Agricultural Land Mapping Project

Identifying land suitable for inclusion within the Tasmanian Planning Scheme's Agriculture Zone

Background Report

May 2017

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Prepared and published by Department of Justice, Planning Policy Unit
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1.0 Background

1.1 What is the purpose of the agricultural land mapping project?

The agricultural land mapping project was commissioned and project managed by the Department of Justice, Planning Policy Unit on behalf of the Minister for Planning and Local Government in support of the State Planning Provisions, which form part of the Tasmanian Planning Scheme.

The State Planning Provisions represent the consistent statewide provisions of the Tasmanian Planning Scheme. The local component of the Tasmanian Planning Scheme are the Local Provisions Schedules, which will apply to each municipal area and include zoning and code overlay mapping, as well as other provisions to deal with local issues.

The Rural Zone and Agriculture Zone in the State Planning Provisions reflect a recalibration of the Rural Resource Zone and Significant Agriculture Zone (the rural zones) that are currently applied in Interim Planning Schemes.

The primary aim of the project is to identify Tasmania's existing and potential agricultural land, and to provide guidance to local planning authorities on the spatial application of the Agriculture Zone within their municipal area. This will avoid a repeat of the inconsistent use and application of the zones that occurred in the preparation of the Interim Planning Schemes.

The project scope focuses on land currently within the Rural Resource Zone and Significant Agriculture Zone in Interim Planning Schemes and the Rural Zone in the *Flinders Planning Scheme 2000*, or in other words, land that has already been strategically identified and protected for rural or agricultural purposes.

The project provides guidance as to how land currently zoned as Rural Resource or Significant Agriculture can be reassigned to either the Rural Zone or Agriculture Zone. Assignment of land to either the Rural Zone or Agriculture Zone does not affect existing or future agricultural activity occurring. The key difference between the two zones is how non-agricultural activity is managed.

The mapping is intended as a strategic land use planning tool to assist local planning authorities in mapping the recalibrated rural zones in the Tasmanian Planning Scheme, specifically by identifying and mapping land that is potentially suitable for inclusion within the Agriculture Zone.

1.2 What are the parameters of the agricultural land mapping project?

The project provides the broad statewide strategic basis for spatially identifying the Agriculture Zone based on common objective criteria and analysis. The analysis of potential agricultural land does not incorporate some of the more finer-grain information based on local circumstances. It is appropriate that local planning authorities perform this local assessment and verification exercise, as part of the preparation of their Local Provisions Schedules, as is the case with the application of all other zones.

The project has not focussed on the spatial application of the Rural Zone as the characteristics of this land are not so readily defined. The Rural Zone will largely be applied to the remaining rural land following the identification of the Agriculture Zone.

The extent of native vegetation cover, including the presence of threatened native vegetation communities or threatened species, was not considered in the analysis of potential agricultural land. It was considered problematic to consistently and objectively incorporate such analysis into the project at a statewide scale. Any resultant mapping would also not provide an accurate reflection of the potential agricultural land in the State.

It is also important to acknowledge that the presence of native vegetation cover should not always be seen as a hindrance to agricultural use or routinely considered for alternate zoning. Agricultural use comes in many forms and there are many alternatives for land to be used in creating a balance between agriculture and conservation. Areas of native vegetation cover are often maintained as part of operating farms, providing many ecological and economic benefits.

The project focussed on land currently zoned for rural and agriculture purposes, and therefore did not examine land outside the rural zones. Strategic decisions have already been made to zone such land for other purposes and the analysis did not seek to re-examine past decisions. Land outside the rural zones also falls outside the scope of 'agricultural land' as defined under the *State Policy on the Protection of Agricultural Land 2009* (the PAL Policy), as the land has been zoned for other purposes.

1.3 Why were the rural zones in Interim Planning Schemes recalibrated?

The Rural Resource Zone and the Significant Agriculture Zone formed part of the suite of zones under *Planning Directive No. 1 – The Format and Structure of Planning Schemes* (PD1), which specified the template for all Interim Planning Schemes.

