will be stockpiled appropriately in windrows to ensure organic matter and seed banks are kept at optimum temperatures for organic breakdown. Residents will be directed to cover all incoming and outgoing loads containing waste material, including green waste, to prevent dispersal of seed.

Particular attention will be given to locations where weeds are most prevalent such as sumps, leachate drains and pillar box drains as well as around the green waste deposit areas.

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WEED MANAGEMENT RESPONSIBILITIES

**DWMC Waste Attendant is responsible for:**

- Ensuring daily cover is applied to waste
- Regular monitoring of weeds on the days the DWMC is open to the public
- On receipt of a complaint documenting and advising the Waste Coordinator of:
  i. The nature of the complaint
  ii. The date and time of the complaint
  iii. The name and address of the complainant
- Complying with the procedures and practices outlined in the EMP

**The Waste Management Coordinator is responsible for:**

- Monitoring of weeds on the days the DWMC is open to the public
- Ensuring DWMC staff are trained in the identification of weeds of concern in order to effectively manage landfill site.
- Arranging for sprays of pesticides to target weeds
- Investigating any weed complaints
- Documenting the results of the investigation and the actions taken
- Maintaining the records of the weeds complaints on Councils corporate records system
- Implementing this procedure

**Manager Environment and Sustainability is responsible for:**

- Auditing the DWMC on a regular basis to ensure compliance with the EMP
- Overall management of the site and the activities carried out in the Facility
10.9 **FINANCIAL ASSURANCE**

Council must ensure that it has the financial assurance to appropriately manage and undertake required developments at the DWMC. It is a means of ensuring that landfill operators adequately plan for emergency closure, site remediation and post closure care, by providing a specific mechanism to accumulate requisite funding during the life of the landfill. The estimated costs of closing the landfill are set out below.

It is not clear whether older areas of the landfill have been capped to the required standard. As a result it was assumed that 3.5 hectares of the site would require capping and remediation at the time of closure. The Victorian EPA’s Determination of Financial Assurance for Landfills (2001) was used to provide an estimate of the cost of closure and remediation costs. Prices for raw materials and construction were increased from 2001 prices to bring them in line with inflation. Capping thicknesses were provided by the Coffs Harbour EPA office who stated:

“...the Dorrigo landfill will only require three layers being a seal bearing surface, a sealing layer and a revegetation layer. The overall depth of the cap should be at least 100 centimetres.”

The cost of closure and final rehabilitation is estimated to be at least $600,000 at today’s (2013) dollars. This amount is a preliminary calculation that will require refinement in line with future regulatory changes. Council will ensure that the funds in the landfill reserve are capable of covering closure, site remediation and post closure care of the DWMC.

**FINANCIAL ASSURANCE RESPONSIBILITIES**

**DWMC Waste Attendant/Field Staff are responsible for:**
- Collecting waste disposal fees from residents accessing the facility
- Balancing the cash register after the DWMC has closed each day
- Depositing collected cash in the bank account specified by the Waste Management Coordinator

**The Waste Management Coordinator is responsible for:**
- Auditing the DWMC cash flow on a regular basis

**Manager Environment and Sustainability is responsible for:**
- Ensuring that revenue collected from the Domestic Waste Management Charge and waste disposal fees
- Ensuring funds in the landfill reserve are capable of covering closure, site remediation and post closure care of the DWMC
PART 11 ENVIRONMENTAL MONITORING

11.1 RECORDS

Bellingen Shire Council shall ensure that environmental monitoring of groundwater, surface water and landfill gas are carried out in accordance with EPA Environmental Guidelines: Solid Waste Landfills and the EPA publication Methods for Sampling and Analysis of Water Pollutants in NSW. Monitoring will be undertaken as required under the EPL 13105 and this LEMP to ensure legislative and regulatory requirements are met. The sampling will be undertaken by suitably qualified environmental scientists as nominated by Council. All samples collected will be sent to a NATA registered laboratory for final analysis and reporting.

For each of the required monitoring points records will be kept of any samples collected for the purposes of this licence:

- the date(s) on which the sample was taken;
- the time(s) at which the sample was collected;
- the point at which the sample was taken; and
- the name of the person who collected the sample.

All records required to be kept by BSC will be:

- in a legible form, or in a form that can readily be reduced to a legible form;
- kept for at least 4 years after the monitoring or event to which they relate took place; and
- produced in a legible form to any authorised officer of the EPA who asks to see them.

11.2 GROUNDWATER

LOCATION POINTS AND MONITORING

Groundwater quality sampling and testing is not required in EPA Licence 13105. However except as may be expressly provided in any other condition of the licence, BSC must comply with section 120 of the Protection of the Environment Operations Act 1997.

120 Prohibition of pollution of waters

(1) A person who pollutes any waters is guilty of an offence.

Note: An offence against subsection (1) committed by a corporation is an offence attracting special executive liability for a director or other person involved in the management of the corporation-see section 169.

(2) In this section:

"pollute" waters includes cause or permit any waters to be polluted.
GROUNDWATER POLLUTION DETECTION

In the event that BSC is required to undertake groundwater sampling the results of analyses will be compared to ANZECC guidelines for aquatic ecosystems where relevant trigger levels exist. If the parameters measured during testing exceed the established limits than the affected monitoring boreholes will be re-sampled as soon as possible. If the contamination is confirmed by the re-sampling, the EPA will be notified by Council, in writing, within 14 days.

Within 28 days of notifying the EPA Council will prepare a detailed groundwater assessment plan which will determine the extent of remediation required. Upon completion of the groundwater assessment program a remediation plan will be prepared, if required by the EPA, detailing the corrective actions proposed.

11.3 LEACHATE

Leachate monitoring, sampling and testing is not required in EPA Licence 13105. In the event that intermittent leachate monitoring is required by the EPA the monitoring will be the responsibility of the Waste Management Coordinator.

11.4 SURFACE WATER

Surface water quality monitoring, sampling and testing is not required in EPA Licence 13105. Upon completion of the stormwater detention pond it is proposed that stormwater monitoring periodically occur at the discharge point on the northern boundary during overflow events. The parameters to be tested should include the basic leachate fingerprint of ammonia.

