

Sunfield Fast-track

Auckland Council Specialist Memo

Annexure 16:
Highly Productive Land
Ruth Underwood
4 August 2025

Author: Ruth Underwood, Horticultural Consultant, Fruition Horticulture (BOP) Ltd

Specialist Area: Rural Productivity / Highly Productive Land

Date: 4 August 2025

1. This memo has been requested by Auckland Council to review application information for the Sunfield development within the author's areas of expertise regarding land-based primary production and highly productive land.

Qualifications and Relevant Experience

2. I hold the qualification of Bachelor of Horticultural Science with First Class Honours "B Hort Sc (Hons)" from Massey University, awarded in 1986 and have over 35 years of experience in horticulture consultancy, including professional development in Sustainable Nutrient Management in New Zealand Agriculture, Agricultural Greenhouse Gas Emissions and Freshwater Farm Planning.
3. I am a member of The New Zealand Institute of Agricultural & Horticultural Science Inc (NZIAHS) and the Australasia-Pacific Extension Network (APEN).
4. I have prepared expert evidence and technical assessments for resource consent applications and have appeared as an expert witness before the Environment Court (previously Planning Tribunal) on several occasions.

Code of Conduct

5. I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses (**Code**) and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.

Executive Summary

6. I do not support the basis for urbanisation of this land being lack of suitability for land-based primary production.
7. The land is currently being used for land-based primary production and is suitable to continue in this use.
8. Under the current 'pre-mapping' definition in the National Policy Statement for Highly Productive Land (**NPS-HPL**) Clauses 3.4 and 3.5, the whole rural-zoned 188 hectare part of the site is Highly Productive Land (**HPL**).
9. The site is classified under the New Zealand Land Resource Inventory (**NZLRI**) as wholly Land Use Capability (**LUC**) Class 2, which by definition has slight limitations for arable use and is suitable for many crops. Under the site-specific assessment of parts of the site for the Sunfield application, some of the site was assessed as having moderate limitations for arable use, and classified LUC Class 3, which by definition is suited for a restricted range of arable crops and limited intensity of cultivation.
10. Land of the same NZLRI LUC class and similar soils in the local area is being used for a wide range of productive uses, including vegetable production, growing kiwifruit, growing strawberries, nursery plant production, grazing and indoor plant production. This indicates there are options for more intensive land-based primary production uses of the Sunfield site than the current use mainly for grazing.
11. The proposed Sunfield project would remove the land from land-based primary production, so is contrary to Clause 3.9 of the NPS-HPL.
12. Limitations on land of LUC Class 2 are generally readily-controlled, and would not be considered permanent or long term constraints for exemption from the NPS-HPL as detailed in Clause 3.10.
13. In my opinion, detailed assessment of the site is unlikely to meet criteria for exemption from the NPS-HPL set out in Clause 3.10.

Specialist Assessment

14. The memo is based on a site visit on Friday 11th July 2025, and review of applicant documents, in particular:
 - a) A report by Dr Reece Hill of Landsystems dated 25 November 2024, *National Policy Statement for Highly Productive Land assessment of the Sunfield Site, Ardmore (Landsystems Report)*;
 - b) A report by Tattico dated 31 March 2025, *Sunfield Fast-track Approvals Act 2024 Substantive Application Planning Report (Tattico Report)*;

- c) A report by Property Economics dated December 2024, *Sunfield Application Economic Assessment (PE Report)*;
 - d) A report by Land Development and Engineering dated 6 December 2024 titled '*Sunfield Developments Limited Geotechnical Assessment Report Sunfield Landholding, Ardmore*' (**LD&E Report**) Appendix 2.
 - e) I have also read the memoranda by Dr Guinto on soil and land use capability, and Dr Meade on economics.
15. My specialist area is HPL, and rural productivity, in particular horticulture. I have a Bachelor of Horticultural Science with First Class Honours, from Massey University awarded in 1986, and over 30 years relevant consulting experience.
16. This memo refers only to the part of the proposed site that is zoned Mixed Rural Zone and therefore comes under the definitions in the NPS-HPL.

