Appendix K – NPS-HPL Assessment prepared by AgFirst

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Independent
Agriculture
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Consultant
Network

Tamahere Country Club

Assessment Against NPS - HPL

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1.0 EXECUTIVE SUMMARY

Tamahere Country Club (TCC) seek a land use consent, to develop properties at Tamahere Drive as a part of future development of the TCC retirement village. The combined area that has been assessed consists of 7.155 ha (Site) across four separate properties: 56 Tamahere Drive (1.10 ha); 70 Tamahere Drive (0.80 ha); 82 Tamahere Drive (1.71 ha); and 92 Tamahere Drive (3.54 ha). The Site is zoned General Rural under the operative and proposed Waikato District Plans (WDP). TCC surround the subject properties and provides retirement living with villas and a range of shared services.

The soil mapped at the property is classified under the NZLRI as LUC 1s1 and LUC 2w3. This land class qualifies as Highly Productive Land (HPL) and is subject to the National Policy Statement for Highly Productive Land (NPS-HPL). In addition to the HPL land, there are areas that have clearly been identified as modified anthropic soils, including the housing, curtilage, residential gardens and soil modifications from the contractor area with 82 Tamahere Drive.

Section 3.10 of the NPS-HPL provides exemptions for HPL to be subject to permanent or land-term constraints (i.e., subdivision, use or development). A summary of this assessment showed:

- The land is permanently constrained by:
  - Non-reversable land fragmentation of the Site and surrounding land, further compounded by the existing retirement village and small lifestyle block sized properties and sprawling subdivision development on adjacent landholdings.
  - Small scale operation and effective area available within the various properties. It is estimated that 3.01 ha is available across all the properties for land based primary production. The largest effective HPL area is 2.50 ha on the 92 Tamahere property. The remainder of the land is considered modified soils and residential.
- An indicative budget under various productive land uses shows none of the properties are economically viable for land-based primary production now or for at least 30 years.
  - The land has been valued not on the land-based primary production or quality of the soil and land, but the location of the property for speculators and development opportunities or for lifestyle purposes.
  - The Waikato District Council values the land at between $310,655 to 875,000 per ha. Compared to a sheep and beef or an arable block at typically $15,000 and $50,000 per ha respectively.
  - None of the properties within the Site are economically viable, with significant losses assessed for the land-based primary production, based on current and highest land uses.
- The HPL area for land use change totals 7.16 ha which meets the transitional definition of HPL. However, of this area only 3.01 ha is available for land-based primary production due to existing housing, curtilage and modifications to soils.
  - This is a negligible loss of HPL at a district and local scale.

- Fragmentation already exists with the sprawling residential lifestyle blocks, the road to the east and the existing TCC retirement village.
  - There are not any large or geographically cohesive areas of HPL within the Site.
- Due to the existing fragmentation, there are no neighbouring primary production operations other than small scale hobby farms with livestock. The existing areas of the TCC retirement village is already in effect, therefore reverse sensitivity effects will not change with the proposed land use change.
- Alternative land use options are constrained:
  - Insufficient scale for any alternative higher value primary production (i.e. dairy farming or horticulture), due to development and capital infrastructure requirements.
  - Arable operations would not be logical due to the very small size and limited access to this area. Additionally, the return from an arable operation would not overcome the economic viability.
- Under land based primary production the optimal land use is pastoral grazing. This is not economically viable due to land fragmentation, and the small scale.
- These site factors cannot be addressed through reasonably practical alternative land use options, therefore meets the satisfaction tests under 3.10 of the NPS-HPL.

2.0 BACKGROUND AND PROPERTY DESCRIPTION

Tamahere Country Club (TCC) seek a land use consent(s) under the Waikato District Plan, to develop properties at Tamahere Drive as a part of future development of the TCC retirement village. TCC, located to the north and west of the subject property sites provides retirement living with villas and a range of shared services.

AgFirst Waikato (2016) Ltd (AgFirst) has been engaged by TCC to provide an assessment that considers a land use consent for the development of a retirement village on this land against the National Policy Statement – Highly Productive Land (NPS-HPL). This relates to an assessment on whether it is considered the land subject to the proposed development meets the exemptions set out in Section 3.10 of the NPS-HPL.

AgFirst is a suitably qualified agribusiness consultancy that has a wealth of experience in assessments relating to productive capacity, primary production and soil versatility.

2.1 Site description

The areas subject to proposed land use consent(s) consists of four properties as shown in Figure 1:

- 56 Tamahere Drive (1.1041 ha);
- 70 Tamahere Drive (0.8000 ha);
- 82 Tamahere Drive (1.7100 ha); and
- 92 Tamahere Drive (3.5409 ha)

The combined properties that have been assessed consists of an area of 7.155 ha (Site). TCC wish to extend the TCC retirement village and are seeking a land use consent(s) for these works. The Site is zoned General Rural under the operative and proposed Waikato District Plans (WDP).

Figure 1: Site location

2.2 Existing land use

AgFirst visited the site on the 7th of February 2023 to understand the characteristics of the site and assess the productive capacity of the properties with regard to its permanent or long-term constraints.

The Site highlighted in Figure 1 shows four individual parcels of land. The Site and the surrounding locality are characterised by rural lifestyle living, wedged between Tamahere Dr and State Highway 21 (Airport Rd), the 200 plus villa TCC retirement village being dominant land use.

Presented in Table 1 is a summary of the existing land use by title, area and LUC classification as determined by the New Zealand Land Resource Inventory (NZLRI) (classifications to be separately assessed).

Table 1: Tamahere Country Club Land Use

Property	Legal Description	Zoning	Area (ha)	Dwelling	Existing Land Use	NZLRI LUC Classification
56 Tamahere Drive	Lot 1 DPS 59441 (SA51C/860)	Rural (1A)	1.1041	Yes	Rural residential lifestyle	LUC 1 LUC 2
70 Tamahere Drive	Lot 1 DP 80372 (SA64C/250)	Rural (1A)	0.8000	Yes	Rural residential and small-scale commercial business	LUC 1 LUC 2
82 Tamahere Drive	Lot 1 DP 565970 (1011953)	Rural (1A)	1.7100	No	Highly disturbed contractor laydown and parking area	LUC 1 LUC 2
92 Tamahere Drive	Part Lot 11 DP 9747 (SA1443/27)	Rural (1A)	3.5409	Yes	Rural residential including Christmas tree growing operation	LUC 1 LUC 2

2.2.1 56 Tamahere Drive

56 Tamahere Drive is a lifestyle property where lawns and garden comprise approximately 50% of the 1.1 ha (Figure 2). Approximately 0.51 ha of land is in paddocks. When the site was visited on the 7th of February there were a small number of Alpaca's being grazed on the property. The scale of the livestock would not suggest that this is used for land-based primary production.

Figure 2: 56 Tamahere Drive (February 2022 Google Earth aerial photograph)

2.2.2 70 Tamahere Drive

70 Tamahere Drive is a lifestyle property which is also home to a small/medium-sized waste management business (Red Lid Bins). Business and Lifestyle activities comprises 100% of the 0.8 ha site as visible in Figure 3. There is no land-based primary production on this property.

Figure 3: 70 Tamahere Drive (February 2022 Google Earth aerial photograph)

2.2.3 82 Tamahere Drive

82 Tamahere Drive is a rear lot with an area of 1.71 ha. The entirety of the property is utilised as a site office and contractor laydown and parking area for the TCC retirement village development. The property is highly modified with the majority of it disturbed and either used for relocatable site offices, parking or the storage of equipment for civil infrastructure works. There is no land-based primary production on this property (Figure 4).

Figure 4: 82 Tamahere Drive (February 2022 Google Earth aerial photograph)

2.2.4 92 Tamahere Drive

92 Tamahere Drive is a 3.54 ha lifestyle block. Approximately 1.0 ha of the site is occupied by an existing dwelling and gardens. Of the productive area within the property (2.5 ha in total), approximately 1.0 ha is utilised for growing Christmas trees for sale and the remaining 1.5 ha is in unimproved non-utilised pasture (Figure 5).