In the event that intermittent surface water monitoring is required by the EPA the monitoring will be the responsibility of the Waste Management Coordinator. Samples shall be taken from a point 100mm below the surface by appropriately qualified personnel. Surface water quality data will be compared to previously recorded trends and ANZECC guidelines for aquatic ecosystems.

SURFACE WATER POLLUTION DETECTION

If the parameters measured during testing exceed the established limits than the affected monitoring point will be re-sampled as soon as possible. If the contamination is confirmed by the re-sampling, the EPA will be notified by Council, in writing, within 14 days.

Within 28 days of notifying the EPA Council will prepare a detailed surface water assessment plan which will determine the extent of remediation required. Upon completion of the surface water assessment program a remediation plan will be prepared, if required by the EPA, detailing the corrective actions proposed.
11.5  LANDFILL GAS

Landfill gas monitoring is not required in EPA Licence 13105. In the event that intermittent landfill gas monitoring is required by the EPA, the monitoring will be the responsibility of the Waste Management Coordinator. Monitoring will be conducted on calm days with wind speeds less than 10 km/hour.

The EPA will be notified within 24 hours if landfill gas monitoring detects methane above 1.25% (v/v). The frequency of landfill gas monitoring will then be increased to daily, until the EPA determines otherwise.

**REMITIATING LANDFILL GAS EMISSIONS**

If the gas surface emissions and accumulation testing detects methane levels exceeding 1.25% methane (v/v) then sub surface gas monitoring and possibly surface remediation will be required. The preparation of an assessment program will be undertaken detailing sub surface gas monitoring and site remediation plans. The assessment program shall be the responsibility of the Waste Management Coordinator and shall be prepared and initiated within one week of the elevated gas measurement. A remediation plan, if necessary, shall be prepared on completion of the assessment program and in consultation with the EPA.

In the event of a gas monitoring triggering the EPA threshold of 1.25% (v/v) the Waste Management Coordinator will be responsible for installing a passive venting system. This would involve sinking of perforated shafts or the layering of perforated collection pipes under the final cover soil within the refuse layer.

11.6  COMPLAINTS HANDLING

Complaints received from an outside party will be reported, investigated and appropriate action taken/implemented as required. Complaints are received through the Council office or through the Waste Management Coordinator after hours as listed in 13.3 Incident Reporting.

Any complaint received will be investigated including:

- Date and time of the complaint;
- The cause of the complaint;
- The climatic conditions at the time of the incident which is the cause of the complaint;
- If known, the date and time the incident took place;
- The occurrence of similar complaints in the past;
- Actions taken in the past to overcome similar complaints.

Details of the complaint received, investigations and actions taken are to be recorded on Council's Corporate Records System and kept for at least four years. The records will be available in either electronic or physical form to any authorised officer of the EPA who asks to see them.
PART 12  SITE CLOSURE AND REHABILITATION

The landfill has predicted life of up to 13 years by which time it is likely this LEMP will have been reviewed in line with changes in Government policy and technology.

Upon completion, the maximum slope angles on the landfill batters shall not exceed 1 (vertical) to 3 (horizontal) (33%) and level parts of the landfill will be domed or graded to a minimum 5% to minimise infiltration and consequent leachate generation. Rehabilitation of the batter slopes shall be undertaken at the end of each lift with the final rehabilitation of the landfill surface occurring at the end of the final stage.

12.1  CLOSURE PLAN

BSC will prepare and submit a written closure plan to the NSW EPA within 12 months prior to the last load of waste being landfilled a closure plan in accordance with section 76 of the Protection of the Environment Operations Act 1997. The plan will detail as a minimum:

- The schedule and means proposed for closure and rehabilitation and for any remediation required;
- Maintenance, monitoring and reporting required until such time as the landfill does not pose a threat to the environment;
- Complaint recording and corrective action procedures;
- Measures proposed to safeguard against waste materials being deposited following closure of the landfill. Waste materials that are intended for use in site remediation will be reported and documented.

BSC may apply to complete all obligations with the landfill site and retrieve any financial assurance lodged with the NSW EPA by submitting a Certified Statement of Completion. The statement of completion specifies that the landfill site had been remediated and further environmental management of the premises is not required. The certified statement of completion must provide evidence of the following:

- Gas concentrations measure on the surface of the landfill are below the lower explosive limit (LEL) of 5% for methane.
- Waste stabilisation is complete. This would be shown by the leachate containing a low level of contamination and posing no environmental threat;
- Groundwater monitoring indicates that the interceptor trench is operating correctly;
- Over several years of assessment, the landfill capping is found to be stable with acceptable water drainage;
- Written documentation and confirmation that the closure plan submitted has been completed;
- Notify the NSW EPA that the site is now classed as contaminated land under the Contaminated Land Management Act 1997.
12.2 POST CLOSURE MANAGEMENT

Post closure management of the DWMC will encompass ongoing environmental management, environmental monitoring, and maintenance of the landfill.

ENVIRONMENTAL MANAGEMENT

Environmental management will consist of:
- Maintenance of stormwater structures;
- Maintenance of leachate interceptor trench, leachate storage tanks and pumps;
- Management of surface water runoff from the waste transfer station, reuse shop and remaining scrap metal stockpiles.

ENVIRONMENTAL MONITORING

BSC will maintain the same monitoring program and reporting practices for leachate, groundwater, stormwater and landfill gas as used throughout the operation of the site.

MAINTENANCE

Post-closure landfill maintenance will consist of:
- Identifying any cracks that may occur in the final cover layer;
- Inspecting the landfill surface for depressions that will hinder surface water runoff and promote infiltration;
- Repairing erosion damage to the capping layer;
- Maintenance of vegetation to limit erosion;
- Ensuring monitoring borehole and surface water points are maintained and accessible.
13.1 MONTHLY SECTION 88 LEVY REPORTING

Monthly reports will be provided to the EPA within 56 days of the end of each month, and will include information for that month on:

1. the quantity, source (MSW, C&I, C&D) and type of waste received at the facility
2. the quantity and type of waste transported from the facility
3. any other information specified by DECCW

The quantity of waste will be determined using the EPA's weight conversion factors.