It is clear from the resultant Interim Planning Schemes that the Rural Resource Zone and Significant Agriculture Zone were not fit for purpose. They were unable to be applied in a manner that reflected the character, complexity and diversity of Tasmania's agricultural land, covering the broad range and mix of enterprises, along with variables associated with soils, water and climate. As a result, the two rural zones were inconsistently applied across the three regions in part because both zones attempted to cover the State's agricultural land.

The Significant Agriculture Zone was very narrow in its scope, with the Zone Purpose limiting it to "land for higher productivity value agriculture dependent on soil as a growth medium". The Rural Resource Zone was then required to capture all other agricultural land that was not deemed as having 'higher productivity value'.

The Cradle Coast and Northern regions determined that it was not appropriate to use the Significant Agriculture Zone, instead opting to apply the Rural Resource Zone to an array of rural land. Both regions considered the two zones created an artificial split and that it was not possible to separate the 'higher productivity value' land from the other agricultural land based on the actual farming operations and complex matrix of land capability.

The Southern region applied both zones, but effectively used similar provisions across both zones in order to implement the PAL Policy. The two zones were also applied inconsistently across municipal areas in the Southern region.

The resultant Interim Planning Schemes demonstrated a need to more broadly identify and protect agricultural land in accurately implementing the PAL Policy.

Opportunities for implementing a single rural zone were considered in the drafting of the State Planning Provisions. A single rural zone would need to provide for competing demands, absorb a range of non-agricultural uses, and cover broad land characteristics. The result would be a complex zone with inadequate identification and protection of agricultural land.

Initial regional mapping produced as part of the regional land use strategies demonstrated that significant areas of land assigned to existing rural zones had limited or no potential for agricultural use. Variances were evident between municipal areas however, at a statewide level there was a clear need for two rural zones.

The recalibrated rural zones in the State Planning Provisions aim to address these issues directly by creating two zones which:

- provide a broader scope for identification and protection of agricultural land (the Agriculture Zone); and
- allows the zoning land with limited potential for agricultural use and which is not otherwise identified for the protection of specific values (the Rural Zone).

1.4 What is the intent of the Rural and Agriculture Zones?

The aim of the rural zone recalibration is to strategically zone agricultural land much in the same way as urban land is strategically zoned for particular purposes, such as the identification of industrial land. This ensures that agricultural land is adequately protected and reduces reliance on a case-by-case assessment of individual development applications in determining the importance of the land for agriculture.

The rural zone recalibration aims to accurately deliver the intent of the PAL Policy as well as implementing Principle 7 of the PAL Policy through consideration of the local and regional significance of the land for agricultural use. Principle 7 of the PAL Policy provides for decisions to be made on the significance of the land at a strategic planning level in determining the level of protection afforded to the non-prime agricultural land.

The key difference between the Agriculture Zone and Rural Zone is how they deal with non-agricultural uses. Non-agricultural uses are largely discretionary in the Agriculture Zone to protect the primacy of agricultural uses consistent with the zone purpose. The Rural Zone provides for a broader range of Permitted uses that may require a rural location for operational reasons, such as Extractive Industry, Resource Processing and certain types of Manufacturing and Processing and Storage.

Agriculture Zone

The Agriculture Zone aims to broadly capture and protect Tasmania's agricultural land, or Tasmania's 'agricultural estate'. In broad terms the 'agricultural estate' refers to land currently supporting existing agriculture or with the potential to support agriculture, taking into account the significance of the land for agriculture at a local, regional and State level.

Tasmania's 'agricultural estate' encompasses more than prime agricultural land or land within irrigation districts. It captures land with varying soil and climatic characteristics and provides for a broad range of agricultural enterprises.

The Agriculture Zone provisions provide a clear pathway for all agricultural uses. Agricultural uses are largely No Permit Required under the Agriculture Zone Use Table. Some limitations are imposed on plantation forestry and agricultural uses that do not utilise the soil as a growth medium, if on prime agricultural land. These requirements aim to address Principles 2 and 10 of the PAL Policy for the protection of prime agricultural land. However, agricultural uses that do not use the soil as a growth medium maintain a No Permit Required status if they are conducted in manner that does not preclude the soil from being used in the future.

