



ENVIRONMENT PROTECTION ACT 1970
SECTION 19B

WORKS APPROVAL

LANDFILL OPERATIONS PTY LTD

Holder of Works Approval: 138994
Issued: 24/03/2017
ACN: 603 300 358
Registered Address: LEVEL 4 441 ST KILDA RD
MELBOURNE VIC 3004
Premises Address: 1100-1152 CHRISTIES ROAD
RAVENHALL 3023
Scheduled Categories: A05 Landfills
A01 Prescribed Industrial Waste Management
Description: This proposal allows for the construction of a landfill for the deposit of solid inert waste, putrescible waste, pneumatic tyres shredded into pieces <250mm and contaminated soil (N121 Cat C).

NIAL FINEGAN
Chief Executive Officer

Delegate of the Environment Protection Authority

Issued under the *Environment Protection Act 1970*, Section 19B

PREAMBLE

Works Approvals

Who we are: The Environment Protection Authority (“EPA”) is an independent statutory authority established under the *Environment Protection Act 1970* (“the Act”). Our purpose is to protect and improve our environment by preventing harm to the environment and human health.

Why we issue works approvals: EPA is responsible for preventing or controlling pollution (including noise) and improving the quality of the environment. This responsibility includes regulating activities that may present a danger to the environment. One of the tools available to EPA is issuing works approvals for scheduled premises to prevent or minimise risk to the environment.

Section 19A of the Act requires the occupier of a “scheduled premises” to obtain works approval to construct or install plant and equipment in order to discharge, handle, treat or dispose of waste to the environment. These types of premises are defined in the *Environment Protection (Scheduled Premises and Exemptions) Regulations 2007* (“the Regulations”).

When we issue works approvals: EPA will issue a works approval when satisfied that an applicant has put in place measures to protect the environment. Works approvals allow construction of works to occur and set control measures to minimise a site’s environmental risk. EPA can amend a works approval in response to changes in standards and site activities. Works approval holders must submit reports if required by a condition of the approval.

Works Approval information and obligations

For the purposes of this works approval “You” means the works approval holder identified on the first page of this works approval at the “premises” identified on the first page and represented in Schedule 1.

If you object to any of the works approval conditions, you may have the decision reviewed by applying in writing to the Registrar, Planning and Environment Division, Victorian Civil and Administrative Tribunal (“VCAT”), 7th Floor, 55 King Street, Melbourne within 21 days of the date of issue. An application fee may be applicable when lodging an appeal with VCAT. Contact VCAT on (03) 9628 9777 for further details on fees associated with an appeal. A copy of the appeal should also be forwarded to the Manager, Development Assessments Unit, Environment Protection Authority, GPO Box 4395, Melbourne, 3001, within 7 days of lodgement of the appeal.

Interested (third) parties may also appeal against the works approval within 21 days of the date of issue. The Tribunal will notify you if such appeals are received. If an appeal is lodged, you must not go ahead with the works until the appeal is resolved.

Compliance: You must comply at all times with the Act and all policies and regulations administered by EPA. Strict penalties apply for non-compliance with any part of your works approval.

Works Approval structure

Structure: Your works approval has:

- Works conditions - setting out requirements for construction or installation;
- Schedule 1A - locality plan of your premises;
- Schedule 1B - plan of premises (provided by you).

Some types of works approvals also contain Schedule 1C - final landfill contour plan