Is the land of the proposed site Highly Productive Land?

17. The land is HPL¹ being mapped as LUC Class 1, 2 or 3 under the NZLRI as per Clauses 3.4 and 3.5 of the NPS-HPL. The NZLRI map classifies the land wholly as LUC Class 2, which comes into the definition of Highly Productive Land.
18. Note the policy environment is dynamic, and removal of LUC Class 3 land from Highly Productive Land is under active consideration². However, the NZLRI map classifies none of the land as LUC 3.

What does LUC Class mean?

19. LUC Class is a broad category of land use capability, split into 8 Classes of increasing limitations to use of the land, and decreasing versatility of the land as the Class number increases. LUC Classes 1-4 are multiple use land suitable for arable cropping. The illustration following shows this.

¹ According to the definition of "Highly Productive Land" in the NPS-HPL 2022 with 2024 amendments <https://environment.govt.nz/publications/national-policy-statement-for-highly-productive-land-2022-amended-august-2024/>

² See the proposed amendments to the NPS-HPL published by the Ministry for the Environment published in May 2025 at the following link: <https://environment.govt.nz/assets/publications/RMA/attachment-2.4-national-policy-statement-highly-productive-land.pdf>

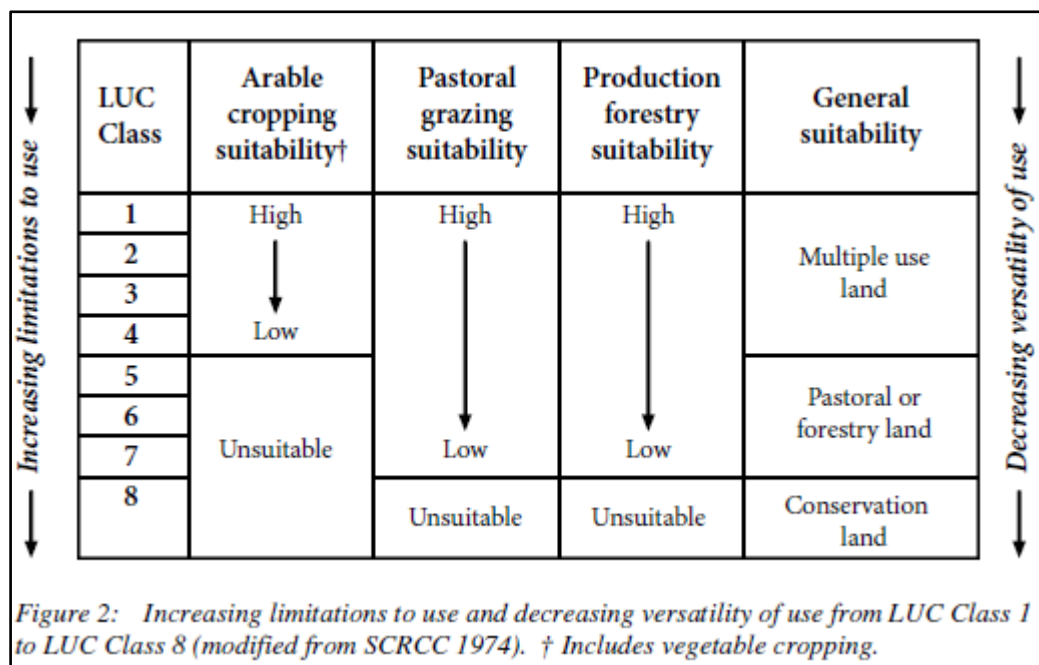


Figure 1: Illustration of Land Use Classes. From: Lynn et al, page 9: <https://cdm20022.contentdm.oclc.org/digital/collection/p20022coll14/id/74/>

20. The LUC Survey Handbook Glossary of Terms³ defines capability as ‘Suitability for productive use, after taking into account the various physical limitations the land may have.’ [emphasis added]. This means the NZLRI classification as LUC Class 2 already takes account of the limitations at the site, indicating the physical limitations of the land are readily controlled.