When visiting the site on the 7th of February 2023 it was apparent that the Christmas tree business was not active. The remaining pines onsite were untrimmed and, in most cases, greater than 3 metres in height and thus unsuitable for Christmas trees in the majority of family homes. Excluding the pines, there was no evidence of other primary production, the site was fallow with weeds and summer grasses dominant, the grass had been mowed in some areas and there were disused cars and a small rubbish pile in the centre of the site. In its current state, this parcel is not used for land-based primary production.

Figure 5: 92 Tamahere Drive (February 2022 Google Earth aerial photograph)

2.3 Proposed land use

The proposal is to extend the existing TCC village by providing a further 67 villas. The breakdown of the villas relative to the land areas shown on Figure 1 is as follows:

EASTERN EXTENSION:

- Relates to the land located at 56 and 70 Tamahere Drive; and
- Provides for 25 stand-alone villas and an arts and crafts building.

SOUTHERN EXTENSION

- Relates to the land at 82 and 92 Tamahere Drive; and
- Provides for 42 stand-alone villas and a new health spa and associated parking.

2.4 Surrounding land use

The collective TCC site is located to the south of the Tamahere interchange and offramp from SH1, generally between SH21 (Airport Road) and Tamahere Drive. Tamahere Drive forms the site's eastern boundary. Directly adjoining the Southern and Eastern extension site are the following landholdings:

NORTH:

- Existing TCC village (currently under construction).

EAST AND ON THE EASTERN SIDE OF TAMAHERE DRIVE:

- Lifestyle properties at 63, 67, 85 and 101 Tamahere Drive.

SOUTH:

- The southern boundary of the southern extension adjoins three properties. 25 and 47B Pencarrow Road are both larger lifestyle blocks (being 4.6 – 9.5 ha in size) containing dwellings and various other built form. 98 and 104 Tamahere Drive are both smaller lifestyle block (being 1.8 ha and 0.9 ha respectively) that each contain an existing dwelling.

WEST:

- Seven rural residential sized properties between 0.8 ha and 2.4 ha in area are accessed from Pencarrow and Airport Road/SH21. All of these properties contain existing dwellings and associated residential accessory buildings. Most of these have no land-based primary production, with several properties containing some sheep.

Since the 1950's land at Tamahere has been converted from traditional large-scale farms to smaller lifestyle blocks of about 4 ha or less as a result of the planning regulations of the time. Tamahere is now mostly characterised by rural lifestyle and large lot residential developments and has a number of facilities and features that make up the unique Tamahere community. As highlighted above, the site is surrounded by a number of different land uses which comprise a mixed-use environment. These land uses range from rural to industrial, residential and commercial/business activities.

3.0 REGULATORY FRAMEWORK FOR HIGHLY PRODUCTIVE LAND

The property is zoned rural and falls under the jurisdiction of the Waikato District Council and the Waikato Regional Council. Appendix A outlines the relevant policies and framework for this assessment.

3.1 The National Policy Statement for Highly Productive Land (NPS-HPL)

The National Policy Statement for Highly Productive Land (NPS-HPL) came into effect on the 17th of October 2022. The statement sets out a prescriptive approach for councils to identify and protect highly productive land. Until councils have given effect to the NPS-HPL, the interim is provided:

3.5 (7) *Until a regional policy statement containing maps of highly productive land in the region is operative, each relevant territorial authority and consent authority must apply this National Policy Statement as if references to highly productive land were references to land that, at the commencement date:*

(a) is

(i) Zoned general rural or rural production; and

(ii) LUC 1, 2, or 3 land.

LUC 1, 2, or 3 land is defined as: land identified as Land Use Capability Class 1, 2, or 3, as mapped by the New Zealand Land Resource Inventory (NZLRI) or by any more detailed mapping that uses the Land Use Capability classification.

Land-based primary production means: production from agricultural, pastoral, horticultural, or forestry activities, that is reliant on the soil resource of the land.

Productive capacity, in relation to land, means: the ability of the land to support land-based primary production over the long term, based on an assessment of:

(a) Physical characteristics (such as soil type, properties, and versatility); and

(b) Legal constraints (such as consent notices, local authority covenants, and easements); and

(c) The size and shape of existing and proposed land parcels.

In summary, the NPS-HPL document closely aligns with the PDP and the Waikato Regional Policy Statement where it identifies LUC Class 1, 2 and 3 (as mapped by the New Zealand Land Resource Inventory or by any more detailed mapping that uses the Land Use Capability classification) as being the most versatile land, with the fewest limitations on its use, and therefore highly productive land.

Clause 3.10 sets out the exemptions for development of highly productive land subject to permanent or long-term constraints. These exemptions for clause 3.10 are presented in Appendix A.

4.0 LAND USE CAPABILITY CLASSES

4.1 New Zealand Land Resource Inventory LUC representation

The LUC Classification system is used in New Zealand to help achieve sustainable land development and management on farms. The LUC classification categorises land areas or polygons into classes, subclasses, and units according to the land's capability to sustain productive use. This is summarised in below in Figure 6.

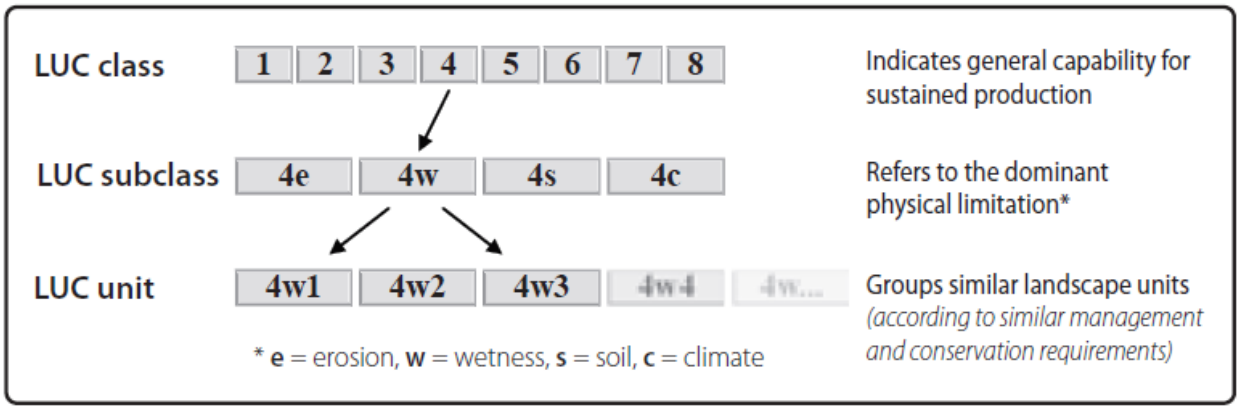

Figure 6: Components of the land use capability classification[1]

AgFirst has used the NZLRI database to understand the presence of highly productive land. Within this database is a regional scale LUC, rating the ability of each polygon to sustain agricultural production. This is based on an assessment of the physical factors (rock type, soil, slope, present type and severity of erosion, and vegetation), climate, the effects of past land use, and the potential for erosion.

As determined by the NZLRI LUC, the soils across the properties and Site are labelled as LUC 1s and LUC 2w. This is presented in Figure 7. In theory this means that the site has potential for a range of agricultural and horticultural activities.

[1] Lynn, I.H, Manderson, A.K, Page, M.J, Harmsworth, G.R, Eyles, G.O, Douglas, G.B, Mackay, A.D, Newsome, P.J.F. (2009). Land Use Capability Survey Handbook – a New Zealand handbook for the classification of land 3rd ed. Hamilton, AgResearch; Lincoln, Landcare Research; Lower Hutt, New Zealand. GNS Science.