CONDITIONS

General Conditions

- WA_G1 Subject to the following conditions, this approval allows the construction of the following works and associated equipment - a landfill for the deposit of solid inert waste, putrescible waste, pneumatic tyres shredded into pieces <250 mm, and contaminated soil (N121 Cat C) as defined in EPA Publication 631, Industrial Waste Resource Guidelines, Solid Industrial Waste Hazard Categorisation and Management, dated July 2009.
- WA_G2 The works must be constructed in accordance with the application accepted on 13 May 2016 comprising the application received on 29 February 2016 as augmented by additional information received on 13 May 2016, 23 September 2016, 30 November 2016 and 9 December 2016 as identified in the documents listed in Appendix A of this Works Approval restricted to the South Portion as shown on Schedules 1A, 1B and 1C ("the application") except that, in the event of any inconsistency arising between the application and the conditions of this approval, the conditions of this approval shall apply.
- WA_G3 This approval will not take effect until any permit which is required under the Planning and Environment Act 1987 has been issued by the Responsible Planning Authority.
- WAG4.1.1 This works approval will expire:
- (a) on the issue or amendment of a licence relating to all works covered by the works approval; or
 - (b) on the issue of written notification from EPA confirming that all works covered by the works approval are complete and that no licence or licence amendment is required to operate the works; or
 - (c) eight years from the date of issue unless the works have been commenced by that date to the satisfaction of EPA
- WA_G6 You must maintain a financial assurance calculated in accordance with the EPA method.
- WA_G6.3 You must submit the financial assurance instalment determined by the EPA for each landfill cell prior to the addition of the cell to the licence.

Works Conditions

- WA_W1 Before commencing construction of the following components of the works, you must provide to EPA a report or reports with the plans and specifications of those components, including details of:
- (a) the geotechnical stability assessment including material characteristics and specifications, with supporting evidence, demonstrating total geotechnical stability for each landfill cell or leachate pond;
 - (b) the drainage layer for groundwater collection for each cell or leachate pond which shall be placed with minimum 2m separation from the top of the liner of the leachate sump of the cell or the top of the liner of the leachate pond;
 - (c) the plans, the technical specifications and a construction quality assurance plan (CQA plan) ("design documents"), assessed by an EPA-appointed auditor, in

accordance with the procedures outlined in EPA Publication 1323.3 (Landfill Licensing Guidelines) (as amended from time to time), for the design and construction of each landfill cell and leachate pond prior to submission for EPA approval. The plans, technical specifications and CQA plan must comply with the Works Approval Application, the liner configuration given in Figure 27 (No 1528407) of Appendix B included in Doc 2, drainage layer referred to in condition WA_W1(b) and EPA Publication 788.3 Best Practice Environmental Management (Siting, Design and Management of Landfills) (as amended from time to time);

(d) for each cell or leachate pond the name of the environmental auditor, appointed under the Environment Protection Act 1970, engaged by you to conduct the audit required under WA_R1; and

(e) designs of the environmental monitoring network infrastructure to include landfill gas, odour, dust, groundwater and surface water monitoring for the premises.

WA_W2 You must not commence construction of those parts of the works for which reports are required by condition WA_W1 until written EPA approval of those reports has been received.

WA_W3 Where any reports specified in condition WA_W1 and approved by EPA differ from the application, the works must be constructed in accordance with those approved reports.

WA_W4 You must notify EPA when the construction of the works covered by this approval has been commenced.

WA_W5 You must notify EPA when the construction of the works covered by this approval has been completed.

WA_W8 You must install:

(a) additional groundwater monitoring bores in both the Upper Newer and Lower New Volcanic aquifers;

(b) noise abatement and barriers as identified as being required to protect nearby receptors such as on Middle Road and as identified by the noise report required in condition WA_R4 below;

(c) fencing around the perimeter of the premise including 12m high litter fencing in key areas to prevent litter escaping the premise;

(d) litter traps on stormwater drains;

(e) mobile nets near the tip face;

(f) a wheel wash on the egress road;

(g) a leachate collection system and a leachate pond with a capacity sufficient to maintain leachate levels such that the depth of leachate above the lowest point of the drainage layer does not exceed 300 millimetres;

(h) a landfill gas collection system to a design approved by the EPA;

(i) a landfill gas detection bore network around the perimeter of the landfill cells and at the premise boundary to a minimum frequency that meets Table B2 of EPA Publication 788.3 Best Practice Environmental Management (Siting, Design and Management of Landfills) (as amended from time to time) and identified in the approved Landfill Gas Management and Monitoring Plan;

(j) fire fighting equipment including on-site water trucks that must be available on-site at all times; and

(k) dust monitors detailed in condition WA_W1(e) and approved by WA_W2.

WA_W15 During construction, unacceptable noise (including vibration) must not be emitted beyond the boundaries of the premises.

WA_W16 During construction, stormwater discharged from the premises must not be contaminated with waste.