On-site LUC mapping

21. On-site LUC mapping of some of the proposed site was provided in the applicant’s documents (Landsystems report), finding both LUC 2 and LUC 3 land, and is discussed further in Dr Guinto’s memo. Both the LUC 2 and LUC 3 land are HPL under the current definition.

What are the limitations?

Type of limitation

22. A subclass is added to LUC Class, which refers to the main physical limitation for the land. This is assigned from one of four types of limitation, being:
- ‘e’ for ‘erodibility’, susceptibility to erosion
 - ‘w’ for ‘wetness’, such as from a high watertable, slow internal drainage and/or flooding,
 - ‘s’ for a soil limitation within the rooting zone, including for example shallow soil, sub-surface pans, stoniness, salinity, and others,

³ Lynn et al, 2009 page 153

- 'c' for a dominant climate limitation, which can include drought, excessive rain, frost or snow and exposure to strong winds or salt spray.

23. The onsite mapping identified 'w', wetness, and 's', soils as the dominant limitations across the Sunfield site.

How these types of limitations are typically managed

24. Identifying the main limitation helps guide appropriate ways to manage the land to contain effects of the limitation, whether by crop choice, infrastructure such as drainage or irrigation, or management such as timing and method of cultivation or grazing intensity.

Extent of limitation

Depth of watertable

25. Depth of the watertable was measured in the LD&E geotechnical Report submitted with the application and provides some guide to the extent of the wetness limitation. The report recorded groundwater levels in several monitoring holes across the site, mostly during 2021, recording levels in April, July, October of 2021 and January of 2022; and on two additional monitoring holes recorded in February 2023. The data is shown on page 42 of the report, titled 'Seasonal Standpipe Groundwater Levels'. These showed highest watertable in the July (winter) and October (spring) measurements, with 9 monitoring sites recording watertable within the rural-zoned area in those months. Watertable recorded in those months is shown in the table below.

Table 1: Winter and spring watertable depths on the rural land. Data LD&E Report page 42. Information in the last two columns is derived by the author from the data presented.

Monitoring site	Watertable depth – metres		Watertable within 0.7 metres of soil surface	Approximate part of site
	July 2021	October 2021		
MH06	3.50	4.26		South East
MH07	0.60	0.56	Winter / Spring	South East
MH09	0.40	0.39	Winter / Spring	Mid East
MH11	0.20	0.32	Winter / Spring	North East
MH08	3.45	3.39		Central South
MH03	2.09	1.98		Central
MH12	1.17	1.44		Central North
MH10	1.00	0.97		Mid West
MH13	0.60	0.63	Winter / Spring	North West

26. These levels of watertable depth occurring seasonally within 0.7m of the soil surface are within the parameters expected for land classified as having slight to moderate limitations due to wetness. The watertable depth at the other monitoring sites was below 0.7 metres at all times monitored. Annual rainfall records were viewed for the reference site Clevedon

Showgrounds⁴ for six recent years 2019, recording 1,145mm, 2020 (982 mm), 2021 (1,265mm), 2022 (1,456 mm), 2023 (1,796mm) and 2024 (1,251 mm). This suggests some years are wetter and some drier than 2022, indicating the monitored watertable levels taken at the site are a useful indication.

27. Means to work within this limitation of seasonally high watertable in parts of the site include:

- selection of crops that tolerate seasonally high watertable.
- selection of crops that have limited need for land cultivation.
- time any cultivation to periods when the soil watertable and soil moisture content are suitable.
- maintain any drainage systems to help manage soil moisture and watertable levels.
- manage grazing and stocking levels in accordance with soil wetness.

28. The drainage system was not fully investigated, but drains were observed in place and flowing at the site visit, during wet conditions, as shown in the photos below.