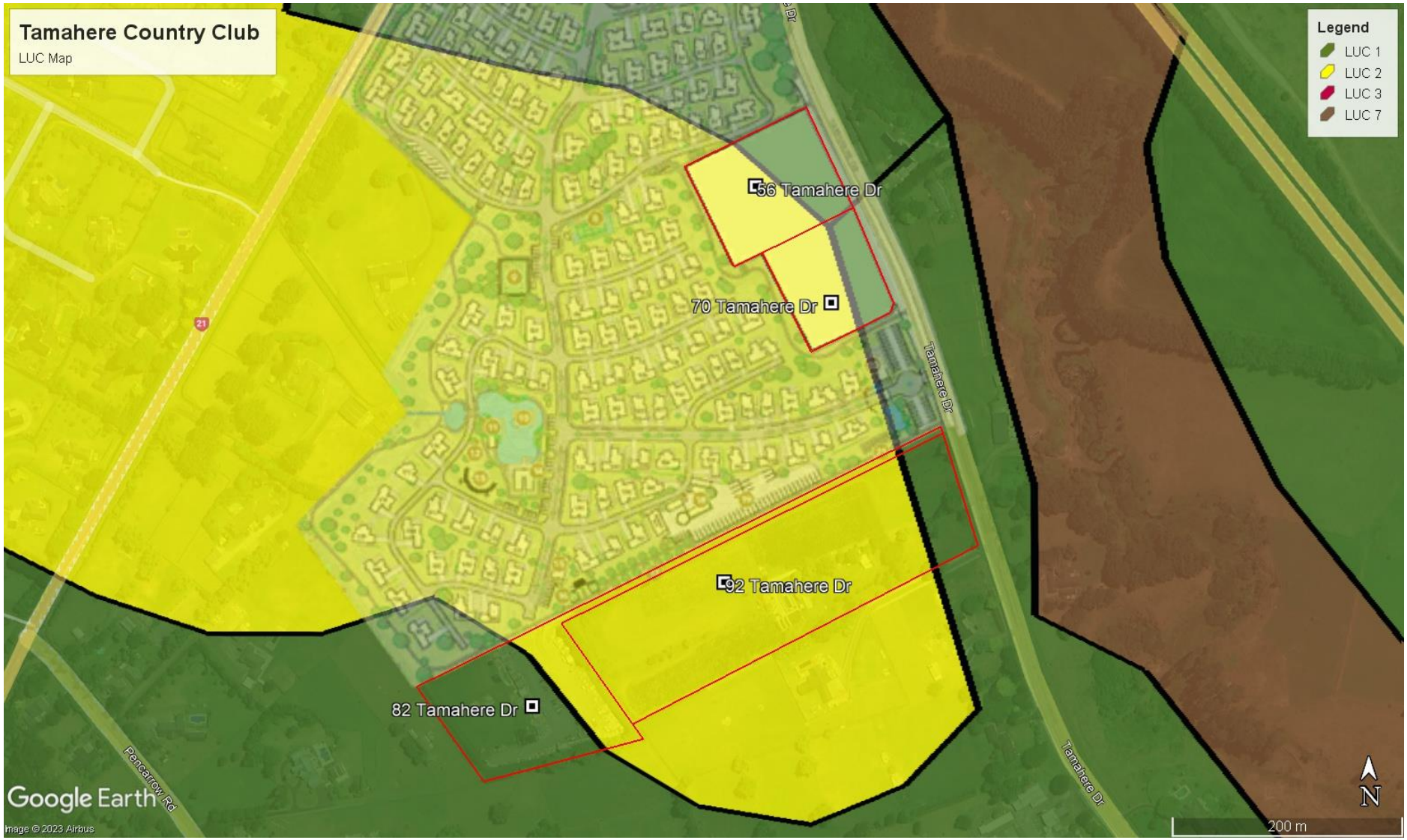

Figure 7: NZLRI land use classification for the Site

With regards to surrounding LUC within the district, there is approximately 152,344 ha of HPL within the Waikato district, with 299,252 ha of non-HPL[2]. This is presented in Figure 8.

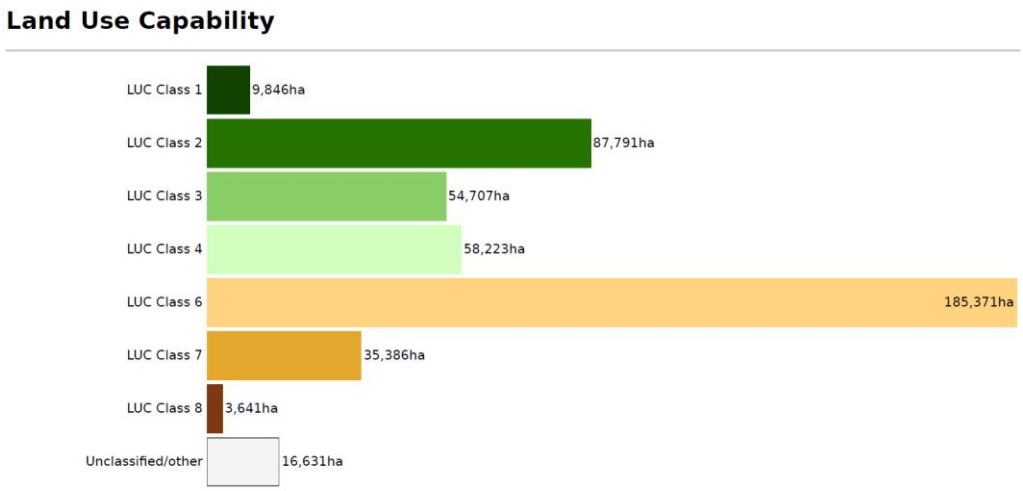

Figure 8: Summary of Land Use Classification within the Waikato District

4.2 Land Use Capability Assessment for the Site

As shown on Figure 7, the NZLRI LUC maps indicate that the entire Site consists of HPL soils. While the entire Site meets the transitional definition under Clause 3.5 (7) of the NPS-HPL, the assessment needs to consider available areas suited for land-based primary production where reasonably practicable options can overcome the constraints.

The LUC map in Figure 7 does not consider modifications to the landscape at a detailed mapping scale. When considering the housing, curtilage, residential gardens and soil modifications across the four sites and the location of each site relative to each other, there is very little HPL area left available for land-based primary production.

Based on observations and available aerial photography, the 82 Tamahere Drive property shows a significant amount of modified soil, which is classified as anthropic soils[3]. These areas are appropriately considered non-productive land. The property is utilised as a site office and contractor laydown and parking area for the TCC retirement village development. The site is highly modified with the majority of it disturbed and either used for relocatable site offices, parking or the storage of equipment for civil infrastructure works. As such, the soils have been compacted and spread with densely packed gravel. These areas are not suitable for cultivation and arable use due to the soil limitations. There is also no dwelling present on this property. Given the permitted baseline for building coverage, much of this property could be used for this purpose, with sheds, gardens and lawns etc, leaving very little space for any land-based primary production.

[2] Manaaki Whenua – Landcare Research. Our Environment, Territorial Authorities, Waikato District LUC map.
[3] Hewitt AE (2010) New Zealand Soil Classification. 3rd ed. Landcare Research Science Series No. 1. Lincoln, Manaaki Whenua Press

The New Zealand Soil Classification system provides the definition and criteria for Anthropic Soils:

Anthropic Soils are soils that have been made by the direct action of people, including truncation of natural soils by earth-moving equipment, drastic mixing of natural soils so that their original character is lost, or by deposition of thick layers of organic or inorganic material. Anthropic Soils occur in land surfaces that are made by people. Their classification reflects the way in which they were made and the kinds of materials used.

Note that soils that have been drastically disturbed but have been restored to the extent that they will meet the requirements of orders other than Recent Soils or Raw Soils, will not be assigned to Anthropic Soils. For this reason Anthropic soils are placed late in the Key to Orders but before Recent Soils and Raw Soils.

The revised LUC maps showing HPL areas available for each property are presented in Figure 9. This is also summarised in Table 2 below.