- WA_W17 All construction activities must be undertaken in accordance with EPA Publication 480 “Environmental Guidelines for Major Construction Sites”, as amended from time to time.
- WA_W18 During construction, you must undertake an environmental monitoring program that enables you and EPA to determine compliance with condition(s) WA_W15 and WA_W16.

Reporting Conditions

- WA_R1 At least two months before the commencement of any commissioning, you must provide to EPA a report that include(s):
- (a) the need for landfilling at the site, as demonstrated by the presence of the site on the landfill schedule in the Statewide Waste and Resource Recovery Infrastructure Plan and the Metropolitan Waste and Resource Recovery Implementation Plan (and any future successor or replacement policy documents);
 - (b) an environmental audit report, under S53V of the EP Act on the risk of harm and confirming construction compliance in accordance with EPA approved reports as set out in condition WA_W2 above;
 - (c) a report which details liner leak detection survey results for each cell liner and the person who conducts and reports the liner leak detection survey should be independent to the contractor who constructs the landfill cell or leachate pond;
 - (d) details of how you have informed the community through the Melbourne Regional Landfill Community Reference Group (MRLCRG) or alternative engagement activities of the progress regarding the construction of cells and leachate pond and the progressive rehabilitation of the landfill. This must include explanations about how any issues or concerns raised have been considered; and
 - (e) the environmental performance of the preceding cells as determined by the monitoring required in the monitoring and management plans identified in WA_R4.

WA_R4

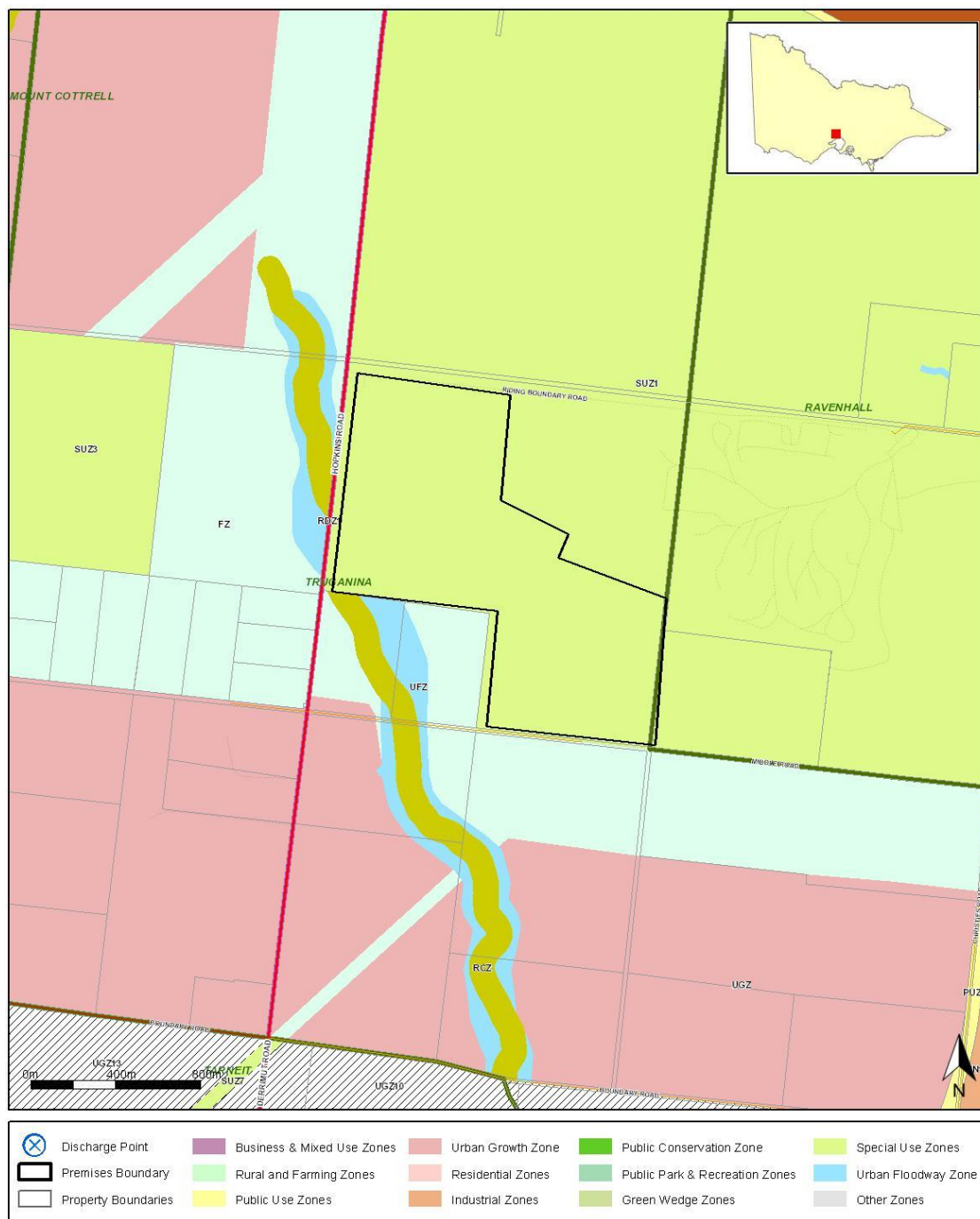
Before the commencement of any commissioning, you must provide, to the satisfaction of EPA, a report that includes:

- (a) a Dust Management Plan incorporating Air Monitoring Program & Dust Deposition including but not limited to;
 - (i) Implementation of best practice airborne particulate and dust control measures that also includes adaptive operational practices to respond and control dust events on site;
 - (ii) real time PM10 air monitoring that enables an assessment of air quality impacts and triggers reactive management practices to be implemented during dust events on site;
 - (iii) dust deposition monitoring that enables an assessment of nuisance dust impacts;
 - (iv) a review of the effectiveness of the particulate and dust control measures in light of the monitoring data produced from (ii) and (iii) above and the relevant standards for the control of airborne particulate and dust;
 - (v) provision of surveillance or monitoring records to the MRLCRG, the Responsible Authority and the Authority; and
 - (vi) the approved Dust Management Plan must be implemented to the satisfaction of the Authority and must be reviewed, and if necessary, updated every 5 years to the satisfaction of the Authority.
- (b) an Odour Monitoring and Management Plan which should detail the odour management controls and monitoring regime to be undertaken during the life of the landfill including but not limited to:
 - (i) identification of potential odour sources and receptors;
 - (ii) specifying the odour mitigation measures and procedures to manage the odour impact off-site of the various potential odour sources and to mitigate the off-site odour impacts;
 - (iii) comprehensive monitoring practices, including surveillance by independent and appropriately trained personnel;
 - (iv) procedures for addressing the odour source if a complaint is verified, including consideration of any mitigation measures or operational changes that might be required;
 - (v) provision of surveillance or monitoring records to the MRLCRG, the Responsible Authority and the Authority;
 - (vi) incorporation of a requirement to assess new odour management technologies or tools on a regular basis; and
 - (vii) the approved Odour Monitoring and Management Plan must be implemented to the satisfaction of the Authority and must be reviewed, and if necessary, updated every 5 years to the satisfaction of the Authority.
- (c) a Landfill Gas Monitoring & Management Plan including but not limited to:
 - (i) details (numbers and locations) of landfill gas perimeter monitoring bores consisting of an inner and outer network located within the premises between the landfill cells and premises boundary to be monitored monthly. The inner network should be at least 20m distant from the edge of the waste and the outer layer should be at the premises boundary. The landfill gas perimeter monitoring bore spacings must meet the recommended spacings in Table B.2 of EPA Publication 788.3 Best Practice Environmental Management (Siting, Design and Management of Landfills) (as amended from time to time) and on the western side should have a higher density of gas monitoring bores;
 - (ii) the sequencing for the design and installation of the landfill gas extraction system in each cell;
 - (iii) the sequencing for the design and installation of the horizontal gas wells in each active cell;
 - (iv) the sequencing for the approval and installation of gas engines, gas flares and ancillary equipment including increases in the electrical interconnection for the gas engines;