Figure 2: Drains observed flowing well at the site visit, during wet conditions. Photos: R Underwood 11 July 2025.

Current and recent uses of the site

29. Current and past uses of the land and of similarly classified land in the local area are also an indication how readily physical limitations are addressed. The land is currently being used for land-based primary production and is suitable to continue in this use.
30. The Landsystems report appends the Singleton report, which was prepared in 2020, and refers to use of the site for drystock farm and market gardening. At the site visit, on a wet day during winter, grazing of horses and cattle was observed.

⁴ Via Auckland Council Environmental Data Portal <https://environmentauckland.org.nz/>



Figure 3: Cattle grazing. Photo: R Underwood 11 July 2025.



Figure 4: Horses grazing. Photo: R Underwood 11 July 2025.

31. There was also a tunnel house viewed, that was no longer used for growing crops (photos below). The frame was still intact, but the covering had not been replaced. Covers are expected to need replacing after around 10 years, retaining the same frame. The tunnel house was visible in the Google Earth aerial view from 2012 (not shown), so the need to replace covers by 2025 is expected.



Figure 5: Two views of tunnel house no longer used for growing crops. Photos: R Underwood 11 July 2025.

Nearby uses of similar land

32. In the Landsystems Report, Figures 4 (page 11) and Figure 6 (page 13) show there is a broad area of similar land extending north of the Sunfield site and east towards Clevedon. The map below, from NZLRI, also shows this area and the similar land LUC classification. The S-map online soil map⁵ (not shown) shows the soil orders mapped for the Sunfield site recurring in the area mapped as LUC 2.

