

# **SUBMISSION ON A PROPOSED NATIONAL POLICY STATEMENT FOR HIGHLY PRODUCTIVE LAND**

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**By:**

**Dr. Douglas Laidlaw Hicks,  
Consulting soil scientist (retired),**



**To:**

**Ministry for Primary Industries,  
PO Box 2526,  
Wellington 6011**

## **1 Introduction**

**1.1** My name is Douglas Laidlaw Hicks. I am a retired soil scientist who has forty-two years' career experience, initially working for the Ministry of Works and Development 1976 - 1988, Department of Scientific and Industrial Research 1988 - 1992, and Landcare Research 1992 - 1993. From 1994 I undertook full-time consultancy as a member of Ecological Research Associates for government departments, local authorities, commercial companies and private landowners. From 2009 until 2018 I worked part-time in a private capacity for a similar range of clients. I hold the degrees Master of Arts with First Class Honours in physical geography (University of Auckland 1976) and Doctor of Philosophy in physical geography (University of Otago 1988). I am a member of the New Zealand Society of Soil Science.

**1.2** Initial work for the government entailed measuring soil erosion, extent of soil conservation measures, and their effectiveness or otherwise for erosion control. Since the transition to consultancy in 1994, an additional component has been farm-scale land use capability maps and soil maps. Without keeping count, maps prepared by me personally or by trainees under my supervision (when engaged by regional councils, private consultancy firms, landcare groups) would now number several hundred. Most are in three regions (Wellington, Taranaki and Auckland) although some are elsewhere (Northland, Waikato, Marlborough).

**1.3** Maps prepared in the Auckland region since 2011 have increasingly been to identify elite & prime soils (terms the Auckland Unitary Plan uses to denote highly productive land). Some have been commissioned by Auckland Council to defend its plan provisions; while others have been for developers and landowners who sought resource consent or plan change enabling urban or lifestyle developments on farmland.

## **2 Background to submission**

**2.1** Many but not all regional and district plans contain rules to protect highly productive land. However - as the Ministry for Primary Industries (MPI) discussion document about its

proposed national policy statement for highly productive land (NPS - HPL) points out (Chapter 3, pages 21 - 23) - when denoting highly productive land the plans use terms such as versatile soil (or land), elite or prime soil (or land), land containing elite or prime soil, etc. The discussion document notes that these terms are variously defined in different plans, by referring to named soils, specified soil properties, land use capability classes, or identified geographical areas (Chapter 2, pages 15 - 17).

**2.2** A recent Environment Court decision (2018 NZEnvC 049) accepted my evidence on behalf of Auckland Council about identification of soils as elite, prime or other. On this ground and also on other grounds (outstanding natural features, mana whenua values) it upheld Auckland Council's rural production zone over a significant area of elite and prime soil which the appellants wished to urbanise. This decision was subsequently appealed to the High Court on points of law. High Court referred the case back to Environment Court for re-consideration of evidence about economic viability of horticulture, but upheld its decision on all other grounds including the elite and prime soils issue (2019 NZHC 276). These cases are worth noting as the only of several Auckland Unitary Plan appeal decisions so far to uphold Auckland Council's position on protecting elite and prime soils from conversion to non-rural use.

**2.3** Some key paragraphs from my evidence (transcript NZEnvC-2016-Akl-304-000199) are appended as Attachment A. These paragraphs apply not just to the site subject to appeal but at other sites generally. They may provide some guidance for MPI staff drafting the proposed NPS - HPL, about how - when identifying highly productive land in the field - a soil scientist interprets the various terms and definitions which appear in regional and district plans.

**2.4** The main text of my submission will focus just on four related matters:

- \* The phrase "highly productive land" where-ever it appears in draft wording for the NPS - HPL (pages 36 to 51 of MPI's discussion document),
- \* The definition of highly productive land (page 50),
- \* Policy 1 - Identification of highly productive land (pages 38 to 39),
- \* Appendix A - Criteria for identifying highly productive land (pages 40 to 41).

**2.5** Attachment B outlines an alternative way to identify highly productive land for MPI and MFE staff to consider, in event that they perceive the changes recommended in Sections 5 and 6 of my submission as too reactive. A proactive approach would entail subsuming a LUC-based framework (MPI's present preference expressed in its discussion document) within a broader concept of "terroir".

