

## Before an Independent Commissioner of the Hastings District Council

In the matter of                    the Resource Management Act 1991 (the Act)

And

In the matter of                    An application by Hastings District Council for land use consent for construction and operation of “Area B” at the existing Ōmarunui Landfill Site

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### Statement of Evidence of Shannon Bray on behalf of the Applicant Landscape and Visual Effects

Dated 2 September 2021

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#### INTRODUCTION

1. My full name is Shannon Bray. I am the Director and Principal Landscape Architect at Wayfinder Landscape Planning & Strategy Ltd (**Wayfinder**) based in Hastings.
2. I have the following qualifications and experience relevant to my evidence:
  - (a) Bachelor Landscape Architecture (with Honours) Lincoln University 1996.
  - (b) Registered Landscape Architect and Past President New Zealand Institute of Landscape Architects Tuia Pito Ora (**NZILA**); and
  - (c) Extensive experience preparing landscape and visual assessment reports on behalf of applicants and Councils across a range of utility and infrastructure projects, including the following landfill and quarry sites:
    - (i) Puke Coal, Huntly (consent for construction & operation of landfill and coal mine).
    - (ii) Greenmount Landfill, Auckland (consent for extended operation).

- (iii) Pinehill Landfill, Auckland (consent for reshaping as part of SH1 Northern Corridor works).
  - (iv) Redvale Landfill, Auckland (Peer review of consent for extended operation).
  - (v) Mangatāwhiri Coal Mine, Waikato (Council s42 for proposed coal mine); and
  - (vi) Brookby Quarry, Auckland (Consent for extended operation).
3. Additionally, I have experience in the development of recreational park policy and design. In particular, for the past 15 years I have worked with Hawke’s Bay Regional Council on the development of the Regional Parks Network, and in preparing Park Plans for several existing and proposed Regional Parks in Hawke’s Bay.
4. I have been engaged by the Applicant to provide landscape and visual effects advice in relation to the application to construct and operate ‘Area B’ of the existing Ōmarunui Landfill, Ōmarunui Road, Napier (**Proposal**). The activity is managed by regional consents and under the designation conditions which take the form of policies and rules contained within Appendix 24 of the Hastings District Plan.
5. My involvement in the application process commenced following the receipt of submissions after notification of the Proposal. As such, I did not prepare a formal report – my assessment methodology and findings are detailed in this evidence only. I also attach a Graphic Attachment which includes various plans and photographs that I refer to throughout my evidence.
6. The AEE refers<sup>1</sup> to a landscape plan (Appendix N) that was developed prior to my involvement in the project. This was prepared by *Philip Henderson*, a registered landscape architect from *Evergreen Landscapes Ltd (Evergreen)* who regularly provides planting plans for various Council projects. The plan was supported by a brief report that concluded that the landscape and visual effects of the development would be *low*.

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<sup>1</sup> AEE Section 6.8.10, Page 34.

7. Due to my previous experience with projects of this specific nature, I have picked up the project from Mr Henderson, and as I will outline below, I have undertaken my own assessment and prepared a revised landscape plan for the project.
8. I have reviewed two submissions on the project that are relevant to my area of expertise. *Simon Nash* (Submitter 1) raises concerns about visibility of the proposal from Breckenridge and Strome Roads, and *Bearsley Farms Ltd* (Submitter 13) raises concerns about planting and landscaping requirements. I am also aware that *tangata whenua* have broad interests in landscape outcomes across their rohe, which includes the Ōmarunui site. I also note the positive comments by Mr Reay (Submitter 9).

#### CODE OF CONDUCT

9. I confirm that I have read the Expert Witnesses Code of Conduct contained in the Environment Court of New Zealand Practice Note 2014. My evidence has been prepared in compliance with that Code in the same way as I would if giving evidence in the Environment Court. In particular, unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

#### SCOPE / SUMMARY OF EVIDENCE

10. My evidence is in response to the proposal as described in the AEE prepared by Tonkin and Taylor, dated 22 October 2020 (Revision 2), submitted as part of the resource consent application and notice of requirement for alteration of designation. I do not intend to traverse the description of the proposal and refer in this regard to section 6 of the AEE.
11. Equally, I do not formally address the landscape context of the proposal in this evidence. A broad description of the *Environmental Setting* is provided in section 5 of the AEE, and this broadly outlines the surrounding land-uses, landscape and amenity. A further summary is provided in the Evergreen report which I concur with. I can confirm that as part of my work I have undertaken my own assessment which has informed my conclusions, which I will outline further below.

12. Therefore, my evidence addresses the following matters:
- (a) The methodology by which I have considered this proposal, including introducing a new landscape plan (alongside an 'end of use' concept).
  - (b) Response to the two submitters.
  - (c) Response to the Reporting Officer's Report; and
  - (d) Conclusion (including recommended conditions).