BSC will keep records for at least 3 years of:

- the movement of waste into the DWMC
- the movement of waste within the RMWC
- the movement of waste material or recycled, recovered or processed material out of the DWMC
- exempted waste that is received at the DWMC

At all times BSC will comply with the Waste and Environment Levy: Operational Guidance Notes (2009) published by EPA.

13.2 ANNUAL REPORTING

An Annual Return will be prepared by Bellingen Council and submitted to the EPA for the required reporting period i.e. twelve (12) months ending 29 June. Under the terms of the EPL 13105, the Annual Return must be submitted by Council to the EPA no later than sixty (60) days after the expiry of the reporting period in the approved form comprising a signed Statement of Compliance and Monitoring and Complaints Summary.

The Monitoring and Complaints Summary will generally include information such as:

- a summary report on total wastes received;
- summary report of fires that occurred on site;
- a copy of odour litter and other complaints received by the landfill in the past twelve months and
- a summary of any incident reports during the 12 month reporting period

A copy of the Annual Return for the period 30 June 2012 to 29 June 2013 is annexed in Appendix 5.
13.3 INCIDENT REPORTING

The Protection of the Environment Operations Act (POEO) 1997 requires that if a licensee becomes aware of a pollution incident, they are required to report pollution incidents immediately.

Section 147 of the POEO Act:

Harm to the environment is material if:

- it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or
- it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and
- loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

Bellingen Council has implemented a Pollution Incident Response Management Plan (PIRMP) for the DWMC to report pollution incidents as they happen. Should a pollution incident occur Councils primary duty will be to enact the relevant procedure in the PIRMP. A copy will be kept on site and referred to in the case of an incident. Notifications will be made by telephoning the EPA’s Pollution Line service on 131555. Under the terms of the EPL, a written report must be submitted within seven (7) days of the date on which the incident occurred. Examples of incidents under the EPL that require reporting include but are not limited to:

- Discharge of untreated leachate into the environment from landfill operations
- Ground water contamination
- Leachate spring eruption
- Fire at tip face
- Fire in transfer bin
- Fire in incoming load
- Fire in green waste stockpile
- Chemical spill
- Oil/fuel spills
- Failure of hazardous material containment tanks/bund
- Windblown litter
- Odour
- Dust
- Explosion (gas cylinders, methane)
- Escape of refrigerant gases
The occurrence of any incident will be recorded in the site’s daily logbook as appropriate. The EPA shall be notified of any incident that represents a material threat to the environment and which may lead to a breach of the license conditions immediately.

A written incident report will be provided to the EPA if requested by the authorised officer of the EPA. The report will include, but not be limited to, the following details.

i. The cause, time and duration of the event;
ii. The type, volume and concentration of every pollutant discharged as a result of the event;
iii. The name, address and business hours telephone number of employees of CMSC or other witnesses;
iv. Actions taken by the BSC in relation to the event; and
v. Details of any measure taken to proposed to be taken to prevent or mitigate against a recurrence of such an event;
vi. Any other relevant matters

**EMERGENCY CONTACTS**

Below is a list of incident response individuals and organizations that may be needed during a pollution incident. *Table 10* contains Council staff contact details and *Table 11* contains emergency organisations.

### Table 10 – BELLINGEN SHIRE COUNCIL CONTACTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
<th>CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Council Office</td>
<td>-</td>
<td>(02) 6655 7300</td>
</tr>
<tr>
<td>Aaron Davies</td>
<td>Dorrigo Waste Management Centre Waste Attendant</td>
<td>0417 239 447</td>
</tr>
<tr>
<td>Sam Tate</td>
<td>Waste Management Coordinator</td>
<td>0427 715 343</td>
</tr>
<tr>
<td>Daan Schiebaan</td>
<td>Manager Sustainability and Natural Resources</td>
<td>0407 662 963</td>
</tr>
<tr>
<td>ORGANISATION</td>
<td>CONTACT NAME</td>
<td>CONTACT DETAILS</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Fire and Rescue NSW</td>
<td>Duty Officer</td>
<td>1300 729 579</td>
</tr>
<tr>
<td>Police Force NSW</td>
<td>Duty Officer</td>
<td>66551444 (Bellingen) 000</td>
</tr>
<tr>
<td>Ambulance Service of NSW</td>
<td>Duty Officer</td>
<td>1312 333 000</td>
</tr>
<tr>
<td>Bellingen River District Hospital</td>
<td>Reception</td>
<td>6659 5800 000</td>
</tr>
<tr>
<td>Department of Environment and Conservation (EPA)</td>
<td>EPA Environment Line</td>
<td>131 555</td>
</tr>
<tr>
<td>Department of Environment and Conservation (NP&amp;WS)</td>
<td>NSW Parks and Wildlife Service</td>
<td>6657 2309</td>
</tr>
<tr>
<td>Workcover Authority</td>
<td>Duty Officer</td>
<td>131 050</td>
</tr>
<tr>
<td>Department of Primary Industries (NSW Fisheries)</td>
<td>Reception</td>
<td>1300 550 474</td>
</tr>
<tr>
<td>Forests NSW</td>
<td>Coffs Harbour Regional Office</td>
<td>6652 0111</td>
</tr>
<tr>
<td>Poisons Information</td>
<td>Duty Officer</td>
<td>131126 000</td>
</tr>
<tr>
<td>NSW Ministry of Health</td>
<td>Reception</td>
<td>9391 9000</td>
</tr>
<tr>
<td>Department of Families and Community Services</td>
<td>Reception</td>
<td>9248 0900</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>----------</td>
<td>------------</td>
</tr>
<tr>
<td>State Emergency Service</td>
<td>Duty Officer</td>
<td>132 500 000</td>
</tr>
<tr>
<td>Roads and Traffic Authority</td>
<td>Reception</td>
<td>132 213</td>
</tr>
<tr>
<td>Bureau of Meteorology</td>
<td>Land weather and flood warnings</td>
<td>1300 659 218</td>
</tr>
<tr>
<td>Rural Fire Service</td>
<td>Reception</td>
<td>000</td>
</tr>
</tbody>
</table>