⁵ <https://smap.landcareresearch.co.nz/>

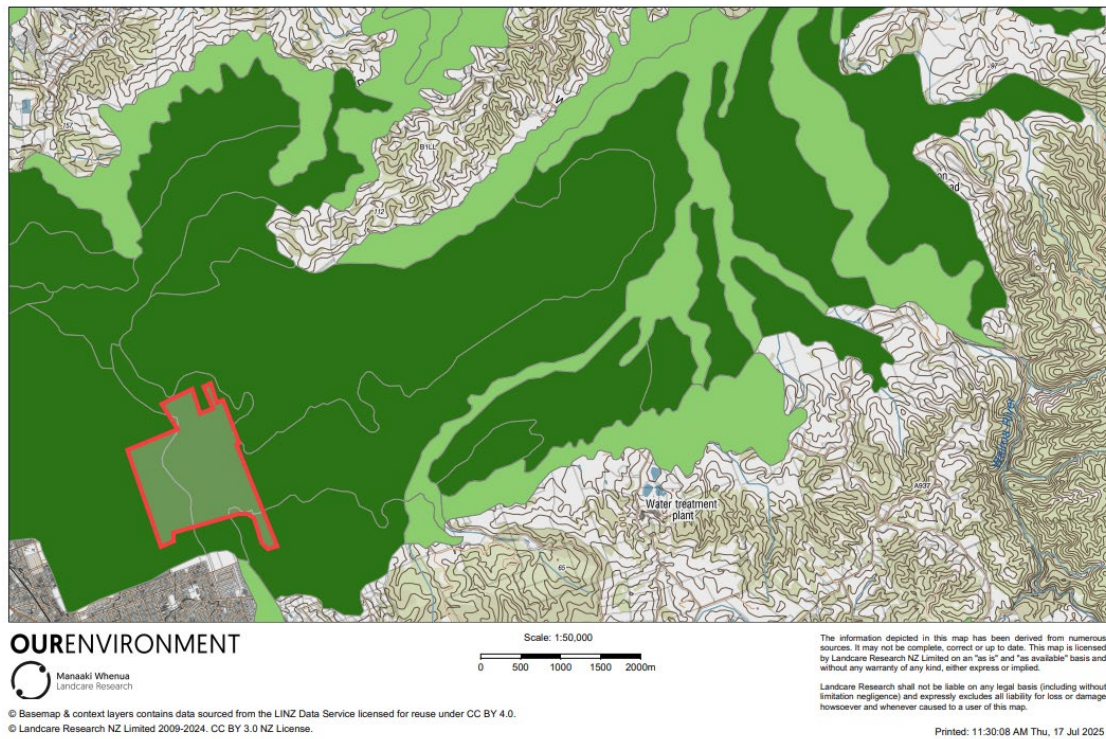


Figure 6: NZLRI map of LUC 1-3 land around approximate Sunfield site outline annotated by the author, showing land with the same classification extends north, and east towards Clevedon. The south and west sides of the Sunfield site are urbanised or zoned Future Urban. Note: there is no LUC 1 land in the view, with the darker green representing LUC 2 land and the lighter green LUC 3 land.



Figure 7: Aerial view with Sunfield site approximate outline. The view shows land used for rural production extends north, and east towards Clevedon, skirting Ardmore airport. Note: The left and right sides of the view were captured a few days apart in March 2025. Source: Google Earth Pro, March 2025 view, annotated by the author.

33. There are a wide range of land-based primary production land uses in the area, including production of kiwifruit, commercial vegetable production, strawberry growing, outdoor nursery, indoor plant production and grazing of stock on pasture. This production is mostly from land classified in the LUC system as LUC 2, the same as the land on the Sunfield site. The land is productive despite limitations, as the limitations are managed to contain their impact on production.
34. This indicates there are options for more intensive Sunfield site land use than grazing, as indicated by use of land nearby of the same LUC Class and similar soil types for more intensive land uses.
35. The wider Auckland area has significant production of horticultural products, much on land classified as LUC 2 in the NZLRI, the same classification as the land at the Sunfield site.

LUC 1 Land is scarce

36. The Landsystems Report refers to there being no LUC 1 land on the Sunfield site (Section 10 Key Points, page 14). This is true according to both the NZLRI mapping and to the onsite mapping of the parts of the Sunfield site specifically mapped. However, this finding understates the limited occurrence of LUC 1 land at all – LUC 1 land is scarce in New Zealand, comprising under one percent of total land area⁶. The picture below is of LUC 1 land over much of Auckland from NZLRI derived at approximately 1:50,000 scale and depicted at 1:250,000. It shows how limited LUC 1 is in distribution and contiguous areas.