## METHODOLOGY

13. In preparing this evidence and supporting plans, I visited Ōmarunui landfill on two occasions, 20 April 2021 and 22 June 2021. During the first site visit I also undertook an assessment of the surrounding locality, including Ōmarunui Road, Swamp Road, Springfield Road, Strome Road, Breckenridge Road and Breckenridge Lane. I also undertook a follow-up locality visit on 10 August 2021.
14. In both visits to the landfill site I was accompanied by Mr Doolan, who was able to outline the current operation. As part of the second visit, we drove to the highest point of the site, adjacent to Area B and on the boundary with the Bearsley Farm. During this visit we were also accompanied by Mr Bearsley.
15. I also attended a hui at Waiohiki Marae on 31<sup>st</sup> July 2021 where I presented and discussed my recommendations detailed in this evidence.
16. My assessment methodology is based on recent guidance ratified by NZILA, Te Tangi a te Manu<sup>2</sup>. This document provides an overview of the landscape assessment process, and recommends the use of a seven-point scale for assessing effects as follows:

Effect Level	1	2	3	4	5	6	7
Rating	<b>Very-Low</b>	<b>Low</b>	<b>Low-Moderate</b>	<b>Moderate</b>	<b>Moderate-High</b>	<b>High</b>	<b>Very-High</b>
RMA	Less than Minor	<b>Minor</b>		More than Minor		Significant	

<sup>2</sup> Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines' [Final Draft subject to final editing, graphic design, illustrations, approved by Tuia Pito Ora/NZILA 5 May 2021].

17. My assessment is based on Area B only. I recognise that the proposed site has already been modified for the purposes of a landfill activity (Areas A & D), but that this operation will cease if consent is not granted for the use of Area B. I have also considered that Area C may be the subject of a resource consent application in the future if the landfill requires this space, but this is not currently considered at this time.

***End of Use Plan***

18. The original landscape plan submitted with the application (by Evergreen) focussed on providing visual screening of the proposal from the Bearsley Farm utilising an exotic shelterbelt approach. This shelterbelt would have extended along the ridgelines surrounding Area B for some 1.46km, and would have been 20m wide. It was intended to harvest the shelterbelt on completion of the landfill operation in Area B, in approximately 30-35 years' time.
19. I agree that the concept of utilising harvestable timber for the visual screening is worthy of consideration. However, I began considering the site more holistically – both in terms of its position in the surrounding landscape, and also in regard to how the site might function once the landfill operation is completed.
20. Section 8 of the AEE provides an overview of the closure operation and aftercare. This outlines that once the landfill reaches capacity, it will be closed and capped. At least 24 months prior to the landfill closing, it is proposed that a Closure and Aftercare Plan (**CAP**) will be prepared which will describe the measures to stabilise the site and continue to monitor and manage potential environmental effects.
21. Once closed, the landfill site will essentially return to being part of the surrounding rural environment. However, due to the requirements in regard to managing the landfill cap, it will not be possible to graze or plant Area B (or indeed Areas A & D, or Area C if this is utilised in the future). Therefore, it is most likely that the end of use requirements will mean that the caps will be grassed and mown.
22. Understanding this likely outcome, my process for determining appropriate methods of mitigation (or more specifically how to address the concerns raised

by Mr Bearsley) was to consider alternative uses for the landfill site post closure, what these uses might look like, and how it might be possible to start working towards such outcomes during the landfill operation. I then tied these considerations into my assessment of landscape and visual effects so that any proposed planting (if required) would also contribute towards this end purpose.

23. Like all other landfill sites I have been involved with, the ideal end use activity is for the site to become a recreational reserve. This is principally due to the restrictions in utilising the capped areas for productive use, but also allows the ongoing maintenance requirements to be directed to a public good benefit (eg. taking advantage of the mown amenity by utilising it for recreational reasons).
24. Obviously, there are some restrictions around such use, namely the ongoing management of leachate and gas which will need to be undertaken in a manner that is safe around public use. Based on my experience of similar sites, I consider that this is possible through controlled fencing and signage, noting that at the end of the Area B operation, decomposition in Areas A & D will have advanced significantly. In my opinion, finer details of how public recreation can safely occur on the closed site can be detailed through the PCMP but in concept, the site would be very well suited to use as a recreational reserve.
25. I also considered whether there is a 'market' for such a reserve. Essentially, at almost 180ha, located in the rural landscape, such a reserve would be similar to a Regional Park. Having been involved with the development of the Hawke's Bay Regional Council's Regional Parks Network Plan,<sup>3</sup> and understanding the parameters of the Ōmarunui site, I considered it would be ideally managed as a 'Class 3' park, with a focus on recreation over conservation. Like the privately owned Te Mata Peak Park, this would have an emphasis on walking and cycling, alongside achieving positive environmental outcomes. I also noted that there are few rural-type recreational parks near Napier, with the only large-scale park being currently planned being Ahuriri Regional Park which will have a strong focus on conservation.
26. Although clearly not a full and detailed business case, I reached the conclusion that generally a recreational space in this area would complement other recreational spaces, and that ultimately there would be little opposition given

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<sup>3</sup> <https://www.hbrc.govt.nz/hawkes-bay/regional-parks>.

that the cost of the park would largely be met by funds already being channelled from landfill levies to the end of use management.