APPENDIX 1: ENVIRONMENTAL PROTECTION LICENSE
# Environment Protection Licence

## Licence Details
- **Number:** 13105
- **Anniversary Date:** 30-June
- **Review Due Date:** 30-Jun-2014

## Licensee
- **BELLINGEN SHIRE COUNCIL**
- **PO BOX 117**
- **BELLINGEN NSW 2454**

## Licence Type
- **Premises**

## Premises
- **Dorrigo Waste Management Centre**
- **Old Coramba Rd**
- **DORRIGO NSW 2453**

## Scheduled Activity
- Waste storage
- Waste disposal (application to land)

## Fee Based Activity
<table>
<thead>
<tr>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste disposal (application to land)</td>
</tr>
</tbody>
</table>

## Region
- **Waste Ops Coffs Harbour Compliance Team**
- **Federation House, 20 Moonee Street**
- **COFFS HARBOUR NSW 2450**
- **Phone:** 02 6651 5946
- **Fax:** 02 6659 8257
- **Locked Bag 914 COFFS HARBOUR**
- **NSW 2450**
# Environment Protection Licence

**Licence - 13105**

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Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 (“the Act”) and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees.
The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence
The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data
Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

<table>
<thead>
<tr>
<th>BELLINGEN SHIRE COUNCIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO BOX 117</td>
</tr>
<tr>
<td>BELLINGEN NSW 2454</td>
</tr>
</tbody>
</table>

subject to the conditions which follow.

1 Administrative conditions

A1 What the licence authorises and regulates

A1.1 Not applicable.

A1.2 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.
Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

### Scheduled Activity

<table>
<thead>
<tr>
<th>Activity</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste storage</td>
<td></td>
</tr>
<tr>
<td>Waste disposal (application to land)</td>
<td></td>
</tr>
</tbody>
</table>

### Fee Based Activity

<table>
<thead>
<tr>
<th>Activity</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste disposal (application to land)</td>
<td>0 - All</td>
</tr>
</tbody>
</table>

A1.3 Not applicable.
A2 Premises to which this licence applies

A2.1 The licence applies to the following premises:

<table>
<thead>
<tr>
<th>Premises Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dorrigo Waste Management Centre</td>
</tr>
<tr>
<td>Old Coramba Rd</td>
</tr>
<tr>
<td>DORRIGO</td>
</tr>
<tr>
<td>NSW</td>
</tr>
<tr>
<td>2453</td>
</tr>
<tr>
<td>LOT 167 752813 AS INDICATED IN SHADED</td>
</tr>
<tr>
<td>AREA OF MAP DGLF02</td>
</tr>
<tr>
<td>DRAWN BY STEVEN GREEN JUNE 2009 AS</td>
</tr>
<tr>
<td>ATTACHED</td>
</tr>
</tbody>
</table>

A3 Other activities

A3.1 Not applicable.

A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and

(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to air and water and applications to land

P1 Location of monitoring/discharge points and areas
P1.1 Not applicable.

P1.2 Not applicable.

P1.3 Not applicable.

3 Limit conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

L2.1 Not applicable.

L2.2 Not applicable.

L3 Concentration limits

L3.1 Not applicable.

L3.2 Not applicable.

L3.3 Not applicable.

L4 Volume and mass limits

L4.1 Not applicable.

L5 Waste

L5.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.
Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below.

Condition L5.1 does not limit any other conditions in this licence.

<table>
<thead>
<tr>
<th>Code</th>
<th>Waste</th>
<th>Description</th>
<th>Activity</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>General Solid Waste (putrescible)</td>
<td>As defined in schedule</td>
<td>Waste Disposal (application to Land)</td>
<td>Max 5,000t per annum of waste disposed</td>
</tr>
<tr>
<td></td>
<td>General Solid Waste (non putrescible)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asbestos Waste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste Tyres</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NA</td>
<td>Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time</td>
<td></td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

L6  Noise Limits

L6.1  Not applicable.

4  Operating conditions

O1  Activities must be carried out in a competent manner

O1.1  Licensed activities must be carried out in a competent manner.

This includes:
(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2  Maintenance of plant and equipment

O2.1  All plant and equipment installed at the premises or used in connection with the licensed activity:
(a) must be maintained in a proper and efficient condition; and
(b) must be operated in a proper and efficient manner.
O3 Closure plan

O3.1 The last licensee must prepare and submit to the EPA within 12 months prior to the last load of waste being landfilled a closure plan in accordance with section 76 of the Protection of the Environment Operations Act 1997.

O4 Management of surface waters

O4.1 The perimeter of the areas where waste is being landfilled must be contoured to prevent stormwater running onto these surfaces.

O5 Covering of waste

Cover material must be
(a) Daily cover
   Cover material must be either
   (i) virgin excavated natural material, or
   (ii) approved alternative daily cover.

   Cover material must be applied to a minimum depth of 15 centimetres over all exposed landfilled waste prior to ceasing operations at the end of each day.

(b) Intermediate cover
   Cover material must be virgin excavated natural material and must be applied to a depth of 30 centimetres over surfaces of the landfilled waste at the premises which are to be exposed for more than 90 days.

(c) Cover material stockpile
   At least two weeks cover material must be available at the premises under all weather conditions. This material may be won on site, or alternatively a cover stockpile must be maintained adjacent to the tip face.

O6 Control of pests, vermin and weeds

O6.1 The licensee must control pests, vermin and weeds at the premises.

O7 Fire extinguishment

O7.1 The licensee must extinguish fires at the premises as soon as possible.

O8 Dust

O8.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.
O9  Potentially offensive odour

O9.1  No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note:  Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

5  Monitoring and recording conditions

M1  Monitoring records

M1.1  The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2  All records required to be kept by this licence must be:
   (a)  in a legible form, or in a form that can readily be reduced to a legible form;
   (b)  kept for at least 4 years after the monitoring or event to which they relate took place; and
   (c)  produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3  The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
   (a)  the date(s) on which the sample was taken;
   (b)  the time(s) at which the sample was collected;
   (c)  the point at which the sample was taken; and
   (d)  the name of the person who collected the sample.