Table 2: Tamahere Country Club land use capability and HPL

Property	Parcel Area (ha)	HPL (ha)	Non-HPL (ha)	NZLRI LUC
56 Tamahere Drive	1.10	0.51	0.59	LUC 1 & 2
70 Tamahere Drive	0.80	0.00	0.80	N/A
82 Tamahere Drive	1.71	0.00	1.71	N/A
92 Tamahere Drive	3.54	2.50	1.04	LUC 1 & 2
TOTAL	7.16	3.01	4.15	

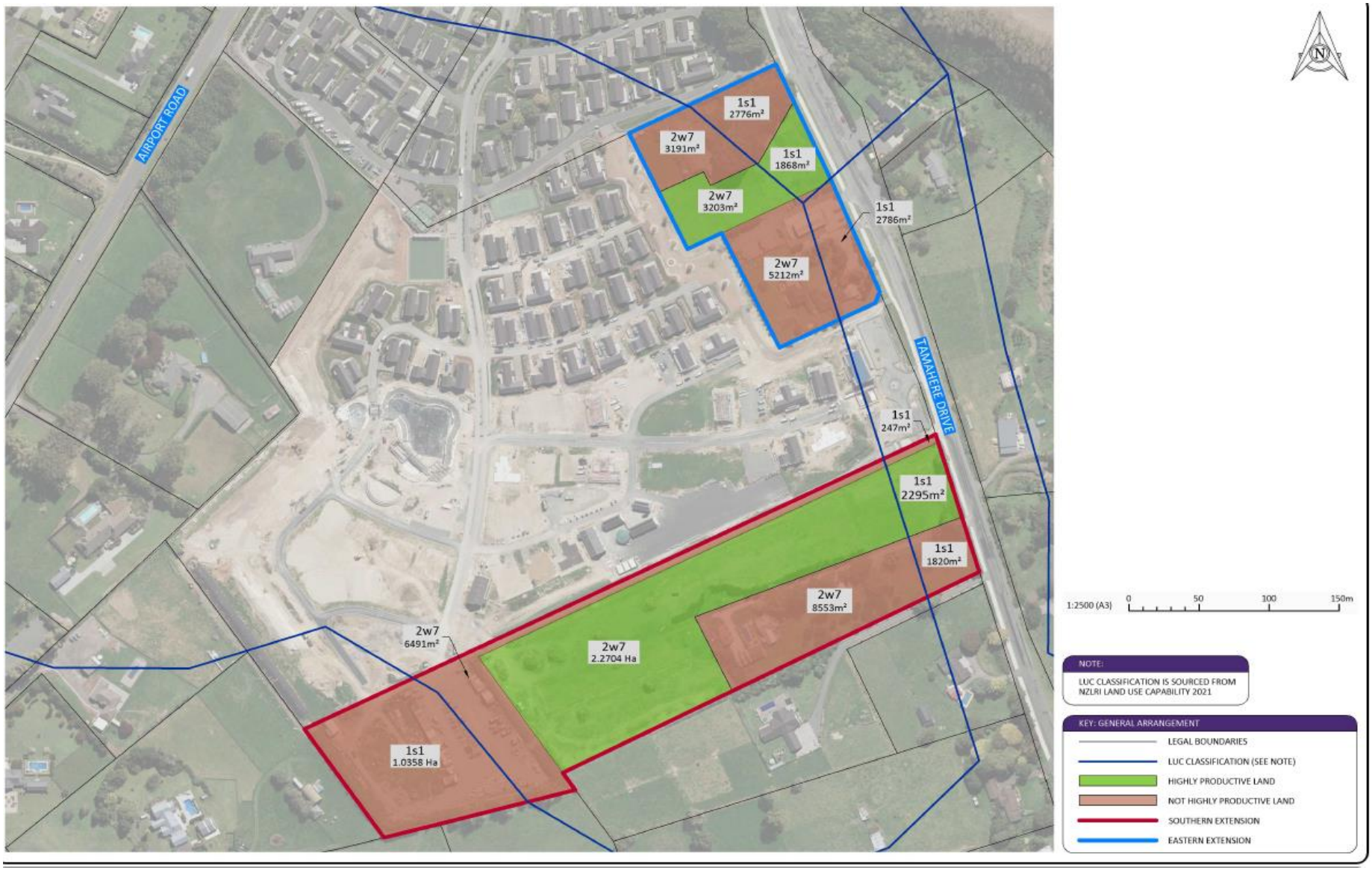

Figure 9: Revised land use classification for the Site (Source – BBO)

5.0 PROTECTION OF HIGHLY PRODUCTIVE LAND

The objective of the NPS-HPL is "*Highly productive land is protected for use in land-based primary production, both now and for future generations*", The NPS however does recognise that there are certain situations where the subdivision, use or development of HPL is appropriate. Section 3.10 of the NPS-HPL provides a series of specific tests to determine whether there are permeant or long-term constraints on the site that justify the HPL being used for a purpose that is not land-based primary production. This section provides an assessment against clause 3.10, and specifically how the 7.16 ha of HPL within the proposed Site meets these exemptions.

5.1 Clause 3.10(1)(a) Constraints and economic viability

3.10 (1) Territorial authorities may only allow highly productive land to be subdivided, used, or developed for activities not otherwise enabled under clauses 3.7, 3.8, or 3.9 if satisfied that:

(a) 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.

Table 3: Assessment against NPS-HPL Clause 3.10(1)(a) constraints and economic viability

PERMANENT OR LONG-TERM CONSTRAINTS	
Non-reversable land fragmentation	As discussed in Section 4, the effective area of HPL area within the Site consists of four very small and fragmented properties all of which have an unproductive size due to existing housing, curtilage and modifications to their site area. Additionally adjacent properties surrounding the Site are all small and highly fragmented. The largest property to the east across Tamahere Drive is 2.6 ha lifestyle block with the other land adjoining the eastern extension being the existing TCC village. The adjoining blocks to the south extension are 1.8 ha, 9.5 ha and 4.6 ha. The property to the west is 2.4 ha. Amalgamation/leasing of these areas is impractical due to the small non-contiguous areas and the practical need to move livestock between blocks. The highest use of any of these properties is in pastural grazing, with a very low number of stock. The isolation of the Site from any form of commercial land-based primary production limits any opportunity to create an economic size unit to establish a higher and better land use (and therefore better farm profit and returns which could help to overcome the economic deficit). The residential lifestyle properties are realistically only able to be used for residential purposes. There are production constraints due to the size of the properties, complicated further by the extent of existing rural residential subdivision, the location of the housing within the properties, the proximity of dwellings to any potentially productive land and the inevitable constraint that these properties simply will not in practical terms ever be used for any rural productive activity. The sunk investment in development of dwellings, gardens, driveways and paved areas makes it extremely unlikely that land-based primary production will ever occur other than to maintain the remaining open spaces and small areas of pasture.

	The constraints will never reduce or be eliminated. The properties are sized as they are and are located near to the Hamilton City boundary or Tamahere village meaning the productive capability will never be realised in practical terms.
Small scale of operation	The Sites combined area is 7.16 ha, all of which is classified under the transitional definition of NPS-HPL as HPL (LUC 1 -3 soils). Of this area, it is estimated that 3.0 ha is usable for land-based primary production, with the largest contiguous area being 2.5 ha within property 92 Tamahere Drive. This scale of HPL is not suitable for primary production, particularly when considering the surrounding land use being residential lifestyle and a large retirement village. 56 Tamahere Drive consists of a 1.10 ha property, of which approximately 0.51 ha is available for land-based primary production. This site is currently grazed by alpacas. This scale would not be suitable for any primary production, other than continuing with the alpacas, or alternatively grazing a small number of cattle or sheep. Although, none of these would be considered economically viable due to small scale and high land value. 70 Tamahere Drive consists of a 0.80 ha property, of which none is available for land-based primary production. The property is used as a residential lifestyle lot, which runs a small/medium sized business on the northern portion of site. This lifestyle property does not provide any form of primary production, and it does not have any available land to do so. 82 Tamahere Drive consists of a 1.71 ha property, of which none is available for land-based primary production. The property is entirely used as a site office and contractor laydown and parking area for the construction of the TCC retirement village. If the area were to be reverted back to primary production, the modified soils as a result of its current use would limit any arable or horticultural operations. However, the land could be reverted back to pasture for grazing. The small scale of this property would not be of a viable economic size, nor would it be of a suitable scale by amalgamating with any of the small neighbouring properties. Considering that there is no house on the property, capital investment into this site for anything other than pastural grazing would be not considered reasonably practicable. 92 Tamahere Drive consists of a 3.54 ha property, of which approximately 2.50 ha is available for land-based primary production. Most of this area has historically been used as growing Christmas trees. Although these plantations are no longer in operation with the trees greater than 3 m in height, the land would be available for alternative production purposes or reinvesting back into a Christmas tree growing business. However, due to the small scale of the property and effective area, and the presence of pine tree stumps within the topsoil layer, there are not many alternative land-based primary production options that would be viable. Considering the adjoining block to the south is a 1.8 ha lifestyle block, the only amalgamation option would be into pastural grazing of sheep and cattle. At a combined size of 4.3 ha, this is much too small for any operational farm. Due to the small areas available for land-based primary production, the only practical option of primary production is pastural grazing, in the form of a hobby farms, with animals used to maintain and graze the property and finished for home kill purposes. Consolidation of surrounding blocks would not provide sufficient scale to form a commercial size farm and is impractical due to the small non-contiguous nature. This eliminates any horticultural options from this area, as the cost of capital infrastructure would not be viable for such small blocks.