27. Having said this, I also considered whether it might also be possible to create a recreational space that generates its own income (similar to the existing operation at Tūtira Regional Park). Recognising that the landfill operation is anticipated to continue for at least another 30 years (possibly longer), I explored opportunities for long-term commercial forestry around the perimeters of the capped areas – and in particular whether the site could be used to operate, and showcase, sustainable native commercial forestry. My experience is that recreational facilities that can be managed off their own income are generally more likely to succeed long-term.
28. Sustainable totara forestry is relatively new in New Zealand, although becoming more common in Northland where there have been extensive trials. The favoured approach, and what I recommend adopting for this site, is planting the totara crop amongst a nurse crop of native establishment species. These will quickly grow to provide shelter, as well as visual screening, but ultimately be replaced by succession species. Sheet 03 provides a long-term plan that seeks to plant the perimeter of the site in this manner, using a staged approach over the next 50-60 years.
29. It will be necessary to develop a more detailed forestry management plan that confirms that totara is the best choice (other options may include matai, kauri or rimu), what are the ideal nursery crop species, and what silviculture, animal/plant pest management regimes may be required. In my opinion this can be undertaken following the approval of the designation, but in time for some planting to be undertaken prior to the operation of Area B (such planting requirements are explored later in my evidence).
30. With this planting around the perimeter, I turned attention to the landfill caps. From a landscape perspective, I had concerns about the ‘engineered’ finish of the caps – essentially an artificially created mound over what used to be a valley. I therefore explored ways in which to manipulate the artificial contours, within two schools of thought – firstly to ‘naturalise’ the caps, tying them back into the natural landforms, or secondly to take the modified concept further and create landform sculptures.

31. Given that the site is, and always will be, significantly modified – and that it sits amongst a rural landscape that consists of built forms and varying productive land-uses, I selected the latter option. The concept is to create a series of mown grass mounds that create a series of interesting and unique spaces. My opinion is that these should be developed in partnership with an iwi artist, and could tangibly connect people with the site, its history and its surrounding context. I visualise the mounds working in with the surrounding totara forest, providing a rich and interesting place to visit.
32. Sheet 02 of my Graphic Attachment provides an overview of the conceptual ideas, including detailing how cultural input may be incorporated and how a sustainable totara forest might operate. Sheet 03 then puts this together as a preliminary concept plan that can form the basis for any post-closure activity on the site.
33. Whether or not these specific concepts eventuate, the exercise I went through led me to the conclusion that through the provisions of the CAP it would be possible to create an end-of-life use for the site that was appropriate for its modified nature. Principally, this would include the establishment of regenerated native bush around the perimeter of the site, and the ongoing maintenance of the caps to provide for recreational use. In turn, this would provide direction for any planting undertaken prior to closure of the site, such that it contributed to the end goal.
34. As the plans themselves are preliminary only, I do not consider it appropriate to provide conditions that require them to be incorporated into the CAP - they demonstrate future aspirations rather than specific mitigation of any identified effects. However, I consider it would be appropriate to ensure that the CAP does include a requirement to develop more details around post closure activity, and therefore recommend an additional condition in my conclusion below.

## **LANDSCAPE EFFECTS**

35. The Ōmarunui Landfill has operated on this site for over 30 years. It was specifically selected to provide a centralised, closely managed landfill facility such that a series of smaller, historical sites could be closed (such as Roy's Hill,

Blackbridge and Redclyffe). The site was selected partly due to its rural location and its rolling hill topography.

36. As identified, the site is currently managed under a Designation that is detailed within Appendix 24 of the Hastings District Plan, such that whilst the opening of Area B requires new regional resource consents and an alteration to the designation, the landfill as a whole is a permanent fixture on this site – both during and post operation. Sheet 01 of my graphic attachment (which is a replica of the Tonkin and Taylor site plan) provides an overall Masterplan for the site. From a landscape perspective, it sets out the anticipated land-use and how future areas within the landfill have been planned.
37. The landfill operation will slowly and permanently change the landform of the site as the Area B valley is filled with waste and then capped. However, this is an activity that is consistent with the surrounding landscape of the site, anticipated under the Designation. The use of Area B also means that an alternative landfill does not need to be opened somewhere else.
38. For these reasons, I consider that whilst the proposed changes are substantial, they are consistent with the anticipated outcome of the site. My main focus, therefore, was about the end of life of the landfill and how it would best integrate back into the surrounding rural landscape. I have traversed this in detail in the previous section of my evidence.
39. I also note that planting within the rural environment is a permitted activity, therefore no consents will be required for any planting associated with the end of use plan. Large scale planting is also a feature of the surrounding rural environment, including the existing forestry operation on the site, various shelterbelts and tree clusters, and amenity planting around dwellings.
40. Therefore, I reach the conclusion that the landscape effects of the proposal, both during operation and following completion, will be **low** and in character with the anticipated outcomes of this modified landscape.