- (v) a program of inspection and maintenance of landfill gas extraction and monitoring infrastructure including provision of standby equipment; and
- (vi) a schedule of landfill gas well balancing frequency and condensate management.
- (d) a Groundwater Monitoring and Management Plan including but not limited to:
 - (i) updating the Conceptual Site Model to illustrate the hydrogeology, surrounding land uses and receptors more comprehensively;
 - (ii) completion of a groundwater bore network performance audit and undertaking of any remedial repairs, if required;
 - (iii) installation of additional groundwater monitoring bores in both the Upper Newer and Lower Newer Volcanic Aquifers;
 - (iv) preparation of and maintenance of a groundwater bore network register where a summary tabulation of groundwater bore construction, describing the condition of each bore, the aquifer monitored, and the registered bore ID that is recorded in the State Water Management Information System are kept;
 - (v) improved groundwater quality sampling, testing and monitoring to additionally include groundwater depth; and
 - (vi) setting of appropriate trigger points and actions, should exceedances occur.
- (e) a Surface Water Monitoring and Management Plan including but not limited to;
 - (i) sampling of water at retention points prior to discharge to the environment and downstream of the site in Skeleton Creek;
 - (ii) visual inspection of sediment and erosion control facilities and other potential sources of contamination;
 - (iii) a sampling plan and methods consistent with those in EPA publication IWRG701; and
 - (iv) routine testing of stormwater for, but not limited to, the following physio-chemical parameters: total phosphorus and nitrogen, turbidity, electrical conductivity, pH, and dissolved oxygen with occasional testing for heavy metals and indicators of leachate. The sampling frequency and reporting is to be agreed with EPA as are the action levels for each parameter.
- (f) a Noise Management and Monitoring Plan including but not limited to:
 - (i) an assessment of the current background noise levels;
 - (ii) a calculation of the permissible noise levels for operation and construction undertaken in accordance the techniques in State environment protection policy (Control of Noise from Commerce, Trade and Industry) No N-1 ("SEPP N1");
 - (iii) modelling showing noise from the landfill meets the permissible noise levels of SEPP N1;
 - (iv) an assessment showing that the equipment being used minimises the noise emitted as far as practicable;
 - (v) a monitoring program for assessment of the noise from construction and operation of the landfill, and effectiveness of the noise abatement (including barriers) being applied. This may include the definition of derived point(s) located in accordance with SEPP N1;
 - (vi) identifying and detailing the noise abatement measures proposed which are being relied upon to meet the permissible noise levels of SEPP N1; and
 - (vii) milestones to be used for updating and submitting any amendments to the monitoring, assessments and noise abatement required by the noise management plan. The noise monitoring data from each cell construction and operation to be used to confirm the assumptions in modelling and identification of any amendments to the plan and required noise abatement for subsequent cells.
- (g) a Fuel Use Minimisation Plan to seek more efficient use of energy during construction and operation of the landfill including but not limited to consideration of alternatives such as:
 - (i) vehicle and equipment use;
 - (ii) LFG collection and treatment;
 - (iii) promotion of waste minimisation programs;
 - (iv) use of alternative fuels and engines; and