The Agriculture Zone applies tight controls on non-agricultural use as required by the PAL Policy to protect agricultural land from unnecessary conversion to non-agricultural uses. Non-agricultural uses, other than residential use, must be required to locate on the site for operational or security reasons or to minimise impacts on other uses. This includes uses that:

- require access to specific naturally occurring resources in the zone;
- require access to infrastructure only located in that area;
- require access to a particular product or material related to an agricultural use;
- service or provide support to an agricultural use;
- provide for the diversification or value adding to an agricultural use; or
- provide essential emergency services or utility infrastructure.

Residential use must be either required as part of an agriculture use or located on land not capable of supporting agricultural use and not confine or restrain any adjoining agricultural use.

There are also specific requirements for non-agricultural uses on prime agricultural land in accordance with the requirements of the PAL Policy.

No minimum lot size is specified for the Agriculture Zone. This recognises that the amount of land required is dependent on the agricultural use and the circumstance under which it operates. All subdivision, beyond minor subdivision for public use, utilities or irrigation infrastructure, or the consolidation of lots, must be considered through the Performance Criteria as a Discretionary development. This provides for an appropriate assessment of the subdivision having regard to the impact this may have the agricultural productivity of the land and the capacity of the new lots for agricultural use.

The Agriculture Zone provides for subdivision where it can be demonstrated as necessary for the operation of an agricultural use if for the:

- creation of additional lots for agricultural use;
- reorganisation of lot boundaries without creating any additional lots; and
- the excision of an existing use or development, such as a dwelling.

A summary comparison between the Agriculture Zone and Rural Zone provisions is contained in Table 1 below.

Rural Zone

The Rural Zone is aimed at the remaining rural land (or non-urban land) with limited or, no potential, for agriculture, and which has not been identified for the protection of specific values, such as landscape conservation or environmental management.

The provisions of the Rural Zone acknowledge that the land may be able to support some agriculture, but the land is of lower significance as compared to the Agriculture Zone. The Rural Zone also provides for the protection of agricultural land and agricultural uses in accordance with the PAL Policy by ensuring that Discretionary uses, including Residential use, minimise the conversion of agricultural land and are compatible with agricultural use. While the Rural Zone provides for a range of other Permitted uses that may require a rural location for operational purposes, it still provides for agricultural uses as No Permit Required through the use table.

Non-agricultural uses provided for in the Rural Zone include Domestic Animal Breeding, Boarding and Training, Extractive Industry, Resource Processing and a limited range of Manufacturing and Processing, Storage and other uses that are associated with agricultural uses or Resource Processing.

As with the Agriculture Zone, the *Primary Industry Activities Protection Act 1995* (the PIAP Act) also applies to protect the rights of farmers to conduct their farming activities in an appropriate manner. The PIAP Act applies to land characterised as a farm on land "within a zone, designated to the land under the *Land Use Planning and Approvals Act 1993*, that enables the land to be used for the purposes of primary industry". The Rural Zone is such a zone. The allocation of land to either the Agriculture Zone or Rural Zone also has no impact any exemptions for Land Tax for land classified as Primary Production Land under the *Land Tax Act 2000*.

Discretionary uses in the Rural Zone must demonstrate they are appropriate for a rural location and must not confine or restrain existing use on adjoining properties.

The Rural Zone provides a Permitted minimum lot size of 40ha for subdivision and, like the Agriculture Zone, provides a Permitted pathway for subdivision associated with public use, Utilities, irrigation infrastructure and the consolidation of existing lots.

The 40ha minimum lot size in the Rural Zone reflects a common minimum lot size for rural zones that has appeared in planning schemes in Tasmania for many years. It aims to provide reasonable opportunities for subdivision without creating additional opportunities for rural living development. A lot of 40ha is considered large enough to discourage rural living type development and provide buffers to rural industries and adjoining areas within the Agriculture Zone.

The Performance Criteria provides the opportunities for the subdivision lots less than 40ha, but only for:

- a use, other Residential use or Visitor Accommodation, that requires a rural location for operational reasons and minimises the conversion of agricultural land; or

- the excision of a dwelling or Visitor Accommodation if necessary for the operation of a agricultural use.