⁶ Lynn et al, 2009. Page 147

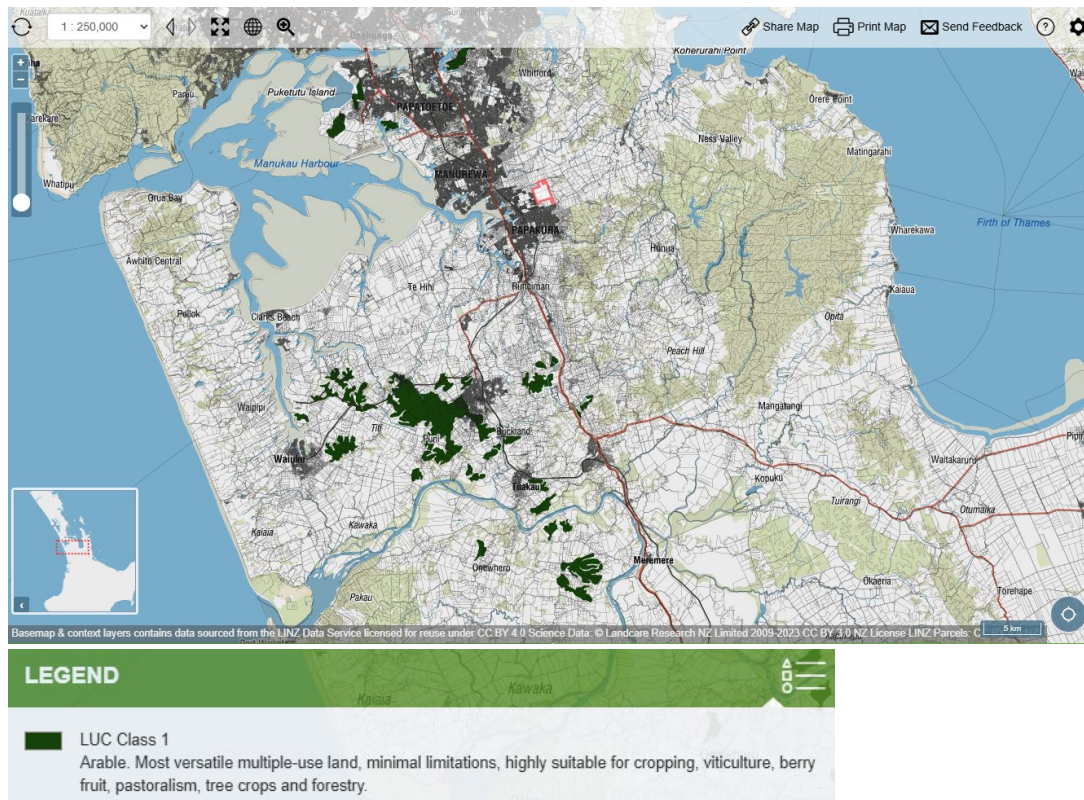


Figure 8: Figure 7: Snip of LUC 1 land in the vicinity of the Sunfield site (outlined), showing limited LUC 1 land in the greater area. Note the areas in dark grey are urban. From NZLRI, Our Environment, Land Capability: <https://ourevironment.scinfo.org.nz/maps-and-tools/app>

Limitations at the Sunfield site

37. The Landsystems Report summary points include “The poorly drained soils (LUC3 w2 and 2w2), although deemed to be highly productive land, are not LUC class 1 land (with deep and well drained soils) and are of lesser productive value and not suitable for intensive horticulture crops requiring deep, well drained soils.”
38. This is true, but implies greater limitations than have been demonstrated for the Sunfield site. This point made in the Landsystems Report has been referred to in both the Tattico planning report (Sections 7.10 and 8.5) and the PE Economic Assessment (Section 10.2). The Tattico Report in particular extends the Landsystems Report summary point, stating on page 145: “Therefore based on this report, it is considered that the land subject to this proposal, when reviewed in detail, is generally not of high production value given the heavy clay soil textures and wetness limitations.” In my opinion, this is over-emphasising the land limitations. The land is not scarce LUC 1 land. The nature of the limitations are wetness and soil based, which are two of the possible four categories for limitation. The LUC Classes assign severity of limitations at the ‘slight’ to ‘moderate’ level in different parts of the site in the on-site assessment of LUC 2 and LUC 3, and wholly at ‘slight’ severity of limitation in the NZLRI mapping of LUC 2.

39. Under the Land Use Capability system, all land has limitations. The difference between LUC classes is the extent of limitation, with sub-classes denoting the dominant type of limitation from the four categories of erodibility, wetness, soil and climate. The Landsystems Report (Section 5 'Soil features and sustainable land use options, in Figure 3, page 9) provides a map of the area of the Sunfield site with a wetness limitation.
40. This is true, but by combining the type of limitation (wetness) without illustrating the severity of the limitation (minimal, slight, moderate or severe) could give the impression the land is of consistent severity of limitation. Under the NZLRI classification, all the Sunfield site is of 'slight' severity of any limitation. Under the site-specific LUC assessment, limitations were 'slight' and 'moderate' on most parts of the site assessed, broadly being 'slight' on the western part of the site and 'moderate' on the eastern side, with a small area of non-HPL LUC Class 6 land in the narrow area extending southwards in the south east part of the site.
41. The same figure in the Landsystems Report includes areas assessed via 'desktop' means. A significant portion of the area desk-top assessed in the south-west corner has been denoted as 'non-productive land'. My observation is that the extent of non-productive land is overstated as it includes the centre of a track as non-productive, whereas the centre of the track is in pasture used for grazing so is land-based primary production and productive. This is shown below.