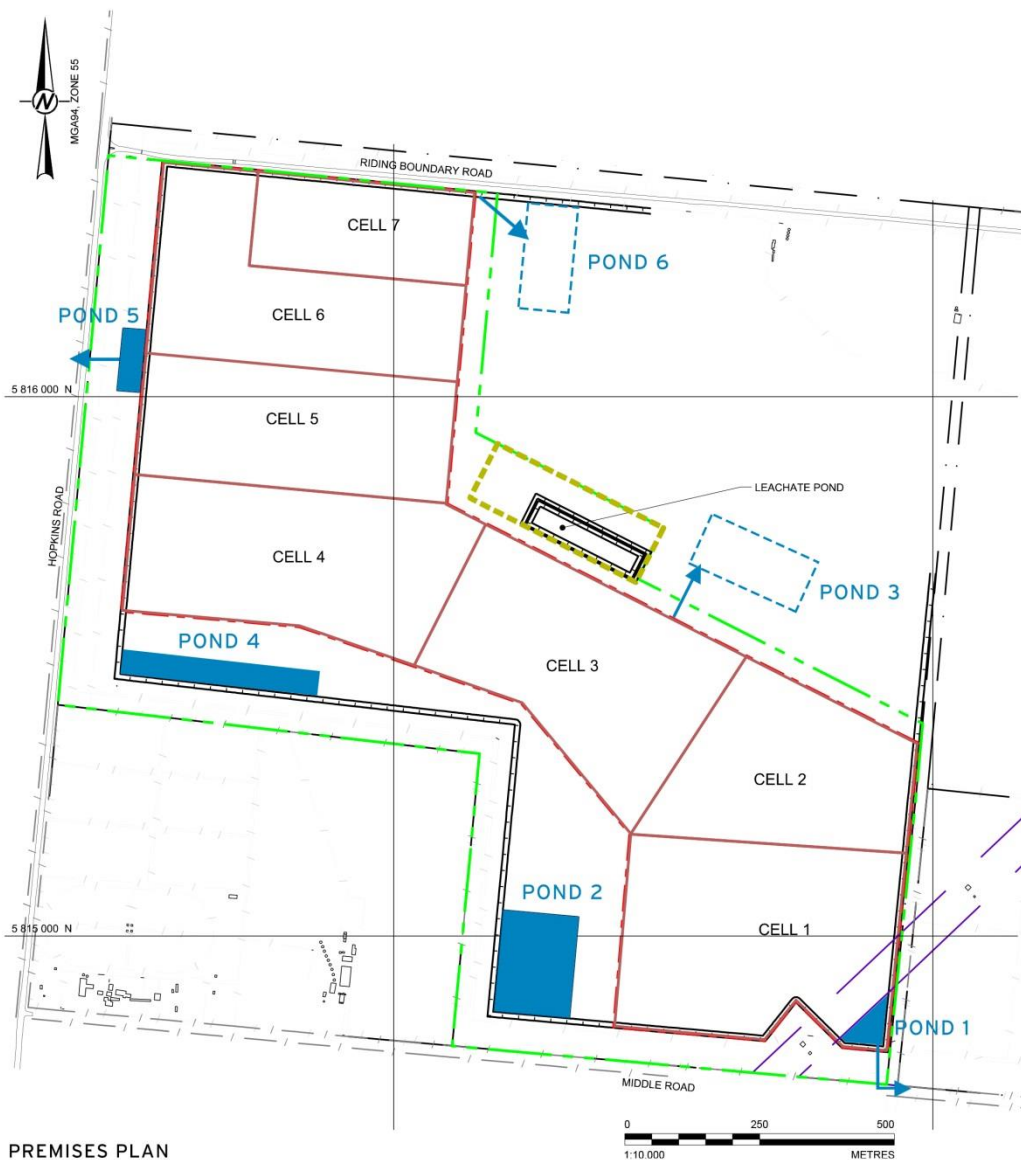
- (v) improved driver training and fleet maintenance.
- (h) an Environmental Management Plan detailing measures to manage potential environmental impacts. The approved Environmental Management Plan must be implemented to the satisfaction of the Authority and must be reviewed, and if necessary, updated every 5 years to the satisfaction of the Authority.
- (i) a Vermin Management Plan detailing measures to reduce disease vectors at the landfill and the spread of vermin from the landfill to the surrounding area. The approved Vermin Management Plan must be implemented to the satisfaction of the Authority and must be reviewed, and if necessary, updated every 5 years to the satisfaction of the Authority.

SCHEDULE 1A – LOCALITY PLAN




Works Approval:	138994
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ACN:	603 300 358
Premises Address:	1100-1152 CHRISTIES ROAD, RAVENHALL VIC 3023
Issued:	24/03/2017
<p>Before relying on the information in this map, users should carefully evaluate its accuracy, currency, completeness and relevance for their purposes, and should obtain any appropriate professional advice relevant to their particular circumstances.</p>	