## VISUAL EFFECTS

41. My assessment of visual effects has been undertaken from publicly accessible locations only – I have not been to any residential property. However, I have

studied the contours of the site and surrounding area, and used some 3D modelling to obtain an appreciation of the likely visibility of the site from various locations.

42. Parts of the site are visible from Swamp Road. In the area around 397 Swamp Road it is possible to see into Area A of the site, which has now been capped and some of Area D (refer Sheet 05 of my Graphic Attachment). Some buildings and some vehicle movements are also visible from this location. However, the contours associated with Area A and the surrounding landforms provide complete screening of the Area B proposal from Swamp Road itself.
43. The dwelling at 397 Swamp Road, and another dwelling at 417 are likely to have similar views as can be seen from the road. Views into Area B from these properties will not be possible.
44. Two houses, 500 and 520 Swamp Road, are located in close proximity to the western boundary of the site. However, the landform rises reasonably sharply between these dwellings and the site boundary such that views into Area B are unlikely to be possible. In addition, both houses are surrounded by reasonable dense vegetation.
45. However, both of these properties are rural, and extend up the hills to the site. From these upper portions, it may be possible to see Area B – although this would be in the context of the whole landfill operation, as well as extensive views to the west across the Swamp Road valley. Therefore visual effects on these two properties are considered to be *very-low*.
46. A small rural-residential development located around 668 Swamp Road is separated from the site by a series of hill landforms. None of the site, including Area B, is visible from these properties.
47. Parts of the site are visible from Ōmarunui Road, most notably the pine forest that is located to the south (left hand side) of the entrance driveway. However, almost all of the landfill operation is screened from view by foreground topography, including all of Area B. There are no residential dwellings on Ōmarunui Road that have a view of the proposal.

48. There will be visibility from adjacent farmland, including from the Bearsley property, which extends along ridgelines directly adjacent to the site. From such locations, however, the whole landfill operation will also be visible.
49. Similarly, views of the pine forest can be obtained from Breckenridge Road (and potentially some parts of Strome Road), but the landfill operation itself is not visible from these locations.
50. There are some locations further away where views may be possible, including some of the rural land north of Springfield Road. There are some partial views from Otatara Pa Historic Reserve. However, these locations are somewhat distant at over 2km (3.5km to Otatara), and their elevated nature means the landfill is seen only as a small part of a very wide, sweeping rural view.
51. Mr Henderson in his original landscape and visual effects assessment provides some commentary about potential new dwellings on some undeveloped land parcels. I agree that there is potential for dwellings to be constructed on the top of the ridgelines of these properties – indeed any rural properties in the vicinity – and that such dwellings would potentially have views of the proposal. However, such properties would also have views of the existing landfill operation. In my opinion, it is also questionable whether building on the ridgeline would be a desirable outcome for owners, both in terms of access and the degree of shelter that would inevitably be required (surrounding landscape patterns indicate most dwellings are tucked tightly behind wind and shelter-breaks). As such, while such dwellings are theoretically possible, in my view it is reasonably unlikely they would be constructed in locations that would directly overlook Area B.
52. Mr Henderson provides a brief commentary on the potential visibility of the wind protection fences and recommends that these be located below ridgelines. I agree with this recommendation and include in Sheet 04 of my attachment a line indicating the outermost extent of where any fences should be placed.
53. Overall I conclude that the visual effects of the proposal will be **low**. There are no existing residential properties that would have a view of the proposal. Some views will be present from surrounding elevated farmland (or undeveloped land), however such views are in the context of the existing landfill operation.

54. In this regard, I do not consider there is any requirement to undertake visual mitigation planting to address the visual effects of operating Area B. However, I note the concerns of Mr Bearsley, which I address in the following section of my evidence.

## RESPONSE TO SUBMISSIONS

55. Mr Nash (Submitter 1) questions whether Area B will be visible from properties on Breckenridge and Strome Roads. In my assessment there will be no views of Area B - only the pine forest is visible from such locations. I have attached an image that demonstrates a typical view (Sheet 06 of my Graphic Attachment).
56. Mr Bearsley (Submitter 13) indicates concerns about planting and landscaping requirements. I met Mr Bearsley on-site to discuss these concerns, and he indicated that he was keen to see more planting being undertaken on the site, although he accepted that he would not be able to see the operation of Area B from his dwelling or main farm operations base.
57. I shared the end of use concepts with Mr Bearsley, and he indicated interest in the broader scheme of planting totara. He requested that if such planting was to be undertaken, that it be started along his boundary with the site so that he doesn't see the facility from his farm.
58. I have already outlined my recommendation to detail end of use plans as part of the CAP. However, recognising that Mr Bearsley is keen for planting to be undertaken more quickly (even though I consider it not a requirement to mitigate identified effects), I have developed an 'Area B Landscape Plan', Sheet 04 of my Graphic Attachment. This provides for 3.5ha of planting aligned along the ridgelines identified by Mr Bearsley. I recommend that planting in the area shown on this plan be undertaken prior to landfill operation in Area B.
59. However, I note that at this time I have not provided a specific species list for the Area B Landscape Plan. My preference is that the planting in this area would be aligned to the end of use plan outlined earlier in my evidence, and as such would be focussed around a productive native forest (likely totara) and appropriate nurse crop. However, as I have outlined, more work is needed to develop a forest management plan that details appropriate species, and any

silviculture and plant/animal pest management requirements. Therefore, the plan outlines the requirements to:

- (a) Undertake planting prior to any landfill operation in Area B.
- (b) Select species that will reach at least 2.0m in height and achieve greater than 80% canopy; and
- (c) Maintain the planting for the life of the landfill operation in Area B (including undertaking any animal/plant pest management requirements).

60. Therefore, to address Mr Beasley's concerns, I consider it appropriate to include a requirement to undertake planting as per the Area B Landscape Plan identified on Sheet 04 as part of the designation conditions, in Appendix 24 of the Hastings District Plan. I provide recommended wording for that condition in my conclusion, below.

61. In addition, I have already recommended the inclusion of a condition that addresses planting across the whole site as part of an end of use plan.

62. Mr Reay reaches the conclusion that landfill in Area B will be *"far less visible to the nearby neighbours"*. As I have outlined, Mr Reay is generally correct with this statement, although for very close neighbours such as Mr Beasley, Area B may be more prominent visually from certain areas of the immediately surrounding rural environment.

#### **RESPONSE TO REPORTING OFFICER'S REPORT**

63. Mr McKay provides a detailed review of the Evergreen report. He concludes that if the NOR is confirmed that the District Plan Appendix 24 Management Plan be amended to include tree planting (section 8.27 of the S42a Report) and wind break fencing (section 8.28).

64. On 31 August I spoke to Mr McKay and detailed my involvement in the project. I provided details on the approach I have taken to developing an end of use plan (as outlined above), and discussed how this might impact the recommendations included in his report. He indicated agreement with my approach and the longer-term positive outcomes that would be obtained. He also agreed that the

overall landscape and visual effects of the proposal were low, and that visual mitigation planting was not necessary. However, he endorsed the proposal to include planting in order to address the concerns of Mr Bearsley.

65. Mr McKay also indicated that he could see no reason not to finalise the details of planting following NOR approval, so long as this was completed and planting undertaken in advance of operating Area B.
66. In this regard, I agree with Mr McKay's inclusion of references to planting within the designation conditions and within the District Plan Appendix 24 Management Plan, however request that the detail is lessened in order to allow for further research into appropriate planting species, silviculture, and animal/plant pest management.
67. Mr McKay also details a condition to ensure any mesh fences are erected in a manner that reduces visual effects. I agree and have included indicative fencing on the Visual Mitigation Plan. Therefore, as above, I consider that section 3.5 could be reworded to include reference to the Area B Landscape Plan (Wayfinder Sheet 04).

## CONCLUSION AND RECOMMENDED CONDITIONS

68. As I have outlined throughout my evidence, I recommend the addition of the following condition to the designation. I note that while the CAP is required under the regional consents, in my view it is appropriate for a holistic approach to be taken and for landscaping matters to be addressed in the same plan, albeit as part of the designation requirements:

3.13 The Closure and Aftercare Plan required under the regional consents for the Landfill shall also provide details on the ongoing use of the site as a recreational reserve, including the ongoing management of all native regeneration vegetation that has been planted as visual mitigation, any additional native regeneration vegetation that has been or will be undertaken, and any additional earthworks on the site to provide for recreational or amenity use.

69. In regard to the Area B Landscape Plan (Wayfinder Sheet 04), I recommend that the designation conditions refer to the Area B Landscape Plan within condition 1.3 as follows:

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### 1.3 Tree Planting

- *Tree planting on the site shall be implemented in accordance with the final landscape plan prepared and approved for each waste disposal area. Prior to the use of Area B for waste disposal this shall include the planting of the area identified on the Area B Landscape Plan (Sheet 04) prepared by Wayfinder Landscape Planning & Strategy Ltd, dated 31 August 2021.*