### **3 The phrase "highly productive land"**

**3.1** The phrase "highly productive land" appears repeatedly in the NPS - HPL's proposed objectives (page 36), all its proposed policies (pages 38 to 49), and its proposed definitions (pages 50 to 51).

**3.2** If this phrase were to remain as presently worded, it would be unclear whether the NPS - HPL applies just to land which is highly productive at present, or to land which has the potential to be highly productive in future.

**3.3** MPI's discussion document makes clear (Chapter 1, pages 8 to 9; Chapter 2, page 19) that the proposed NPS - HPL's purpose is to achieve both.

### ***Remedy sought***

*Where-ever the phrase "highly productive land" appears in draft wording for the NPS - HPL, replace it by "land which is or has the potential to be highly productive".*

## **4 The definition of highly productive land**

**4.1** The proposed definition (page 50) is:

*Highly productive land means:*

*a land that has been identified as highly productive by a local authority in accordance with Policy 1 and Appendix A of this national policy statement; or*

*b where a local authority has not identified highly productive land in accordance with Policy 1 and Appendix A, a land parcel in a rural area that contains at least 50% or 4 hectares of land (whichever is the lesser) defined as Land Use Capability 1, 2 and 3 as mapped by the New Zealand Land Resource Inventory or by more detailed site mapping; but*

*c does not include urban areas or areas that have been identified as a future urban zone in a district plan or proposed district plan.*

**4.2** The proposed definition contains two alternatives (a or b) each subject to a caveat (c). The reasons for choosing this somewhat unusual structure are clearly expressed elsewhere in MPI's discussion document (Chapter 2, pages 15 to 17; Chapter 3, pages 23 - 27), and appear valid as regards enabling the NPS - HPL to protect highly productive land in the interim, pending its clearer identification by local authorities within a prescribed time. Also reasonable as regards avoiding reversal of planning decisions which have already been made and which may have already resulted in investment decisions by owners or purchasers of affected land. However there are some "fish hooks" in the definition's structure (see 4.3, 4.4, 4.5)

**4.3** Clause a's omission of a minimum area to be protected leaves it open for local authorities to set differing thresholds for protection of highly productive land. Inconsistent with the NPS - HPL intent to achieve nationally consistent protection? I am not convinced that 4 hectares (mentioned several places in MPI's discussion document) is the right threshold ... and hesitate to specify what it should be. Perhaps horticultural growers and their representative organisations are best placed to argue a case for what they regard as a commercially viable threshold nowadays.

**4.4** Clause b's inclusion of the phrase "by more detailed site mapping" creates a third alternative to the NPS - HPL preferred path (clause a, identification by a local authority) and its interim option (clause b, LUC 1, 2 and 3 as mapped by the NZLRI). Creates scope for argument between local authorities and applicants - why ask for detailed site mapping of LUC when the NPS - HPL says NZLRI LUC is o.k.? A 50% - or any other - threshold would actually spur detailed site mapping to find out if there's more (a local authority's expectation) or less (a developer's hope). Removing it from clause b may be a better way to provide conservative interim protection to land which is predominantly highly productive (NZLRI LUC 1 and 2, but not 3) - pending its identification in accordance with clause a.

**4.5** Clause c creates the possibility that a local authority might hastily exclude areas of highly productive land by designating them future urban in a proposed plan revision. Also that a developer might do the same by proposing a private plan change?

### ***Remedies sought***

*Amend clause a of the definition to "any land greater than ? hectares in contiguous area that has been identified as highly productive by site maps at a scale of 1:10,000 or better, supplied to and approved by a local authority, in accordance with Policy 1 and Appendix A of this national policy statement; or"*

*Amend clause b of the definition to "where a local authority has not been supplied with or approved site maps in accordance with Policy 1 and Appendix A, any land parcel contained within or overlapped by Land Use Capability Classes 1 and 2 as mapped by the New Zealand Land Resource Inventory at a scale of 1:50,000".*

*Amend clause c of the definition to "does not include urban areas or areas that have been identified as a future urban zone in a notified or operative district plan".*

## **5 Policy 1 - Identification of highly productive land**

### ***General comments about explanatory text (pages 38 - 40)***

**5.1** The proposed criteria are all relevant and important considerations for identifying highly productive land. However the explanations of some are ambiguous or technically incorrect, so if carried over from MPI's discussion document into text of the proposed NPS - HPL, they could be made clearer by a few simple amendments (see 5.2 to 5.6).