SCHEDULE 1B – PREMISES PLAN



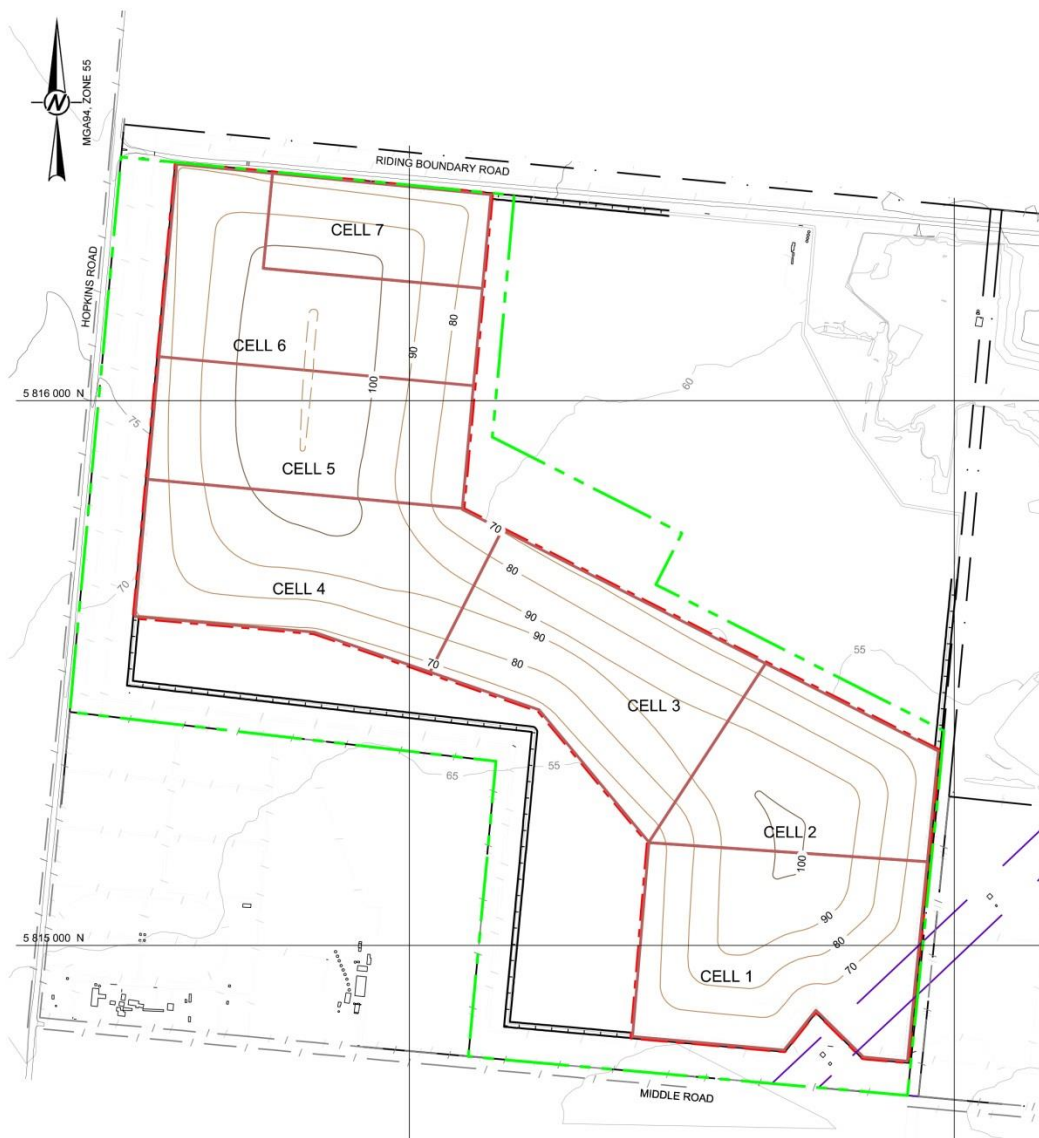
PREMISES PLAN

- LEGEND**
- PERIMETER OF LANDFILL CELL
 - LEACHATE POND FOOTPRINT FOR CONTINGENCY AREA
 -  LEACHATE POND
 - CELL BOUNDARY
 - WORKS APPROVAL BOUNDARY
 - SURFACE WATER MANAGEMENT POND
 - SURFACE WATER DISCHARGES






REFERENCE(S)
 BASE MAP TAKEN FROM TRANSPACIFIC DATED 27 FEBRUARY 2015 FROM FILE X_SU_AERIAL_20150227_3d.DWG
 TITLE BOUNDARIES SHOWN FROM CHARTER KECK CRAMER FILE J055627 1100-1152 Christies Road, RAVENHALL RE (REV1).DWG DATED 15 OCTOBER 2015 REV 1