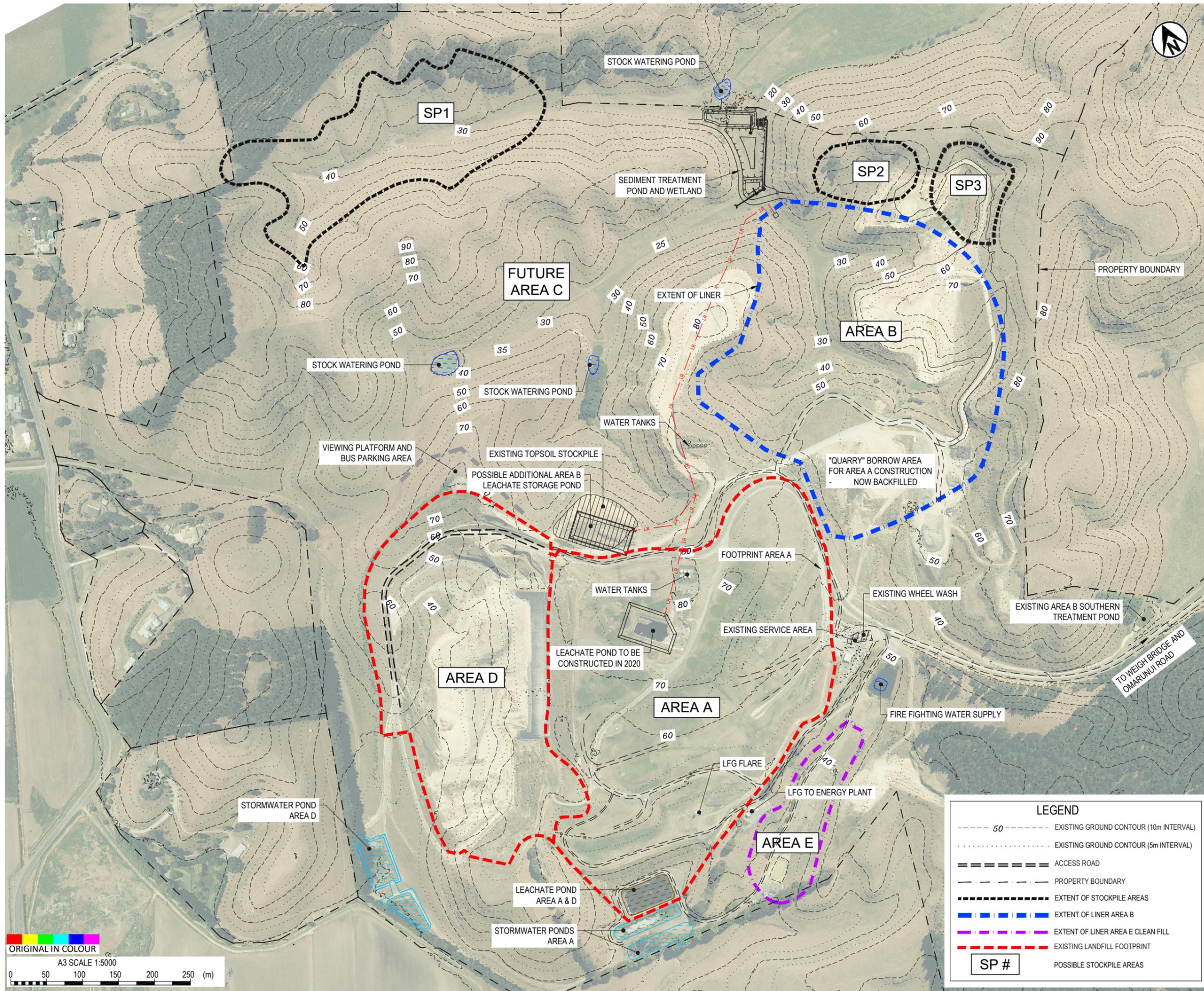
70. In addition, condition 3.5 is proposed to be amended as follows:

### 3.5 Wind Blown Debris

*This will be controlled as necessary by use of mesh fences (with fences erected around B to be in accordance with the Area B Landscape Plan (Sheet 04) prepared by Wayfinder Landscape Planning and Strategy Ltd, dated 31 August 2021). In the event of any windblown waste escaping from the working area beyond the mesh fences or beyond the immediate vicinity of the site (whether protected fences or not) it will forthwith be collected and placed in the working area. Any windblown waste escaping from the site onto or near to adjacent properties will immediately be collected and removed.*

71. With the above conditions in place, I consider that the landscape and visual effects of the proposal will be less than minor.

**Shannon Bray**  
**2 September 2021**



FOR REFERENCE ONLY

REFER TO T+T ORIGINAL PLAN FOR FULL INFORMATION

DRAWING:  
1000647.100-21  
20.12.19



Site Layout Plan  
Prepared by Tonkin+Taylor

Omarunui Landfill



ISSUED FOR CONSENT

31 August 2021

Revision 02

Drawn S Bray

Reviewed J Hunt

Scale 1:5,000

Print at A3

Sheet 01

OmarunuiLandfill\_GraphicsPackage\_25May21

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## RECREATIONAL PARK

End of use options for landfill site are limited due to the ongoing requirements to manage the caps. It is not possible to plant trees on the caps, and grazing is not immediately possible. Therefore, it is likely that the caps will require ongoing mowing for 25-30 years following the landfill operation.

Therefore, the ideal end of use is to utilise the site as a recreational reserve, making the most of mown - manicured - open space.