Figure 9: Google Earth aerial view dated March 2025 of south west portion of the Sunfield site, showing interior of track on proposed Sunfield site is in pasture so productive, whereas this is annotated as non-productive in Landsystems Report Figure 3 copied in across.



Figure 3: The distribution of soil with a wetness limitation (LUC 3w2 and 2w2) identified at property scale for the Sunfield site.

Figure 10: This is Figure 3 in the Landsystems Report, showing a significant portion of land mapped as 'non productive' in the south west desk-top assessed portion of the site, including the whole area inside the track pictured at left.

NZLRI versus on-site LUC assessment

42. Site specific LUC assessment is clearly more accurate than NZLRI assessment. However, when comparing a site to other parts of the region, comparing site-specific mapping with NZLRI mapping introduces an inconsistency likely indicating the site-specific LUC assessed land is of lower suitability when compared to other land.

NPS-HPL pathways to remove the site from primary production

43. Part 3.10 of the NPS-HPL is within my area of expertise and provides a pathway for exemption of the land from the NPS-HPL if “there are permanent or long-term constraints on the land that mean the use of the highly productive land for land-based primary production is not able to be economically viable for at least 30 years.” and several other conditions.
44. The application documents I have read do not provide a comprehensive assessment under Clause 3.10 of the NPS-HPL. Severe limitations could be considered constraints of the nature envisaged in Clause 3.10. In my opinion, the land use limitations on the Sunfield land do not appear to be severe, and if fully assessed, are unlikely to meet the high bar set by the NPS-HPL Clause 3.10.
45. Brief observations from which I have derived my opinion that conditions of the Clause 3.10 exemption are not likely to be met on full assessment include:
 - a) The site is a large land area, with limited land titles so is not fragmented.
 - b) The site is being used for land-based primary production.
 - c) Limitations on the land are slight to moderate and are being managed with appropriate and existing technologies and practices.
 - d) The site is bordered by urban developments on the south and west. The road helps to provide a buffer on the west, helping to prevent reverse sensitivity effects. A buffer will likely be needed at the south edge to provide separation from urban development on the land zoned ‘Future Urban’ when this urbanisation occurs.
 - e) The north edge and about half of the east edge border other land used for land-based primary production. The rest of the eastern side borders land associated with Ardmore airport, used for housing, an industrial area in development and airport activities. The new Mill Road corridor will be near the eastern site border, so providing more buffer to neighbouring activities around the airport end of the site.
 - f) The same land forms and range of land uses, other than the Ardmore airport area, continue on land to the east of the site extending towards Clevedon.

Impact of roading designation for ‘Mill Road’

46. The new road will border the site on the eastern side, with one or more access points to existing roads likely along the length of the Sunfield site. This road will provide another option for accessing the site and other rural areas nearby, compared to existing roading passing through urban areas towards the Southern Motorway. It does not appear the road will intrude significantly on the Sunfield site.
47. Whether the new road is considered a new ‘natural boundary’ between urban and rural production relates more to specialties of other experts.

Conclusion

48. The HPL land on the site is in current use for Land Based Primary Production, and is suitable to continue in this land use.
49. The NZLRI maps classify the whole site as LUC Class 2, which by definition has slight physical limitations for productive use in arable crops.
50. The on-site assessment for the applicant assessed LUC Class 2 or LUC Class 3 across most of the site, which are both HPL. The extent of limitations for arable use of LUC Class 2 land is 'slight' and of LUC Class 3 land is 'moderate'. A small portion around a stream at the south-east protrusion of the site was assessed as LUC Class 6 which is not HPL, and is not suitable for arable use.
51. There is no indication the land is subject to permanent or long term constraints that meet the criteria for exemption from the NPS-HPL via Clause 3.10 of the NPS-HPL.