M2  Requirement to monitor concentration of pollutants discharged

M2.1  Not applicable.

M3  Testing methods - concentration limits

M3.1  Not applicable.

M3.2  Not applicable.
M4  Recording of pollution complaints

M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M4.2 The record must include details of the following:
(a) the date and time of the complaint;
(b) the method by which the complaint was made;
(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
(d) the nature of the complaint;
(e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
(f) if no action was taken by the licensee, the reasons why no action was taken.

M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M5  Telephone complaints line

M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M5.3 Conditions M5.1 and M5.2 do not apply until 3 months after:
(a) the date of the issue of this licence or
(b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

M6  Requirement to monitor volume or mass

M6.1 Not applicable.

6  Reporting conditions
R1    Annual return documents

What documents must an Annual Return contain?

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
(a) a Statement of Compliance; and
(b) a Monitoring and Complaints Summary.
A copy of the form in which the Annual Return must be supplied to the EPA accompanies this licence. Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

Period covered by Annual Return

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
(a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
(b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
(a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
(b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

Deadline for Annual Return

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

Notification where actual load can not be calculated

R1.6 Not applicable.

Licensee must retain copy of Annual Return

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.
Certifying of Statement of Compliance and signing of Monitoring and Complaints Summary

R1.8 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
(a) the licence holder; or
(b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.9 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

R2 Notification of environmental harm

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
(a) where this licence applies to premises, an event has occurred at the premises; or
(b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
(a) the cause, time and duration of the event;
(b) the type, volume and concentration of every pollutant discharged as a result of the event;
(c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
(d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
(e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
(f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
(g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

General conditions

G1 Copy of licence kept at the premises

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

Pollution studies and reduction programs

U1.1 Not applicable.

Special conditions

E1.1 Not applicable.

Dictionary

General Dictionary

In this licence, unless the contrary is indicated, the terms below have the following meanings:
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>3DGM [in relation to a concentration limit]</td>
<td>Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples.</td>
</tr>
<tr>
<td>activity</td>
<td>Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>actual load</td>
<td>Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998</td>
</tr>
<tr>
<td>AM</td>
<td>Together with a number, means an ambient air monitoring method of that number prescribed by the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.</td>
</tr>
<tr>
<td>AMG</td>
<td>Australian Map Grid</td>
</tr>
<tr>
<td>anniversary date</td>
<td>The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.</td>
</tr>
<tr>
<td>annual return</td>
<td>Is defined in R1.1</td>
</tr>
<tr>
<td>Approved Methods Publication</td>
<td>Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998</td>
</tr>
<tr>
<td>assessable pollutants</td>
<td>Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998</td>
</tr>
<tr>
<td>BOD</td>
<td>Means biochemical oxygen demand</td>
</tr>
<tr>
<td>CEM</td>
<td>Together with a number, means a continuous emission monitoring method of that number prescribed by the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.</td>
</tr>
<tr>
<td>COD</td>
<td>Means chemical oxygen demand</td>
</tr>
<tr>
<td>composite sample</td>
<td>Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.</td>
</tr>
<tr>
<td>cond.</td>
<td>Means conductivity</td>
</tr>
<tr>
<td>environment</td>
<td>Has the same meaning as in the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>environment protection legislation</td>
<td>Has the same meaning as in the Protection of the Environment Administration Act 1991</td>
</tr>
<tr>
<td>EPA</td>
<td>Means Environment Protection Authority of New South Wales.</td>
</tr>
<tr>
<td>flow weighted composite sample</td>
<td>Means a sample whose composites are sized in proportion to the flow at each composites time of collection.</td>
</tr>
<tr>
<td>general solid waste (non-putrescible)</td>
<td>Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>general solid waste (putrescible)</td>
<td>Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>grab sample</td>
<td>Means a single sample taken at a point at a single time</td>
</tr>
</tbody>
</table>
### Section 55 Protection of the Environment Operations Act 1997

#### Environment Protection Licence

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>hazardous waste</td>
<td>Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>licensee</td>
<td>Means the licence holder described at the front of this licence</td>
</tr>
<tr>
<td>load calculation protocol</td>
<td>Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998</td>
</tr>
<tr>
<td>local authority</td>
<td>Has the same meaning as in the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>material harm</td>
<td>Has the same meaning as in section 147 Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>MBAS</td>
<td>Means methylene blue active substances</td>
</tr>
<tr>
<td>Minister</td>
<td>Means the Minister administering the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>mobile plant</td>
<td>Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>motor vehicle</td>
<td>Has the same meaning as in the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>O&amp;G</td>
<td>Means oil and grease</td>
</tr>
<tr>
<td>percentile [in relation to a concentration limit of a sample]</td>
<td>Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.</td>
</tr>
<tr>
<td>plant</td>
<td>Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.</td>
</tr>
<tr>
<td>pollution of waters [or water pollution]</td>
<td>Has the same meaning as in the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>premises</td>
<td>Means the premises described in condition A2.1</td>
</tr>
<tr>
<td>public authority</td>
<td>Has the same meaning as in the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>regional office</td>
<td>Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence</td>
</tr>
<tr>
<td>reporting period</td>
<td>For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.</td>
</tr>
<tr>
<td>restricted solid waste</td>
<td>Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>scheduled activity</td>
<td>Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>special waste</td>
<td>Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997</td>
</tr>
<tr>
<td>TM</td>
<td>Together with a number, means a test method of that number prescribed by the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.</td>
</tr>
<tr>
<td>TSP</td>
<td>Means total suspended particles</td>
</tr>
<tr>
<td>TSS</td>
<td>Means total suspended solids</td>
</tr>
<tr>
<td>Type 1 substance</td>
<td>Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements</td>
</tr>
<tr>
<td>Type 2 substance</td>
<td>Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements</td>
</tr>
</tbody>
</table>
utilisation area
Means any area shown as a utilisation area on a map submitted with the application for this licence

waste
Has the same meaning as in the Protection of the Environment Operations Act 1997

waste type
Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste

End Notes

<table>
<thead>
<tr>
<th></th>
<th>Licence varied by Correction to EPA Region data record., issued on 22-Jun-2010, which came into effect on 22-Jun-2010.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Mr Stephen Beaman

Environment Protection Authority

(By Delegation)

Date of this edition - 22-Jun-2010
APPENDIX 3: PRELIMINARY LEACHATE POND SIZING

The calculations shown below are to be used as a guide only.