Table 1 Summary comparison of provisions in the Agriculture and Rural Zones

Provision	*Agriculture Zone*	*Rural Zone*
Agricultural use	Generally No Permit Required. Discretionary if plantation forestry on prime agricultural land. Discretionary if on prime agricultural land and not using soil as growth medium and precludes future use of soil.	No Permit Required.
Non-agricultural uses	Generally Discretionary if required to access or provide resources/infrastructure or support/value add to agricultural use. Permitted if for Food Services or General Retail and Hire associated with agricultural use or Resource Processing.	Permitted for Domestic Animal Breeding, Boarding and Training, Emergency Services, Extractive Industry, Resource Processing and a range of other uses that are associated with agricultural use or Resource Processing or require a rural location of operational reasons. Discretionary for a range of other uses if demonstrated they require a rural location for operation reasons. Discretionary uses must minimise conversion of agricultural land.
Residential use	Generally Discretionary, required as part of agricultural use or on land not capable of supporting agriculture and not confine or restrain agricultural use on adjoining properties.	Generally Discretionary and must minimise conversion of agricultural land.
Building height	12m Permitted, otherwise Discretionary.	12m Permitted, otherwise Discretionary.
Setbacks	5m; or 200m or not less than existing for sensitive uses, otherwise Discretionary	5m; or 200m or not less than existing for sensitive uses from Agriculture Zone, otherwise Discretionary
Subdivision	Permitted if lots for public use, utilities, irrigation infrastructure or consolidation of lots. Discretionary if provides for agricultural use, including creation of additional lots, reorganisation of existing lots, excision of existing use or development.	Permitted if for lot not less than 40ha, public use, utilities, irrigation infrastructure or consolidation of lots. Discretionary if provides for a use that requires a rural location for operation reasons (other than Residential or Visitor Accommodation), or if provides for agricultural use and for excision of existing dwelling or Visitor Accommodation.

2.0 Methodology

2.1 Who has been involved in the mapping project?

The mapping project has been undertaken by an expert consultant team comprising a consortium between Macquarie Franklin and Esk Mapping and GIS.

An Advisory Committee was established to provide guidance to the mapping project and ensure the mapping produced was fit for purpose. The Advisory Committee membership consisted of representatives from:

- Department of Primary Industries, Parks, Water and the Environment's (DPIPWE) Agricultural Policy Branch and Sustainable Land Use and Information Management Unit;
- Tasmanian Farmers and Graziers Association;
- Local Government Association of Tasmania; and
- three local councils, one from each of the three regions.

Targeted consultation was also undertaken with a number of key stakeholders prior to the finalisation of the mapping. This included local government, the Tasmanian Farmers and Graziers Association, key forestry stakeholders, and other key rural stakeholders consulted during the drafting of the State Planning Provisions.

2.2 What analysis has been undertaken for the mapping project?

The methodology for the agricultural land mapping project has been developed and workshopped with the Advisory Committee. It was further tested and refined by the consultants through the mapping analysis to ensure the desired outcomes were being achieved.

The finalised methodology and draft mapping was then further workshopped with the Advisory Committee.

The mapping has adopted a very conservative approach to ensure that land with any reasonable level of agricultural potential was considered for inclusion in the Agriculture Zone.

In broad terms, the land that is considered suitable for the Agriculture Zone is that defined as:

- having all of the requirements for agriculture to be sustainable;
- part of a critical mass of land with similar characteristics; and
- is strategically important from a local, regional or State perspective.

The mapping exercise was undertaken through the following steps.

2.2.1 Step 1 – Definition of study area

The study area (shown in Figure 1) was limited to land currently within the Rural Resource Zone and Significant Agriculture Zone in Interim Planning Schemes and the Rural Zone in the *Flinders Planning Scheme 2000*. The analysis did not seek to review land not currently zoned for rural or agricultural purposes.

Land within the Tasmanian Reserve Estate, such as national parks, conservation areas and other public reserves, and Future Potential Production Forest, was also removed from the study area, even if within a current rural zoning. Land under conservation covenants and variable term private reserves, such as management agreements, were retained within the study area as these are often managed in conjunction with working farms.

The total area within the Agricultural Land Mapping Project study area is 38,334 square km.

2.2.2 Step 2 – Mapping land potentially suited to agricultural production

Agriculture in Tasmania is complex due to the broad range and mix of enterprises, along with variables and complexities associated with soils, water and climate. The Department of Primary Industries, Parks, Water and the Environment (DPIPWE) Enterprise Suitability Mapping (DPIPWE 2015) was a key dataset used in the mapping of potential agriculture land and formed the basis for most of the initial analysis and mapping for this project.