Based on other recreational spaces within Hawke's Bay, understanding its location (with dual entrances), and its relative isolation from surrounding landowners (due to topography), the site is well positioned to be used for large, organised events - such as sports events, weddings and festivals.

In addition, the large size of the site, and the requirement to undertake some shelter and visual screening planting in the next 5-10 years, means that it is also ideal for use for walking and cycling.

In addition, the opportunity to continue to drive revenue from the site following completion of the landfill is worthy of investigation.

Therefore, a park concept has been developed, consisting of two key features:

- A forest buffer, acting as visual screening mitigation for the landfill operation, but also as a slow-rotation productive native forest (eg. totara).
- Open grassed caps but deliberately sculptured into cultural forms that add uniqueness and interest to the site, reflecting its modified origins as a landfill.



## PART 1: CULTURALLY SCULPTURED FORMS

Taking cues from the "Cells of Life" project by landscape architect Charles Jencks, in Edinburgh, UK, concept is to reconsider completed contours on the capped areas as sculptural forms.

Form and shapes to be considered and developed in consultation with mana whenua - could reflect cultural landforms or more artistic representations.

Critical to ensure that stormwater runoff and the intrinsic requirements of the caps are appropriately controlled - therefore will require civil and geotechnical engineering input. Maintenance regime to be considered in the context of ongoing cap-management requirements.

Potentially, water forms could be included as part of the overall concept, to be worked through with geotechnical engineering.

Forms could also be designed to allow multi-functional use of the grassed areas, such as sports events, weddings, festivals, etc. This would involve the incorporation of car parking and potentially some buildings as part of the design. Where possible, existing buildings or lay-down areas should be reconsidered for such uses.

It is noted that recreational use at the end of the operation of the landfill may be subject to ongoing environmental management, resulting in some areas not being immediately available (eg leachate irrigation areas or where there are gas emission heads). Details around transition process will need to be developed.



## PART 2: PRODUCTIVE TOTARA FOREST

Plant *Podocarpus totara* (Totara) as a productive crop for commercial harvesting. Planted within a mixed-native crop for selective thinning and harvesting over a 60-80 year rotation.

Planting method: Plant amongst nurse-crop species of kanuka or manuka and other establishment crops suitable for exposed, rural conditions at 1.5m spacing. Plant at approximately 800 stems/ha, at a spacing of 4.0m. Anticipated cost of planting approximately \$25k/ha. Undertake slow and steady planting regime across the site, averaging 1-3 ha/year.

Silviculture: Undertake thinning and pruning to ensure healthy, straight-stems at density of approximately 400-500 stems/ha. Potentially two thinning regimes required over 60 year rotation.

Harvesting: Selectively harvest 50-100 stems/ha per year from within established nurse-crop, with anticipated damage to surrounding crop (may be utilised for firewood). Harvesting decisions based on basal density and market conditions, post 60 years.

Replant: Replant gaps with replacement totara species or alternative native timber such as rimu, matai, etc.

Benefits:

- Totara timber available to market for furniture, carving, etc
- Forest contributes to 1 Billion Trees project
- Nurse crop and forest contributes to visual screening
- Contributes to alternative forestry methods that can be applied to private sector

Further investigation of forest management process and development of detailed forest management plan required.



End of Use  
Conceptual Ideas

Omarunui Landfill



ISSUED FOR CONSENT

31 August 2021

Revision 02

Drawn S Bray

Reviewed J Hunt

Print at A3

Sheet 02

OmarunuiLandfill\_GraphicsPackage\_25May21

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Landscape Planning & Strategy



CONCEPTUAL ONLY

SUGGESTED 'END OF USE'  
AS RECREATIONAL RESERVE  
WITH PRODUCTIVE TOTARA  
HARVESTING

FULL SITE AND TOTARA  
HARVEST PLAN TO BE  
DEVELOPED

CONTOURS ARE INDICATIVE  
ONLY AND DO NOT SUGGEST  
FINAL CAPPING LEVELS.  
TOTARA PLANTING LOCATIONS  
MAY NEED TO BE ADJUSTED  
AROUND SLOPE CONSTRAINTS,  
ALTHOUGH NURSE CROP  
PLANTING CAN PROVIDE  
CONTINUOUS COVER