<table>
<thead>
<tr>
<th>% Runoff</th>
<th>Area (m²)</th>
<th>Area % Runoff (m²)</th>
<th>Basin Area</th>
<th>Available Volume</th>
<th>Volume Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active face</td>
<td>0.9</td>
<td>145</td>
<td>130.5</td>
<td>144 m²</td>
<td>144 m³</td>
</tr>
</tbody>
</table>

Data - BOM Coffs Harbour MO

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days in Month</td>
<td>31</td>
<td>28</td>
<td>31</td>
<td>30</td>
<td>31</td>
<td>30</td>
<td>31</td>
<td>30</td>
<td>31</td>
<td>30</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>Mean Monthly Rainfall (mm)</td>
<td>189.1</td>
<td>222.4</td>
<td>234.1</td>
<td>179</td>
<td>160</td>
<td>123</td>
<td>74.1</td>
<td>77.3</td>
<td>60.4</td>
<td>97.6</td>
<td>144.9</td>
<td>143.1</td>
</tr>
<tr>
<td>90th %ile Decile Monthly Rainfall (mm)</td>
<td>366.6</td>
<td>424.6</td>
<td>427</td>
<td>407.7</td>
<td>335.3</td>
<td>269.8</td>
<td>179.8</td>
<td>197.8</td>
<td>138.5</td>
<td>168.8</td>
<td>264.6</td>
<td>248.7</td>
</tr>
<tr>
<td>Monthly Evaporation (mm)</td>
<td>192.2</td>
<td>156.8</td>
<td>148.8</td>
<td>117</td>
<td>86.8</td>
<td>69</td>
<td>77.5</td>
<td>105.4</td>
<td>135</td>
<td>161.2</td>
<td>171</td>
<td>192.2</td>
</tr>
<tr>
<td>Mean number of rain days</td>
<td>15</td>
<td>14.9</td>
<td>16.6</td>
<td>12.7</td>
<td>11.6</td>
<td>9.9</td>
<td>8</td>
<td>7.6</td>
<td>8.1</td>
<td>11.3</td>
<td>12.2</td>
<td>13.6</td>
</tr>
</tbody>
</table>

Active Face

- Mean leachate volume generated (m³) | 24.7 | 29.0 | 30.6 | 23.4 | 20.9 | 16.1 | 9.7 | 10.1 | 7.9 | 12.7 | 18.9 | 18.7 |
- 90th %ile leachate generated (m³) | 47.8 | 55.4 | 55.7 | 53.2 | 43.8 | 35.2 | 23.5 | 25.8 | 18.1 | 22.0 | 34.5 | 32.5 |

Cumulative storm event + monthly rainfall

- 264mm + monthly 90th %ile (m³) | 82.3 | 89.9 | 90.2 | 87.7 | 78.2 | 69.7 | 57.9 | 60.3 | 52.5 | 56.5 | 69.0 | 66.9 |

Irrigation Balance

- Monthly evaporation (m³) | 27.7 | 22.6 | 21.4 | 16.8 | 12.5 | 9.9 | 11.2 | 15.2 | 19.4 | 23.2 | 24.6 | 27.7 |

Basin Residual Volume

- Mean Residual (m³) | 0.0 | 6.4 | 15.6 | 22.1 | 30.5 | 36.6 | 35.1 | 30.0 | 18.4 | 8.0 | 2.2 | -6.8 |
- Mean Residual + 264mm + monthly 90th %ile (m³) | 82.3 | 96.3 | 105.7 | 109.7 | 108.7 | 106.2 | 93.0 | 90.3 | 71.0 | 64.4 | 71.2 | 60.2 |
APPENDIX 4: SURFACE WATER DETENTION BASIN ASSUMPTIONS

Dorrigo Waste Management Centre - Sediment Pond Size

The EPA Managing Urban Stormwater: Soils and Construction (1998) the sediment basin surface area must be capable of settling particles of 0.02 mm size for a design storm of 0.25 x Q10 1 year ARI. The guideline requires a surface area of 3,400 m²/m³/sec of flow to settle particles of 0.02 mm and 530 m³/m²/sec for particles of 0.05 mm size. For Typo F soils the EPA Guideline requires the capacity to contain all runoff expected from a 75th percentile 5-day rainfall event (34.4 mm for Coffs Harbour).

Three design criteria have been applied:

1. Setting capacity to remove particles 0.05 mm size during a 1 hour 10 year storm event.

Assuming 65% runoff from a 1 hour 10 year ARI event with a catchment of 5 ha:

$$0.65 \times 22,000 \text{ m}^2 \times 0.066 \text{ m/hr} \times 3600 \times 530 \text{ m}^3/\text{m}^2/\text{sec} \approx 140 \text{ m}^2$$

2. Setting capacity to remove particles 0.02 mm size for a 0.25 x QTc 1 year ARI event.

From the rational method the time of concentration ($T_c = 13$ minutes). For 0.02 mm particle size for a design storm of 0.25 QTc 1 year ARI (0.25 x 0.65 mm/hr = 16.25 mm/hr).

$$0.65 \times 5000 \text{ m}^2 \times 0.01625 \text{ m/hr} \times 3600 \times 3400 \text{ m}^3/\text{m}^2/\text{sec} \approx 220 \text{ m}^2$$

3. Capacity to contain all runoff expected from a 75th percentile 5-day rainfall event (34.4mm for Coffs Harbour)

Assuming 50% runoff and catchment area of 3.8 ha the volume required is:

$$0.5 \times 0.0344 \times 22,000 = 378 \text{ m}^3$$

With average depth of 1.5m the surface area is $378 \text{ m}^3 / 1.5 \text{ m} = 252 \text{ m}^2$. 