IMPACT ON ECONOMIC VIABILITY	
Indicative budget shows a net loss	To understand the liabilities that directly affect the properties within the Site, AgFirst have obtained the property information from Waikato District Council and Waikato Regional Council. The land valuation has been used rather than the improvement and capital value, to calculate the profitability required for an agricultural business to service the relative level of debt. For this analysis the debt loading has been assessed at 40%, which is a typical level for farm lending. Interest rates have been assumed as a long-term (30-year) average interest rate of 7%[4].. Note that principal repayments have not been included in the liabilities. The summary of the net profit/loss situation for all the properties within the Site has been provided in Appendix B. The baseline economic analysis has been assessed on the current land use or what would be considered as the optimum land use for these properties. This being a small-scale livestock grazing operation for 56 Tamahere Drive and a Christmas Tree growing operation for 92 Tamahere Drive. For the properties that do not have any HPL available due to housing, curtilage and modified anthropic soils, AgFirst has used small-scale livestock grazing as a conservative assessment for economic viability. Summarised below are the gross profit or profit/loss for the properties on Site: » The Class 5 North Island Finishing Operation from B+LNZ data has been used for the profit and loss margin for this small-scale livestock operation. Total current revenue per ha using the B+LNZ data is estimated at $868/ha (see Appendix B). » To estimate profit for an established Christmas tree growing operation, AgFirst has undertaken a gross margin analysis based on the Lincoln Financial Budget Manual[5] and industry knowledge. The estimated gross margin for a Christmas tree growing business is $11,000/ha (see Appendix B). 56 Tamahere Drive has a land valuation of $740,000, with an annual debt servicing of $20,720. The combined rates are $4,707 per year. This provides an annual property liability of $25,427. If all the effective area available for land-based primary production was farmed to the same intensity as a Class 5 finishing farm, this would generate an estimated income of $443, which is an annual deficit of - $24,984. 70 Tamahere Drive has a land valuation of $700,000, with an annual debt servicing of $19,600. The combined rates are $4,980 per year. This provides an annual property liability of $24,580. Although there are no areas available for land-based primary production, if the entire property was available for land-based primary production to the same intensity as a Class 5 finishing farm, this would generate an estimated income of $695, which is an annual deficit of - $23,885. 82 Tamahere Drive has a land valuation of $830,000, with an annual debt servicing of $23,240. The combined rates are $2,890 per year. This provides an annual property liability of $26,130. Although there are no areas available for land-based primary production due to the contractor laydown area, parking and contractor yard, if the entire property was available for land-based primary production to the same intensity as a Class 5 finishing farm, this would generate an estimated income of $1,485, which is an annual deficit of - $24,645. Due to the anthropic soils present, any deep rooting crops would struggle to establish due to the level of soil modification and compaction on the property. 92 Tamahere Drive has a land valuation of $1,100,000, with an annual debt servicing of $30,800. The combined rates are $5,843 per year. This provides an annual

[4] Exchange rates and Wholesale interest rates - Reserve Bank of New Zealand - Te Pūtea Matua (rbnz.govt.nz)
1993-2023 years with a 2.2% bank margin applied to the 90 bank bill monthly average yield
[5] Financial Budget Manual, Lincoln University 2021-2022

	property liability of $36,643. Although there is currently no land-based primary production for this property, AgFirst has assessed the previous Christmas tree growing business. The estimated return from this re-established operation using the 2.5 ha of effective land available would generate an estimated income of $27,500, which is an annual deficit of - $9,143. Changing the type of livestock run or management thereof will not sufficiently lift profitability, the properties are not of an economic size for commercial primary production, and given the constraints not suited to any other practical alternative options. The fact that none of the properties are used as any form of commercial primary production, indicates that it is not of a scale considered suitable for land-based primary production. The key reasons why the Site is not economically viable is due to the following: • The limited versatility of the properties within the Site, with no scope for land-based primary production. The pastural grazing is the most feasible and productive with regards to the highest and best use of the land. • The value of the land is not based on the productive potential or quality of the soil and land, but the location of the property for speculators, development opportunities, lifestyle purposes and locality to Hamilton City. This means that the liabilities and debt servicing tied to the land are significantly higher than for a typical farming operation. This is supported by the land valuation for the properties ranging from $310,655 to 875,000 per ha (not considering the improvement value of the housing) in the Waikato District Council database. This is compared to typical arable and beef finishing blocks that would be valued at $50,000 and $15,000 per ha respectively. • Due to non-reversable land fragmentation, there are no reasonably practicable amalgamation opportunities to overcome the small-scale properties and to diversify into alternative forms of land-based primary production. • The size of the properties are too small to be considered an economic unit (B+LNZ Northern North Island Finishing Class land averages 241 ha). • Changing the type livestock run or management thereof or to a more profitable operation such as arable maize will not sufficiently lift profitability to enable them to become an economic unit. Although not feasible, but hypothetically, if the entire 7.16 ha of HPL were to be used as an arable operation, the gross margin would be a net deficit of between - $20,462 to - $24,905 per annum for each property. • Therefore, the properties are not economically viable for land-based primary production now or for at least 30 years.
No scope to sufficiently increase scale	B+LNZ data shows that for Northern North Island Finishing class land the average farm size is 241 ha (average for last 5 years), the areas within the Site that have grazeable land is far too small to be an economic unit. The fragmentation of surrounding land is irreversible, and as noted the majority of the small surrounding pastoral areas are impractical to be amalgamated with and sufficient scale cannot be achieved.

5.2 Clause 3.10(1)(b) Avoidance of significant loss, fragmentation, reverse sensitivity

3.10 (1) Territorial authorities may only allow highly productive land to be subdivided, used, or developed for activities not otherwise enabled under clauses 3.7, 3.8, or 3.9 if satisfied that:

(b) the subdivision, use, or development:

(i) avoids any significant loss (either individually or cumulatively) of productive capacity of highly productive land in the district; and

(ii) avoids the fragmentation of large and geographically cohesive areas of highly productive land; and

(iii) avoids if possible, or otherwise mitigates, any potential reverse sensitivity effects on surrounding land-based primary production from the subdivision, use, or development.

Table 4: Assessment against NPS-HPL Clause 3.10(1)(b) significant loss, fragmentation and reverse sensitivity

HPL LOST FROM PROPOSED LAND USE CHANGE
7.16 ha The HPL area for land use change totals 7.16 ha which meets the transitional definition of HPL. However, of area, only 3.01 ha is available for land-based primary production due to existing housing, curtilage and modifications to soils. Additionally, none of this area is currently used as any form of commercial primary production which would be economically viable (see Table 3).
WILL SIGNIFICANT LOSS OF PRODUCTIVE CAPACITY OCCUR?
No. The total HPL area is approximately 7.16 ha, with an estimated area of 3.01 available for land-based primary production. All of this will be removed as part of the proposed land use change. When considering this loss within the district, there is an estimated 152,344 ha of HPL that has been mapped as LUC 1 – 3 (See Section 4.1). The loss of the 7.16 ha within the Site does not constitute a significant loss compared to the HPL within the district. Considering that the only property that currently has any form of land-based primary production is 56 Tamahere Drive with 0.51 ha used for grazing a low number of alpacas, the loss of HPL both individually or cumulatively is negligible. The other properties have none or very limited potential for land-based primary production. As 92 Tamahere Drive is not currently used for land-based primary production, the loss of this area also does not constitute a significant loss. Regardless, the productive capacity of all the assessment parcels do not have the ability to support land-based primary production over the long-term. This is based on the physical constraints (properties and versatility); legal constraints (consents and off-site effects); and the size and shape of the existing and proposed parcels.
WILL FRAGMENTATION OF LARGE AND GEOGRAPHICALLY COHESIVE AREAS OF HPL OCCUR?
No. Fragmentation already exists with the sprawling residential lifestyle blocks, the road to the east and the existing TCC retirement village. This is shown in Figure 1. There are no large or geographically cohesive areas of HPL within the Site. With regards to appropriate use and development of HPL land, it is more beneficial to develop areas that have constraints similar to the Site, which are significantly impacted by fragmentation, are not economically viable, and have limited potential for