**5.2** In relevant source documents, capability applies to land e.g. Lynn 2009 (published by the NZ Association for Resource Management), and versatility applies to soil e.g. Molloy 1993 (published by the NZ Soil Science Society). So the first criterion on page 38 could be rendered technically correct by amending to "the capability of the land and versatility of the soil to support primary production (based on the LUC classification and NZSSS soil versatility criteria respectively)".

**5.3** "Suitability of the climate" is not suitably explained by "e.g. a frost-free climate". So the

second criterion on page 38 could be improved by adding other examples of what is meant e.g. “a high number of growing degree-days”, “a low frequency of damaging winds”, and perhaps others. HortResearch, also Crop & Food, might be the best sources of advice about specifications plus how to word them.

**5.4** Ambiguity about “size and cohesiveness of the area” needed to “ensure the NPS - HPL does not require existing small pockets of highly productive land to be protected”. The third criterion on page 38 could be clarified by amending to “a threshold for the minimum cohesive area of highly productive land required to support commercially viable primary production”. Such amendment would lead better into the next two sentences, which explain why a threshold is desirable, without actually needing to state a threshold at this stage. Of course there needs to be considerable discussion between MPI and industry stakeholders, about what’s an appropriate threshold. Their grower organisations, particularly Horticulture New Zealand, possess relevant reports by agronomic and economic consultants. And MPI doubtless possesses similar reports prepared by its own staff.

**5.5** Last paragraph on page 38. LUC classification is a method (explained by Lynn et al 2008). The 1:50,000 NZLRI is a GIS dataset which contains LUC classifications assessed from land inventory. Either change “datasets” to “methods”; or change “e.g. LUC classification” to “e.g. NZLRI”.

**5.6** Last paragraph on page 39. Historically LUC has been mapped at various scales from 1:250,000 to 1:1,000. To confirm what is actually intended here, change the wording to “LUC classifications attached to the 1:63,360 to 1:50,000 NZLRI maps are not of sufficient resolution ...” Additionally, the paragraph needs to state clearly that “Because of scale limitation, the NZLRI maps “depict areas which are predominantly LUC 1 to 3 but may include patches of land where LUC is 4 or lower. Conversely, areas which the NZLRI maps depict as predominantly LUC 4 to 6 may include patches of LUC 3 or higher land. Historically where their identification is needed for planning applications, such patches have been differentiated by site-specific mapping. Appropriate scale varies from 1:25,000 - 1:10,000 for extensive pastoral grazing properties, through 1:10,000 - 1:5,000 for dairy and drystock fattening farms, to 1:5,000 or greater for cropping and horticultural ventures (Hicks and Vujcich 2017)”.

### ***Specific comments on Policy 1***

**5.7** The “pro” of requiring highly productive land to be spatially identified by local authorities, is that their doing so would provide clarity for applicants seeking resource consent. The “con” is that requiring local authorities to identify such land in the space of three years - or any other time frame - entails a massive mapping programme. A small horticultural block entails half a day’s field investigation; a small farm, a day’s field investigation; a large property, two or more days. Irrespective of size, half a day to a day is needed to draw a good copy of the map. If the owner requires a written report, that takes at least an extra day.

**5.8** Some regional councils have staff who are experienced at LUC assessment, but councils will be reluctant to divert them from other duties onto full-time mapping (whether LUC or the broader NPS - HPL concept of “highly productive land”). Councils are more likely to

commission maps from the crown research institutes, from commercial land management consultants, or from private consultants who undertake mapping on the strength of past experience working for the larger organisations. Herein lie two dangers:

\* There are not enough individuals - even in the crown research institute Landcare Research which acts as custodian of LUC classification and soil mapping - who have sufficient local knowledge to identify highly productive land. If a fixed-term mapping programme (= “rush job”) were required by NPS - HPL, local authorities would inevitably engage mappers who have limited knowledge.