HOPKINS CONSULTANTS

Liability limited by a scheme approved under Professional Standards Legislation

Bellingen Shire Council - Raleigh Landfill Environmental Management Plan | 75
# ANNUAL RETURN

<table>
<thead>
<tr>
<th>LICENCE NO</th>
<th>13105</th>
</tr>
</thead>
<tbody>
<tr>
<td>LICENCE HOLDER</td>
<td>BELLINGEN SHIRE COUNCIL</td>
</tr>
<tr>
<td>REPORTING PERIOD</td>
<td>30-Jun-2012 to 29-Jun-2013</td>
</tr>
</tbody>
</table>

If your licence has been transferred, suspended, surrendered or revoked by the EPA during this reporting period, cross out the dates above and specify the new dates to which this Annual Return relates below:

REVISED REPORTING PERIOD ______/_____/______ to ______/_____/______

(Note: the revised reporting period also needs to be entered in Section E)

**THIS ANNUAL RETURN MUST BE RECEIVED BY THE EPA BEFORE 29-Aug-2013**

Your Annual Return must be completed, including certification in Section E, and submitted to the EPA no later than 60 Days after the end of the reporting period for your licence.

Failure to submit this Annual Return within 60 days after the reporting period ends may result in:

- the issue of a Penalty Notice for $750 (individuals) or $1500 (corporations); OR
- prosecution.

Please send your completed Annual Return by Registered Post to:

Regulatory and Compliance Support Unit
Environment Protection Authority
PO Box A290
SYDNEY SOUTH NSW 1232

It is an offence to supply any information in this form to the EPA that is false or misleading in a material respect, or to certify a statement that is false or misleading in a material respect.

THERE IS A MAXIMUM PENALTY OF $250,000 FOR A CORPORATION OR $120,000 FOR AN INDIVIDUAL.

Details provided in this Annual Return will be available on the EPA’s Public Register in accordance with section 308 of the Protection of the Environment Operations Act 1997.
Use the checklist below to ensure that you have completed your Annual Return correctly.
(✓ the boxes)

<table>
<thead>
<tr>
<th>CHECKLIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section A: All licence details are correct</td>
</tr>
<tr>
<td>Section B1: You have entered the correct number in the complaints table</td>
</tr>
<tr>
<td>Section B2 – B3: If there are tables, you have provided the required details</td>
</tr>
<tr>
<td>Section C: You have answered question 1, and 2 if applicable</td>
</tr>
<tr>
<td>Section D: If applicable, you have completed all load calculation worksheets</td>
</tr>
<tr>
<td>Section E: The Annual Return has been signed by appropriate person(s)</td>
</tr>
<tr>
<td>and, if applicable, the revised reporting period entered</td>
</tr>
</tbody>
</table>

✓ Make a copy of the completed Annual Return and keep it with your licence records
✓ Attach a cheque (unless you have paid separately) for the payment of the administrative fee for the next licence fee period

Please send your completed Annual Return by Registered Post to:

Regulatory and Compliance Support Unit
Environment Protection Authority
PO Box A290
SYDNEY SOUTH NSW 1232
A Statement of Compliance - Licence Details

ALL licence holders must check that the licence details in Section A are correct

If there are changes to any of these details you must advise the EPA and apply as soon as possible for a variation to your licence or for a licence transfer.

Licence variation and transfer application forms are available on the EPA website at: http://www.epa.nsw.gov.au/licensing, or from regional offices of the EPA, or by contacting us on telephone 02 9995 5700.

If you are applying to vary or transfer your licence you must still complete this Annual Return.

A1 Licence Holder

Licence Number 13105

Licence Holder BELLINGEN SHIRE COUNCIL

Trading Name (if applicable) BELLINGEN SHIRECOUNCIL

ABN 26 066 993 265

A2 Premises to which Licence Applies (if applicable)

Common Name (if any) Dorrigo Waste Management Centre

Premises OLD CORAMBA RD DORRIGO NSW 2453

A3 Activities to which Licence Applies

Waste Disposal (application to land)

A4 Other Activities (if applicable)

A5 Fee-Based Activity Classifications

Note that the fee based activity classification is used to calculate the administrative fee.

<table>
<thead>
<tr>
<th>Fee-based activity</th>
<th>Activity scale</th>
<th>Unit of measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste disposal by application to land</td>
<td></td>
<td>annual capacity</td>
</tr>
</tbody>
</table>

A6 Assessable Pollutants (Not Applicable)
B Monitoring and Complaints Summary

B1 Number of Pollution Complaints

Number of complaints recorded by the licensee during the reporting period.

If no complaints were received enter nil in the attached box, otherwise complete the table below.

<table>
<thead>
<tr>
<th>Pollution Complaint Category</th>
<th>Number of Complaints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td></td>
</tr>
<tr>
<td>Waste</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

N1

B2 Concentration Monitoring Summary

For each monitoring point identified in your licence complete all the details for each pollutant listed in the tables provided below.

If concentration monitoring is not required by your licence, no tables will appear below.

Note that this does not exclude the need to conduct appropriate concentration monitoring of assessable pollutants as required by load-based licensing (if applicable).
B3 Volume or Mass Monitoring Summary

For each monitoring point identified in your licence complete the details of the volume or mass monitoring indicated in the tables provided below.

If volume or mass monitoring is not required by your licence, no tables will appear below.

Note that this does not exclude the need to conduct appropriate concentration monitoring of assessable pollutants as required by load-based licensing (if applicable).

NA
C Statement of Compliance - Licence Conditions

C1 Compliance with Licence Conditions

☐ the boxes)

1. Were all conditions of the licence complied with (including monitoring and reporting requirements)?
   ☑ Yes ☐ No
   (☑ a box)

2. If you answered 'No' to question 1, please supply the following details for each non-compliance in the format, or similar format, provided on the following page.