productive capacity, versatility and sustained productive land use. Rather than use and development of other large alternative, broadacre, HPL areas in the district with higher productive capacity. The land-based primary production that is suitable for the Site is limited to small areas of pastural grazing, re-establishing the Christmas tree growing business or contracting for arable cropping on the effective areas within the lifestyle blocks. There are no reasonably practicable amalgamation opportunities with other neighbouring blocks due those blocks not having commercial or sizeable viable agricultural land opportunities. Therefore, the removal of this HPL will not cause any further fragmentation of geographically cohesive HPL. Because it is not part of a geographically cohesive area of HPL.
WILL THE DEVELOPMENT RESULT IN ANY REVERSE SENSITIVITY EFFECTS?
No. Due to the existing fragmentation, there are no neighbouring primary production operations other than small scale hobby farms with livestock. Realistically, pastural grazing is the only production type that will be likely in this area for the foreseeable future. This level of activity will not have an impact on the proposed change in land use. The existing areas of the TCC retirement village is already in effect, therefore reverse sensitivity effects and the proximity to sensitive receptors will not change with the proposed land use change.

5.3 Clause 3.10(1)(c) Environmental, social, cultural, and economic costs/benefits

3.10(1) Territorial authorities may only allow highly productive land to be subdivided, used, or developed for activities not otherwise enabled under clauses 3.7, 3.8, or 3.9 if satisfied that:

(c) the environmental, social, cultural and economic benefits of the subdivision, use or development outweigh the long-term environmental, social, cultural and economic costs associated with the loss of the highly productive land for land-based primary production, taking into account both tangible and intangible values

Table 5: Assessment against NPS-HPL Clause E.10(1)(c) Environmental, social, cultural, and economic costs/benefits

ENVIRONMENTAL
Improved/No change. The removal of 7.16 ha of HPL will have negligible material change to the environmental impact as the majority of this area is not used as land-based primary production. If the Site were to be used for more intensive land-based primary production (e.g. a higher stocked grazing block or arable operation), fertiliser would be required to increase/maintain productivity. Although at a small scale and intensity the impact from this would be minor, there would be some impact.
SOCIAL
Improved. The current HPL areas do not require any or very little employment. The proposed land use change will provide for a large number of dwellings, with improved employment generated, recreational areas created, therefore resulting in an improvement in social outcomes.
CULTURAL
Neutral.

There is one known sites of cultural significance within the subject property, being an archaeological site that is part of the Waikato Horticultural Complex. Any impacts on archaeological sites will be counterbalanced by archaeological investigation that may provide more understanding of the wider Waikato Horticultural Complex.
ECONOMIC
Improved. The estimated economic benefits of the proposed land use change will significantly improve the economic viability of the Site. Currently none of the properties are economically viable with regards to land-based primary production.

5.4 Clause 3.10(2) Alternatives to retain productive capacity

3.10(2) In order to satisfy a territorial authority as required by subclause (1)(a), an applicant must demonstrate that the permanent or long-term constraints on economic viability cannot be addressed through any reasonably practicable options that would retain the productive capacity of the highly productive land, by evaluating options such as (without limitation):

(a) alternate forms of land-based primary production:
(b) improved land-management strategies:
(c) alternative production strategies:
(d) water efficiency or storage methods:
(e) reallocation or transfer of water and nutrient allocations:
(f) boundary adjustments (including amalgamations):
(g) lease arrangements

Table 6: Assessment against NPS-HPL Clause 3.10(2) Alternatives to retain productive capacity

ALTERNATIVE FORMS OF LAND BASED PRIMARY PRODUCTION	
Dairy Farm or Dairy Support Farm	Not a reasonably practicable option. » At 7.16 ha, with a maximum contiguous area within a property of 2.5 ha available for land-based primary production, there is insufficient scale to create an economic dairy or dairy support farm. » There is no adjoining land to increase scale. » There is no fencing or drinking water reticulation for much of the properties within the Site, therefore significant capital outlay would be required to convert the properties to any livestock grazing operation. » None of the surrounding land parcels are operational dairy or dairy support farms. » Conversion of these blocks into either dairy farming or dairy support would require resource consent (Proposed Waikato Plan Change 1 and National Environmental Standards for Freshwater Regulations 2020). A resource consent for this activity may be granted only if the consent authority is satisfied that granting the consent will not result in an increase in contaminant loads in the catchment, or concentrations of contaminants in freshwater or other receiving environments, compared with the concentrations as at the close of 2 September 2020. The cost to obtain resource consent to convert these properties would not fit the reasonably practicable threshold. » The high value of the land also makes it unattractive for leasing or purchasing.

Arable or cropping	Not a reasonably practicable option » 92 Tamahere Drive contains the largest effective area of HPL (2.5 ha) within 92 Site. While this could be considered for an arable operation, due to the proximity to adjacent dwellings and receptors it would likely cause off-site nuisance effects, with dust and noise issues during cultivation and harvesting. Additionally, due to the previous Christmas tree growing operation, there are buried stumps throughout the property that will need to be removed as this will damage cultivation equipment and provides a soil limitation. » Calculating the profitability for an arable operation[6], the Sites would not overcome the economic viability. Although not feasible, hypothetically if 100% the Site (7.16 ha) were growing maize grain, the deficit would still range from -$20,462 to -- $24,905 per property per annum. » In reality, the properties within the Site have insufficient scale to create a viable arable or cropping operation and the property liabilities cannot be overcome. » The fragmented and small size will not attract lessee or contractors.
Horticulture	Not a reasonably practicable option » The areas are not of a sufficient scale for any economic horticultural operation. » The development costs involved for establishing a horticulture operation such as kiwifruit – which is one of the emerging horticulture options within the Waikato is estimated as $150,000 - $250,0000 per ha (including irrigation, plants, frost protection, trellis infrastructure and shelter) in addition to license fees. Other horticulture options such as pipfruit are not readily established in the Waikato. It would be impractical to make this level of investment on small areas that are in close proximity to sensitive receptors. » With horticultural operations, there are issues with sprays and noise from frost protection. This location next to residential zoning has too many sensitive receptors that would restrict the operation or risk adverse off-site effects.

IMPROVED LAND-MANAGEMENT STRATEGIES

The constraints of irreversible land fragmentation and small scale cannot be overcome by land management strategies. While small improvements would be feasible, there are no alternative options that would be significant enough to lift profitability to an economic level.

ALTERNATIVE PRODUCTION STRATEGIES

The size does not allow for alternative land based primary production or diversification.

The indicative budget provided shows a typical beef production, a Christmas tree growing business and an arable operation (Appendix B). While small improvements are feasible these would not be significant enough to lift profitability to an economic level.

WATER EFFICIENCY OR STORAGE METHODS

Water will be required for stock drinking if the properties were to be used for pastural grazing and for irrigation for the Christmas tree growing operation. The only property that has water reticulation is 56 Tamahere Drive. Water for stock drinking is a permitted activity, although there are significant costs involved with installing a bore and pumping infrastructure.