\* The resulting maps would contain mis-identifications and omissions, which could be challenged case-by-case in planning hearings, and perhaps at the Environment Court. End result : more public gripes about developments held up by apparently endless litigation.

**5.9** The NPS - HPL - as presently proposed in MPI’s discussion document - would require local authorities to undertake an overly ambitious mapping programme for which simply not enough mappers could be trained in the time available. I cannot stress strongly enough how important it is for achievement of the NPS - HPL’s purpose, to engage experienced mappers who are not just knowledgeable about local landscape, soil and climate, but also have a good understanding of local growers’ management practices for remedying environmental constraints.

**5.10** A more practical and less error-prone solution is proposed below (see Remedy Sought). Its key features are:

\* merges the NPS - HPL interim option for identifying highly productive land (clause b) into a seamless procedure with its preferred option (clause a),

\* avoids requiring local authorities to identify all highly productive land within an unrealistic time frame,

\* enables highly productive land to be identified as and when there is a threat to it i.e. an application to urbanise or lifestyle (it seems reasonable to assume that other HPL isn’t currently threatened),

\* creates options for highly productive land maps to be prepared at local authority expense, developers’ expense, or jointly (50-50 funding of a single map may be a swifter path to agreement about what is or isn’t HPL).

### ***Remedies Sought***

*Amend Policy 1.1 to read “To identify areas of land which are or have the potential to be highly productive, regional councils must:*

*a Use Landcare Research’s 1:50,000 digital version of the NZLRI as an initial identifier of areas (map polygons) which are predominantly highly productive land (= LUC 1 & 2), areas which will include some highly productive land (= LUC 3 & 4), areas which may include*

*patches of highly productive land (= LUC 5 & 6), and areas which are unlikely to include any highly productive land (=LUC 7 & 8).*

*b Require any proposal for urban expansion, lifestyle subdivision or other non-rural use to supply a map identifying actual extent of HPL at a scale equal to or better than 1:5,000 using the criteria set out in Appendix A:*

*\* in all instances where the area subject to application is contained within or overlaps LUC 1 & 2 as depicted by Landcare Research's 1:50,000 digital version of the NZLRI,*

*\* in any instances where it is contained within or overlaps NZLRI LUC 3 & 4, only for specified LUC 3 & 4 units (class subdivisions) where a local authority considers HPL may be present ,*

*\* where it is contained within or overlaps NZLRI LUC 5 & 6, only for specified LUC 5 & 6 units (class subdivisions) where a local authority considers HPL may be present”.*

## **6 Appendix A**

### ***Specific comments on Appendix A***

**6.1** The proposed criteria are relevant, but the first is badly worded because it conflates capability of the land with versatility of the soil. At end of forty-two years on the job, I agree that a landscape's capacity to support primary production can still be assessed using land use capability classification (developed for NAWASA by the former MWD Water and Soil Division) as explained in the New Zealand Association for Resource Management's publication Land Use Capability Handbook (Lynn et al 2009).

**6.2** However I do not agree that it is possible to identify highly productive land without reference to soil versatility criteria (contained in several publications of the former DSIR Soil Bureau) which are perhaps best expressed on page 206 of the New Zealand Soil Science Society's publication Soils in the New Zealand Landscape (Molloy 1993).

**6.3** Nor do I agree that highly productive land can be identified by considering an unspecified "suitability of the climate" criterion. Key climate criteria need to be specified - at very least in words such as "high number of growing degree days" - and perhaps by reference to thresholds specified in Landcare Research's LENZ database (Leathwick et al 2003).

**6.4** These three - landscape, soil, climate - taken together approximate "terroir"; a concept which is familiar to food growers and may be also to MPI's policy analysts. If "terroir" changes at all, it changes slowly at a pace to which growers can adapt. Witness the persistence of identified "terroirs" in agricultural landscapes overseas which have been farmed for many centuries.

**6.5** Other criteria - referred to on page 40 as factors for local authorities to consider - need not be mandatory. Current land cover and use; current or potential availability of water; water

quality issues or constraints; access to transport routes; access to labour markets; processing facilities and infrastructure; are all things which can and do change rapidly. Consider how in New Zealand grapevines, kiwifruit, avocados - after extensive planting at locations considered unlikely within recent decades - each became export industries.