   Please use a separate page for each licence condition that has not been complied with.

   a) What was the specific licence condition that was not complied with?

   b) What were the particulars of the non-compliance?

   c) What were the date(s) when the non-compliance occurred, if applicable?

   d) If relevant, what was the precise location where the non-compliance occurred?
      Attach a map or diagram to the Statement to show the precise location.

   e) What were the registration numbers of any vehicles or the chassis number of any mobile plant involved in the non-compliance?

   f) What was the cause of the non-compliance?

   g) What action has been, or will be, taken to mitigate any adverse effects of the non-compliance?

   h) What action has been, or will be, taken to prevent a recurrence of the non-compliance?

3. How many pages have you attached?
   Each attached page must be initialiaed by the person(s) who signs Section E of this Annual Return

   ☑ NIL
### C2 Details of Non-Compliance with Licence

<table>
<thead>
<tr>
<th>Licence condition number not complied with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of particulars of the non-compliance (NO MORE THAN 50 WORDS)</td>
</tr>
<tr>
<td>If required, further details on particulars of non-compliance</td>
</tr>
<tr>
<td>Date(s) when the non-compliance occurred, if applicable</td>
</tr>
<tr>
<td>If relevant, precise location where the non-compliance occurred (attach a map or diagram)</td>
</tr>
<tr>
<td>If applicable, registration numbers of any vehicles or the chassis number of any mobile plant involved in the non-compliance</td>
</tr>
<tr>
<td>Cause of non-compliance</td>
</tr>
<tr>
<td>Action taken or that will be taken to mitigate any adverse effects of the non-compliance</td>
</tr>
<tr>
<td>Action taken or that will be taken to prevent a recurrence of the non-compliance</td>
</tr>
</tbody>
</table>
D Statement of Compliance - Load-Based Fee Calculation Worksheets

If you are not required to monitor assessable pollutants by your licence, no worksheets will appear below. Please go to Section E.

If assessable pollutants have been identified on your licence (see licence condition L2), complete the following worksheets for each assessable pollutant to determine your load-based fee for the licence fee period to which this Annual Return relates.

Loads of assessable pollutants must be calculated using any of the methods provided in the EPA’s Load Calculation Protocol for the relevant activity. A Load Calculation Protocol would have been sent to you with your licence. If you require additional copies you can download the Protocol from the EPA’s website or you can contact us on telephone 02 9995 5700.

You are required to keep all records used to calculate licence fees for four years after the licence fee was paid or became payable, whichever is the later date.

PENALTIES APPLY FOR SUPPLYING FALSE OR MISLEADING INFORMATION

D1 - D8 (Not Applicable)
E Signature and Certification

This Annual Return may only be signed by a person(s) with legal authority to sign it as set out in the categories below. Please tick (✓) the box next to the category that describes how this Annual Return is being signed.

If you are uncertain about who is entitled to sign or which category to tick, please contact us on telephone 02 9995 5700.

<table>
<thead>
<tr>
<th>If the licence holder is:</th>
<th>the Annual Return must be signed and certified:</th>
</tr>
</thead>
<tbody>
<tr>
<td>an individual</td>
<td>□ by the individual licence holder, or</td>
</tr>
<tr>
<td></td>
<td>□ by a person approved in writing by the EPA to sign on the licence holder’s behalf</td>
</tr>
<tr>
<td>a company</td>
<td>□ by affixing the common seal in accordance with Corporations Act 2001, or</td>
</tr>
<tr>
<td></td>
<td>□ by 2 directors, or</td>
</tr>
<tr>
<td></td>
<td>□ by a director and a company secretary, or</td>
</tr>
<tr>
<td></td>
<td>□ if a proprietary company that has a sole director who is also the sole company secretary – by that director, or</td>
</tr>
<tr>
<td></td>
<td>□ by a person delegated to sign on the company’s behalf in accordance with the Corporations Act 2001 and approved in writing by the EPA to sign on the company’s behalf.</td>
</tr>
<tr>
<td>a public authority</td>
<td>□ by the Chief Executive Officer of the public authority, or</td>
</tr>
<tr>
<td>(other than a council)</td>
<td>□ by a person delegated to sign on the public authority’s behalf in accordance with its legislation and approved in writing by the EPA to sign on the public authority’s behalf.</td>
</tr>
<tr>
<td>a local council</td>
<td>□ by the General Manager in accordance with s.377 of the Local Government Act 1993, or</td>
</tr>
<tr>
<td></td>
<td>□ by affixing the seal of the council in a manner authorised under that Act.</td>
</tr>
</tbody>
</table>

It is an offence to supply any information in this form that is false or misleading in a material respect, or to certify a statement that is false or misleading in a material respect. There is a maximum penalty of $250,000 for a corporation or $120,000 for an individual.

We
• declare that the information in the Monitoring and Complaints Summary in section B of this Annual Return is correct and not false or misleading in a material respect, and
• certify that the information in the Statement of Compliance in sections A, C and D and any pages attached to Section C is correct and not false or misleading in a material respect.

If your licence has been transferred, suspended, surrendered or revoked by the EPA during this reporting period, cross out the dates below and specify the new dates to which this Annual Return relates below:

For the reporting period 30-Jun-2012 to 29-Jun-2013 or ___ / ___ / ___ to ___ / ___ / ___

SIGNATURE: [Signature]
NAME: [Name]
(printed)
POSITION: [Position]
DATE: ___ / ___ / ___

SIGNATURE: [Signature]
NAME: [Name]
(printed)
POSITION: [Position]
DATE: ___ / ___ / ___

SEAL (if signing under seal)

PLEASE ENSURE THAT ALL APPROPRIATE BOXES HAVE BEEN COMPLETED AND THAT THE CHECKLIST ON PAGE 2 OF THE ANNUAL RETURN HAS BEEN COMPLETED
References

- Australian Bureau of Statistics, 2011 Census
- Department of Primary Industries and Water, Dorrigo Plateau Surface Water Source and Dorrigo Basalt Groundwater Source, 2004
- United States EPA Nationwide Urban Runoff Program, 1983
- United States EPA Low Impact Development, 2000