PROPOSED PLANTING

TOTARA FOR FORESTRY  
AT 4m SPACING  
800 STEMS PER HA

NURSE CROP OF MANUKA,  
PITTOSPORUM, COPROSMA  
TO BE PLANTED AT 1m  
SPACING TO ACHIEVE 80%  
CANOPY IN 4-5 YEARS

AREAS SHOW INDICATIVE  
YEARS FOR PLANTING

Suggested  
End of Use Plan

Omarunui Landfill



ISSUED FOR CONSENT

31 August 2021

Revision 02

Drawn S Bray

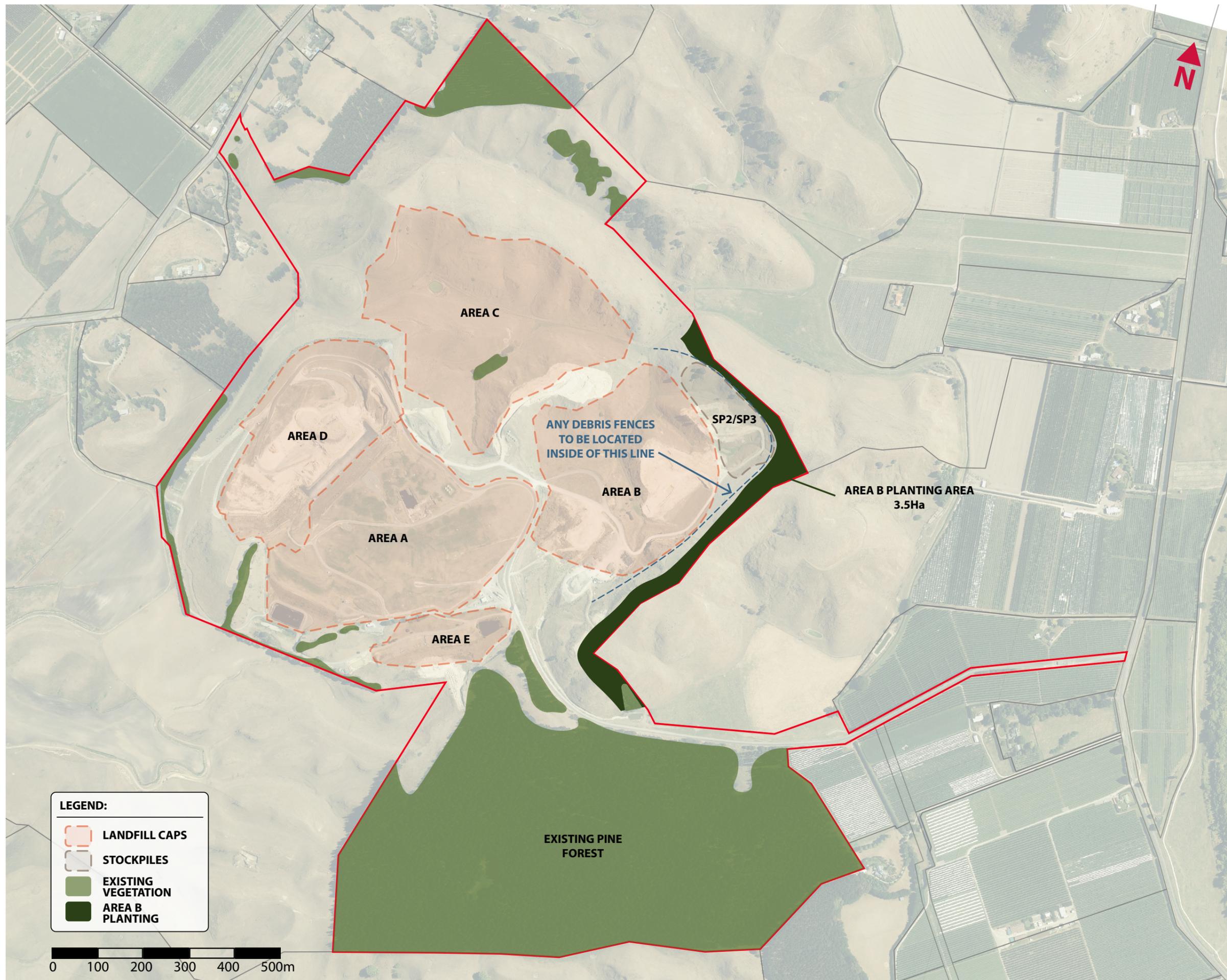
Reviewed J Hunt

Scale 1:7,500  
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Sheet 03

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**PLANTING AREA (3.5Ha):**

AREA TO BE FULLY PLANTED PRIOR TO COMMENCEMENT OF LANDFILL OPERATION IN AREA B.

PLANT SPECIES TO BE SELECTED TO ACHIEVE AT LEAST 80% CANOPY COVER AT WITH GREATER THAN 2.0M HEIGHT WITHIN 5 YEARS OF PLANTING.

PLANTING TO BE RETAINED FOR FULL LIFE OF OPERATION OF AREA B - ANY AREAS OF PLANT FAILURE GREATER THAN 5m<sup>2</sup> TO BE REPLANTED IN FOLLOWING PLANTING SEASON. DETAILS OF PLANTING MAINTENANCE TO BE INCLUDED WITHIN LANDFILL OPERATIONS AND MAINTENANCE MANUAL.

APPROPRIATE PLANT AND ANIMAL PEST MANAGEMENT PLAN TO BE INCLUDED WITHIN LANDFILL OPERATIONS AND MAINTENANCE MANUAL.

**Area B  
Landscape Plan**

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AREA D  
(MACHINERY)

AREA B  
(NOT VISIBLE)

AREA A  
(CAPPED)



Photograph from approx  
397 Swamp Rd

Omarunui Landfill



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