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SCHEDULE 1C – CONTOUR PLAN



PRE-SETTLEMENT TOP OF WASTE PLAN

- LEGEND**
-  QUARRY FLOOR (2001 EXISTING CONTOURS LOWERED 10 m) AT 5 m INTERVALS
 -  PRE-SETTLEMENT WASTE CONTOURS AT 10 m INTERVALS
 -  PERIMETER OF LANDFILL CELL
 -  WORKS APPROVAL BOUNDARY
 -  CELL BOUNDARIES

REFERENCE(S)
 BASE MAP TAKEN FROM TRANSPACIFIC DATED 27 FEBRUARY 2015 FROM FILE X_SU_AERIAL_20150227_3d.DWG
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APPENDIX A

1. Works Approval Application, Proposed Melbourne Regional Landfill (MRL) Extension, Ravenhall, February 2016
2. Information to Support Works Approval, Proposed Melbourne Regional Landfill (MRL) Extension, Ravenhall, Golder Associates, February 2016 including:
 - Appendix A: Needs Assessment
 - Appendix B - Figures
 - Appendix C - Financial assurance - 'commercial-in-confidence' not provided
 - Appendix D - Hydrogeological assessment
 - Appendix E - Ecological assessment
 - Appendix F - Greenhouse gas estimate
 - Appendix G - Leachate management plan
 - Appendix H - Landfill gas management plan
 - Appendix I - Traffic impact assessment
 - Appendix J - Air quality assessment
 - Appendix K - Noise assessment
 - Appendix L - Stormwater management plan
 - Appendix M - Landscape and visual impact assessment, including Annex A: Parameters of human vision and Annex B: Photomontage VP01, VP02, VP05, VP07, VP10, VP13, VP16
 - Appendix M - Landscape and visual impact assessment Annex C: Rehabilitation Plan
 - Appendix N - Monitoring program
 - Appendix O - Aftercare management plan
3. Supplementary Information to Works Approval Proposed Melbourne Regional Landfill (MRL) Extension, Ravenhall, Golder Associates, May 2016 including an updated Appendix J Air Quality Assessment which replaces that provided in February 2016
4. Further information provided by Landfill Operations, 23 September 2016 in response to section 22 Notice of 7 September 2016, comprising:
 - Cover letter;
 - Tabulated response; and
 - Extracts from Cleanaway's Landfill standards operations manual on vermin and bird control.
5. Landfill Operations response to the written submissions, presented to the MRL Planning Panel comprising:
 - Landfill Operations response to submissions
 - Table of Landfill Operations response to submissions
 - Expert witness statement of Andrew Green (landfill)
 - Expert witness statement of Tony Kortegast (needs assessment)
 - Expert witness statement of Tony Kortegast (buffers and landfill gas)

- Expert witness statement of Alex Todoroski (odour)
 - Expert witness statement of David Ife (hydrogeological assessment)
 - Expert witness statement of Christopher Delaire (acoustics)
 - Expert witness statement of Michael Barlow (planning)
 - Expert witness statement of Stephen Hunt (traffic and transport assessment)
 - Expert witness statement of Allan Wyatt (landscape and visual assessment)
6. Further information provided by Landfill Operations, provided on 9 December 2016 in response to section 22 Notice of 7 September 2016, comprising:
- a cover letter
 - Appendix 1: 'Response to hydrogeological Issues Raised by EPA Section 22 Notice of 21st October 2016 in relation to Melbourne Regional Landfill'
 - Appendix 2: 'Letter to EPA - Section 22 Notice Additional Information -Groundwater Levels'
 - Appendix 3: 'Section 7 only of the DRAFT Environmental Audit of Landfill Operations (s. 53V) ('
 - Appendix 4: 'Email to Cardno - Draft Audit Report - Melbourne Regional Landfill'
 - Appendix 5: 'MRL S22 Response letter - Geotechnical Stability of Sidewall batter and liner system'
 - Appendix 6: 'Memorandum - Further information re Section 22 Notice Additional Information, 1528407-057-M-Rev0