While there is a bore currently installed at 92 Tamahere Drive, this is not consented for irrigation use and would be limited to 15 m^3 per day as a permitted activity. This is not adequate for the irrigation requirements for growing Christmas trees, therefore a resource consent would be required. With much of

[6] Financial Budget Manual, Lincoln University 2021-2022

the Waikato having a fully allocated water take, sustainable yield tests would need to be undertaken to ensure there is no impact on the surrounding bores (all at similar depths of 20 – 30 m). Additionally, as the existing bore is approximately 20 years old, it may need to be drilled deeper, re-cased and flushed. Typically, these costs are upwards of $100,000 to $200,000. Irrigation of the pastural blocks would require substantial investment and would not be economic under a livestock grazing system at this scale. The scale is not suitable for horticultural production, which would benefit from irrigation.
REALLOCATION OR TRANSFER OF WATER AND NUTRIENT ALLOCATIONS
This is not applicable as the land is not currently subject to nutrient allocations or caps. As noted above, obtaining water is not a limiting factor for the most suitable land-based primary production – pastural grazing, with the two sites that have area available for primary production both having existing bores. The reallocation or transfer of water will not overcome the permanent or long-term constraints for this Site. Other than re-establishing the Christmas tree growing business, no land use options suitable for this Site require the use of water for irrigation.
BOUNDARY ADJUSTMENTS (INCLUDING AMALGAMATIONS)
This assessment has discussed HPL areas suitable for primary production and there are no additional surrounding rural land for expansion or amalgamation, and in isolation these blocks do not lend themselves to long-term productive use. The Site in its entirety is bound by non-land based primary production that is capable of being economically viable due to the heavily fragmented lifestyle blocks.
LEASE ARRANGEMENTS
As above the HPL within the Site is not practical to lease due to small non-contiguous nature and utilising these areas would not provide sufficient scale. For leasing to be viable, the lease price would have to be significantly discounted which would disadvantage the landowner. All the properties within the Site return net losses, therefore would not be an attractive option for leasing.

5.5 Clause 3.10(3) Evaluation of reasonably practical options

3.10 (3) Any evaluation under subclause (2) of reasonably practicable options:

(a) must not take into account the potential economic benefit of using the highly productive land for purposes of other than land-based primary production; and
(b) must consider the impact that the loss of the highly productive land would have on the landholding in which the highly productive land occurs; and
(c) must consider the future productive potential of land-based primary production on the highly productive land, not limited by its past or present uses.

Table 7: Assessment against NPS-HPL Clause 3.10(3) Evaluation of reasonably practical options

NO ACCOUNT FOR ECONOMIC BENEFITS OTHER THAN LAND BASED PRIMARY PRODUCTION
Assessments undertaken in Table 4 including alternative forms of land based primary production, improved land management strategies, alternative production strategies, water efficiency or storage methods, reallocation or transfer of water and nutrient allocations, boundary adjustments including amalgamations and lease arrangements are independent of any potential economic benefit of using the HPL for purposes other than land-based primary production.

IMPACT OF LOSS OF HPL ON LANDHOLDING
The assessment has considered the impact that the loss of HPL would have on the landholding in which the HPL occurs. This assessment concludes that the major constraint for the Site is fragmentation, isolation from other land-based primary production and the very small HPL area that is impacted. The loss of 7.16 ha of HPL does not exacerbate this constraint because it is significantly constrained already. The impact of the proposed land use change will have on the remaining HPL is negligible; it is already at a small and insufficient scale to be economic, as indicated by the gross margin analysis.
FUTURE PRODUCTIVE POTENTIAL
This assessment has considered the future productive potential of land-based primary production on the Site, without being limited by its past or present uses. The highest and best land-based primary productive use for the Site, both now and the future, is pastoral grazing at a sustainable stocking rate. This is based on the limitations and long-term constraints, being non-reversable land fragmentation and small scale of operation. There are no additional reasonable and practicable land management strategies for improving the productive capacity of the Site.

3.10 Exemption for highly productive land subject to permanent or long-term constraints

1. Territorial authorities may only allow highly productive land to be subdivided, used, or developed for activities not otherwise enabled under clauses 3.7, 3.8, or 3.9 if satisfied that:

    (a) 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

    (b) The subdivision, use, or development:

        (i) Avoids any significant loss (either individually or cumulatively) of productive capacity of highly productive land in the district; and

        (ii) Avoids the fragmentation of large and geographically cohesive areas of highly productive land; and

        (iii) Avoids if possible, or otherwise mitigates, any potential reverse sensitivity effects on surrounding land-based primary production from the subdivision, use, or development; and

    (c) The environmental, social, cultural and economic benefits of the subdivision, use, or development outweigh the long-term environmental, social, cultural and economic costs associated with the loss of highly productive land for land-based primary production, taking into account both tangible and intangible values.

2. In order to satisfy a territorial authority as required by subclause (1)(a), an applicant must demonstrate that the permanent or long-term constraints on economic viability cannot be addressed through any reasonably practicable options that would retain the productive capacity of the highly productive land, by evaluating options such as (without limitation):

    (a) Alternate forms of land-based primary production

    (b) Improved land-management strategies

    (c) Alternative production strategies

    (d) Water efficiency or storage methods

    (e) Reallocation or transfer of water and nutrient allocations

    (f) Boundary adjustments (including amalgamations)

    (g) Lease arrangements

3. Any evaluation under subclause (2) of reasonably practicable options:

    (a) Must not take into account the potential economic benefit of using the highly productive land for purposes other than land-based primary production; and

(b) Must consider the impact that the loss of the highly productive land would have on the land holding in which the highly productive land occurs; and

(c) Must consider the future productive potential of land-based primary production on the highly productive land, not limited by its past or present uses.

4. The size of a landholding in which the highly productive land occurs is not of itself a determinant of a permanent or long-term constraint.

5. In this clause:

   Landholding has the meaning in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020.

Long-term constraint means a constraint that is likely to last for at least 30 years.

Waikato District Plan and Proposed Waikato District Plan

High quality soils are a finite resource, and are particularly valuable because of their versatility. There are limited areas of high-class soils found in relatively flat and well drained areas with favourable climatic conditions. The plan sustains the potential of soils, particularly high-class soils, to provide for farming now, including for food production, and the needs of future generations by managing the introduction of non-rural activities in rural areas.

Locating residential, business or industrial uses on high-class soils can destroy the soils or prevent their most efficient and best uses, especially for food production. A more sustainable use of the soils of the district would be to locate these activities on land with poorer soils.

The Waikato basin and lowlands contain high quality soils, which are important to the district's identity and economy. Therefore, Section 5.1 of the Proposed Waikato District Plan (WDP) has the following objectives in place for the protection of high-class soils in the Rural Zone.

5.1 The Rural Environment

Objective 5.1.1 is the strategic objective for the rural environment and has primacy over all other objectives in Chapter 5.

5.1.1 Objective – The rural environment

(a) Subdivision, use and development within the rural environment where:

(i) high class soils are protected for productive rural activities;

(ii) productive rural activities are supported, while maintaining or enhancing the rural environment;

(iii) urban subdivision, use and development in the rural environment is avoided.

5.2 Productive Versatility of Rural Resources

5.2.1 Objective - Rural resources

(a) Maintain or enhance the:

(i) Inherent life-supporting capacity and versatility of soils, in particular high-class soils;

(ii) The health and wellbeing of rural land and natural ecosystems;

(iii) The quality of surface fresh water and ground water, including their catchments and connections;

(iv) Life-supporting and intrinsic natural characteristics of water bodies and coastal waters and the catchments between them.

5.2.2 Policy - High class soils

(a) Soils, in particular high-class soils, are retained for their primary productive value.

(b) Ensure the adverse effects of activities do not compromise the physical, chemical and biological properties of high-class soils.

5.2.3 Policy - Effects of subdivision and development on soils

(a) Subdivision, use and development minimises the fragmentation of productive rural land, particularly where high class soils are located.

(b) Subdivision which provides a range of lifestyle options is directed away from high class soils and/ or where indigenous biodiversity is being protected.

The Proposed Waikato District Plan defines high-class soils as:

Means those soils in Land Use Capability Classes I and II (excluding peat soils) and soils in Land Use Capability Class IIIe1 and IIIe5, classified as Allophanic Soils, using the New Zealand Soil Classification.

Waikato Regional Policy Statement

The relevant objective and policy from the RPS are:

LF-O5 – High class soils "The value of high class soils for primary production is recognised and high class soils are protected from inappropriate subdivision, use or development."