Ruth Underwood, B. Hort Sc. (Hons)

Horticultural Consultant

Supporting Documents

Lynn, I., Manderson, A., Page, M., Harmsworth, G., Eyles, G., Douglas, G., Mackay, A. & Newsome, P. 2009. Land Use Capability Survey Handbook: A New Zealand Handbook for the Classification of Land. 3rd edition. AgResearch Ltd, Hamilton; Landcare Research New Zealand Ltd, Lincoln; Institute of Geological and Nuclear Sciences Ltd, Lower Hutt, 163 pages.

Appendix

The map from the LD&E geotechnical report for the applicant, page 42, recording observations of watertable levels at the site is copied in below.

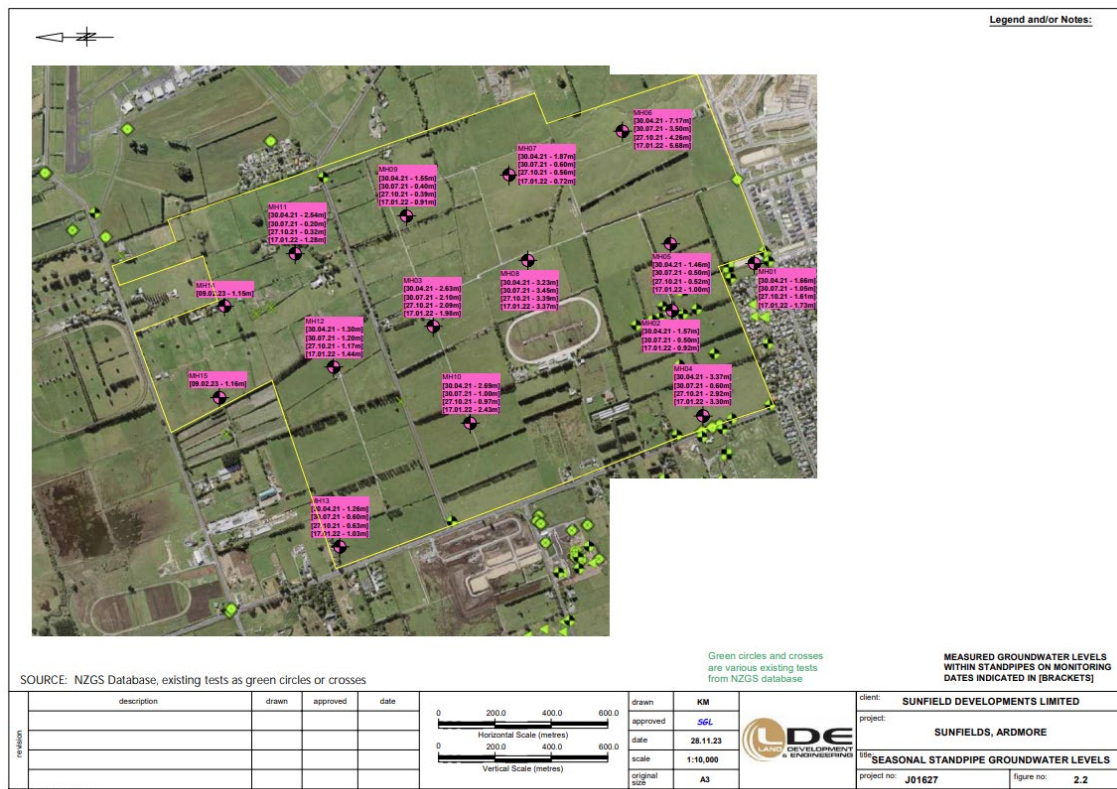


Figure 11: Snip of page 42 of the LD&E Report, map titled 'Seasonal Standpipe Groundwater Levels'. Note: The 4 sites MH01, MH02, MH04 and MH05 are in the area zoned 'Future Urban' so by definition are not on HPL.