**6.6** Exclusion factors on page 40 - urban areas, and areas that have been identified as future urban zones - are probably needed in Appendix A because of reasons explained earlier in the NPS - HPL discussion document (Chapter 3, pages 23 - 27). A slight change to the wording, from “district plans” to “notified district plans” or “operative district plans”, may avert pre-emptive attempts to exclude land from NPS - HPL provisions by lodging proposed plan changes (whether local authority or private).

### ***Remedy sought***

*Amend Appendix A to read “In accordance with Policy 1, regional councils and applicants and their agents must use the following criteria to assess and identify areas of land which are or have the potential to be highly productive:*

*a the capability of the land to support primary production based on the Land Use Capability Classification system (as defined by Lynn et al 2009, or as adapted by Vujcich and Hicks 2017 for use at property scale);*

*b the versatility of the soil to support primary production based on the NZ Soil Science Society criteria (as summarised on page 206 of Molloy 1993);*

*c the suitability of the climate for primary production, particularly fruit, vine, vegetable and grain production based on the specifications of ... (add verbal specifications from appropriate Hort Research/Crop and Food reference documents, or possibly numeric thresholds from LENZ );*

*d the size and cohesiveness of the area of land, relative to thresholds for commercially viable fruit, vine, vegetable and grain production specified by ... (add appropriate commercial grower organisation reference documents).”*

## **7 Conclusion and summary**

**7.1** My submission supports the purpose, scope and structure of a national policy statement for highly productive land, as proposed in MPI’s discussion document. I compliment the MPI and MFE staff who have produced a reasoned, lucid discussion in Chapters 1 (Introduction), 2 (Context), 3 (The problem we want to solve) and 4 (Options for solving the problem).

**7.2** Chapter 5 (How a National Policy Statement would work) is also reasoned and lucid, but its proposed process for identifying highly productive land falls short on several technical details and practicalities. If implemented as proposed, the outcome will be rushed and flawed identifications, challengeable at planning hearings and court proceedings. The NPS - HPL’s effect would become uneven. Accordingly my submission has focused on four technical matters



in Chapter 5:

**7.3** Section 3 recommends expanding the phrase “highly productive land” where-ever it appears in draft wording for the NPS - HPL, to clarify that it applies not just to presently productive land, but also to land which has potential for future high production.

**7.4** Section 4 recommends changes to the NPS - HPL definition of highly productive land, to remove technical inaccuracies and ambiguities.

**7.5** Section 5 recommends several changes to Policy 1 - Identification of highly productive land. The changes would merge NPS - HPL interim (NZLRI LUC), alternative (detailed LUC) and preferred (Policy 1 Appendix A) options into a seamless procedure:

\* Utilise the existing NZLRI LUC to define rural areas where highly productive land will, may, or is unlikely to be identified,

\* Just require local authorities to identify highly productive land in these areas, when and where applications to urbanise or lifestyle are lodged,

\* Encourage local authorities and applicants jointly to commission a single detailed map in each instance, prepared to the specifications in Appendix A of Policy 1.

**7.6** Section 6 recommends extra Appendix A criteria for identifying highly productive land; in particular, soil versatility and climate suitability criteria which may be sourced from existing reference documents.

**7.7** The recommended changes if adopted, would avert a rushed mapping programme, reduce attendant mis-identifications followed by planning disputes, and keep mapping costs affordable.

**7.8** Some key paragraphs from Environment Court evidence (transcript NZEnvC-2016-Akl-304-000199) are appended as Attachment A. These paragraphs apply not just to the site subject to appeal but at other sites generally. They may provide some guidance for MPI and MFE staff drafting the proposed NPS - HPL, about how - when identifying highly productive land in the field - a soil scientist interprets the various terms and definitions which appear in regional and district plans.

**7.9** Attachment B outlines an alternative way to identify highly productive land for MPI and MFE staff to consider, in event that they perceive the changes recommended in Sections 5 and 6 of my submission as too reactive. A proactive approach would entail subsuming a LUC-based framework (MPI's present preference expressed in its discussion document) within a broader concept of "terroir".

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