LF-P11 – High class soils "Avoid a decline in the availability of high class soils for primary production due to inappropriate subdivision, use or development"

The RPS includes the following definitions[7]:

High class soils "*those soils in Land Use Capability Classes I and II (excluding peat soils) and soils in Land Use Capability Class IIIe1 and IIIe5, classified as Allophanic Soils, using the New Zealand Soil Classification."*

Primary production: *"means the commercial production of raw material and basic foods, and which relies on the productive capacity of soil or water resources of the region. This includes the cultivation of land, animal husbandry/farming, horticulture, aquaculture, fishing, forestry, or viticulture.* ***It does not include hobby farms, rural residential blocks, or land used for mineral extraction."***

As above the Regional Council excludes hobby farms and lifestyle blocks from the definition of primary production. The assessment in this report is made to the NPS-HPL, however it is relevant in considering the impacts on primary production to consider the regional policy statement definition and its exclusion of hobby farms and lifestyle blocks.

[7] https://eplan.waikatoregion.govt.nz/eplan/#Rules/0/916/1/0/0

APPENDIX B: ECONOMIC ANALYSIS FOR PRIMARY PRODUCTION

PROPERTY INFORMATION AND LIABILITIES

Property	Land Value	Land Value per ha	Area (ha)	Effective area (ha)	Total Rates	Total liabilities
56 Tamahere Drive	$ 740,000	$ 670,229	1.10	0.51	$ 4,707	$ 25,427
70 Tamahere Drive	$ 700,000	$ 875,000	0.80	0.00	$ 4,980	$ 24,580
82 Tamahere Drive	$ 830,000	$ 485,380	1.71	0.00	$ 2,890	$ 26,130
92 Tamahere Drive	$ 1,100,000	$ 310,655	3.54	2.50	$ 5,843	$ 36,643

PROPERTY ECONOMIC VIABILITY

Property	Current Land-based primary production			Highest/Best land-based primary production		
	Production type	Total Income	Net profit/loss	Production type	Total Income	Net profit/loss
56 Tamahere Drive	Beef finishing	$ 443	-$ 24,984	Beef finishing	$ 443	-$ 24,984
70 Tamahere Drive	Not HPL	$ 0	-$ 24,580	Beef finishing	$ 695	-$ 23,885
82 Tamahere Drive	Not HPL	$ 0	-$ 26,130	Beef finishing	$ 1,485	-$ 24,645
92 Tamahere Drive	Christmas tree	$ 27,500	-$ 9,143	Christmas tree	$ 27,500	-$ 9,143

Beef + Lamb New Zealand Economic Service

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Sheep and Beef Farm Survey - $ Per Hectare Analysis

Notes tab

Class 5 N.I. Finishing - New Zealand

		2019-20	2020-21	Provisional 2021-22	B+LNZ 2022-23	Forecast With interest & rates 2022-23	Without interest & rates 2022-23
	Revenue Per Hectare						
1	Wool	25.67	19.41	27.50	28.21	28.21	28.21
2	Sheep	558.12	475.04	623.57	584.29	584.29	584.29
3	Cattle	770.92	659.49	925.36	903.57	903.57	903.57
4	Dairy Grazing	60.55	93.77	79.29	90.00	90.00	90.00
5	Deer + Velvet	-0.21	-0.04				
6	Goat + Fibre	0.34	0.31	0.10	0.10	0.10	0.10
7	Cash Crop	173.69	151.45	168.57	184.29	184.29	184.29
8	Other	87.78	99.30	100.26	107.76	107.76	107.76
9	**Total Gross Revenue**	**1676.86**	**1498.73**	**1924.64**	**1898.21**	**1898.21**	**1898.21**
	Expenditure Per Hectare						
10	Wages	84.53	89.01	91.12	95.38	95.38	95.38
11	Animal Health	51.03	52.96	54.56	58.06	58.06	58.06
12	Weed & Pest Control	17.61	19.15	20.95	24.39	24.39	24.39
13	Shearing Expenses	35.80	37.84	38.06	39.40	39.40	39.40
14	Fertiliser	151.72	141.89	176.48	189.27	189.27	189.27
15	Lime	9.39	10.69	11.98	18.12	18.12	18.12
16	Seeds	31.84	37.81	39.10	38.77	38.77	38.77
17	Vehicle Expenses	43.11	48.13	51.04	53.33	53.33	53.33
18	Fuel	32.33	31.12	35.69	37.03	37.03	37.03
19	Electricity	12.72	13.17	13.50	14.14	14.14	14.14
20	Feed & Grazing	85.46	76.20	81.81	79.10	79.10	79.10
21	Irrigation Charges	2.02	1.16	1.16	1.16	1.16	1.16
22	Cultivation & Sowing	27.28	27.08	28.48	28.29	28.29	28.29
23	Cash Crop Expenses	19.52	20.31	21.81	17.84	17.84	17.84
24	Repairs & Maintenance	93.53	111.40	125.59	126.67	126.67	126.67
25	Cartage	25.58	30.47	31.55	32.62	32.62	32.62
26	Administration Expenses	42.28	47.40	48.78	49.80	49.80	49.80
27	**Total Working Expenses**	**773.11**	**805.62**	**871.65**	**903.36**	**903.36**	**903.36**
28	Insurance	24.13	24.08	24.73	25.51	25.51	25.51
29	ACC Levies	4.93	10.65	11.01	11.41	11.41	11.41
30	Rates	49.69	51.14	54.36	55.54	859.3	
31	Managerial Salaries	3.43					
32	Interest	120.51	114.27	102.85	106.61	3969.2	
33	Rent	40.12	39.76	41.54	42.31	0.00	
34	**Total Standing Charges**	**242.82**	**239.90**	**234.49**	**241.38**	**4865.42**	**36.92**
35	**Total Cash Expenditure**	**1015.93**	**1045.51**	**1106.15**	**1144.74**	**5768.78**	**940.28**
36	Depreciation	79.32	82.54	89.21	89.69	89.69	89.69
37	**Total Farm Expenditure**	**1095.25**	**1128.06**	**1195.36**	**1234.29**	**5858.47**	**1029.97**
38	**Farm Profit before Tax**	**581.61**	**370.67**	**729.29**	**663.93**	-3960.26	868.24

For more information: © Beef + Lamb New Zealand Economic Service 2022

Maize Grain Annual Gross Margin

Gross Margin Maize

Crop: P001 Maize **StartDate:**5/10/2021

SowingArea:1.00 ha **EndDate:**2/05/2022

INCOME	Yield	Price	Per ha
Grain Harvest	12.50 t/ha	$415.00 /t	$5,187.50
Forage Harvest	0.00 t/ha	$0.00 /t	$0.00
Grazing	0.00 lwt kg/ha	$0.00 / lwt kg	$0.00

OPERATION	Cost per ha
Spraying	$25.00
Sowing	$50.00
Spraying	$25.00
Fertiliser Application	$18.00
Grain Harvest	$250.00

INPUT	Product	Rate/ha	Cost Per Unit	Cost per ha
Herbicide	Corral	7 L/ha	$13.48	$94.36
Insecticide	Karate Zeon	40 ml/ha	$0.32	$12.79
Fertiliser	Cropmaster 15	250 kg/ha	$1.08	$270.00
Seed	P0021	80,000 Seeds /ha	$0.00	$350.00
Herbicide	Atraflow	30 L/ha	$5.85	$17.55
Fertiliser	Urea	250 kg/ha	$1.19	$297.50

MISCELLANEOUS	Cost per ha
Drying	$337.50
Freight ($12/t)	$125.00

TOTAL INCOME	$5,187.50
COST OF PRODUCTION	$1,872.70
GROSS MARGIN	$3,314.80

Christmas Tree Growing Annual Gross Margin Per Hectare

Category	Item	Value per hectare	Details
Yield	Area harvested	0.25 ha	Harvest trees in 4th year
	Annual production	625 plants	Harvested plants per ha at 2 m spacing
Expenses	Trees	$ 500	Purchase seedlings at 80 cents each
	labour	$ 13,000	1/5 FTE based on $65,000 annual salary
	Consumables	$ 4,000	Sprays, fertiliser, wrapping, fuel
	Harvest labour	$ 6,000	Stalls sales, shaping trees, cutting
	Depreciation	$ 2,500	Assuming 10% depreciation on machinery
	Irrigation	$ 500	Water quantity used
	TOTAL	$ 26,500	Annual expenses per hectare
Income	Sales	$ 37,500	Sell Christmas tree for $60 each
Gross Margin Return per ha		$ 11,000	

Contact

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