The project has utilised the Enterprise Suitability Mapping as the basis for most of the analysis in determining the suitability of land for agriculture. Land capability classification data as in the Land Capability Handbook (Grose, 1999) along with the DPIPWE's TASVEG 3.0 mapping was utilised in determining areas potentially suitable for broadacre dryland pastoral areas.

The Enterprise Suitability Mapping was used as it provides the most contemporary and sophisticated statewide analysis on the suitability of land for a range of agricultural enterprises. The production of the Enterprise Suitability Mapping involved analysis of a number of different agricultural enterprises and includes a number of important climatic, topographical and soil parameters. The Enterprise Suitability Maps are derived from a combination of new digital soil mapping, localised climate data, and complex crop rules and detailed modelling is completed at a scale of 1:50,000. With this data, climate and soil information has been used to match the known soil and climate requirements of a range of crops to a given area.

While land capability classification data has historically been used for mapping potential agricultural land in Tasmania, it has many limitations. There is only partial coverage of the State and large portioned modelling has been used with limited ground-truthing. The land capability classification mapping is at a broad scale of 1:100,000 and does not reflect the potential agricultural enterprise value. For example, land capability class 5 indicates the land is only really suited to dryland grazing with low economic return, but such areas may have soils ideally suited to viticultural production with a high economic return.

To reflect 'typical' farming enterprises found within Tasmanian agriculture, five broad Enterprise Suitability Clusters (ES Clusters) were compiled by grouping Enterprise Suitability Mapping and other key datasets, as listed in Table 2 below.

Table 2 Enterprise Suitability Clusters

Enterprise Suitability Cluster	*Dataset Used*	*Data and Assumptions*	*Access to Irrigation Water Required*
(ES1) Irrigated Perennial Horticulture	Enterprise Suitability Mapping, DPIPWE	Example crops include: table wine grapes, sparkling wine grapes and cherries	Y
(ES2) Vegetable Production		Example crops include: carrots, onions, poppies, potatoes and pyrethrum	Y
(ES3) Irrigated Grazing – Dairy		Rye Grass only	Y
(ES4) Broadacre – Cropping and Livestock		Example crops include: wheat, barley, poppies, lucerne and ryegrass	N
(ES5) Broadacre – Dryland Pastoral	TASVEG 3.0, DPIPWE	Remaining cleared agricultural land (identified as FAG – Agricultural land in TASVEG 3.0), including native grasslands	N
	Land Capability data, 1:100,000, DPIPWE	Remaining land with a land capability class of between 1-6	

2.2.3 Step 3 – Potential access to water for irrigation

The Enterprise Suitability Mapping used to compile the ES Clusters outlined in Step 2 assumes ready access to water for irrigation. This is not practically possible for all areas in Tasmania. Land with current or future potential access to irrigation water required identification to further refine the Enterprise Suitability Mapping for the purposes of this project. It was important identified areas of potential access to irrigation water to adequately reflect the possible future potential of the land.

The area within Tasmania that has current or future potential access to irrigation water was mapped, as outlined in Table 3. This included the analysis of a number of datasets for existing irrigation or storage allocations, bores, and major watercourses, including:

- DPIPWE Water Information Management System data (WIMS);
- DPIPWE Hydrogeological Bore data;
- Tasmanian Irrigation – existing and planned irrigation schemes;
- DPIPWE Conservation of Freshwater Ecosystem Values (CFEV) data; and
- TasWater infrastructure data.

In general, there are three main limitations for land being able to access irrigation water. These are distance from the water source, elevation difference between the land and the water source, and the quantity of water available and that needed by the agricultural enterprise.

A conservative buffer of 3km was identified around existing allocations, functioning bores with a flow rate of 10L/sec, and major watercourses, taking into account the topography, to reflect maximum distances that may be economically viable to pump irrigation water. Existing and planned irrigation schemes as identified by Tasmanian Irrigation were also included as part of this analysis. TasWater infrastructure data was also acquired to ensure the mapped area included existing farm irrigation off-takes. The applied buffer area adequately covered all existing TasWater infrastructure currently in rural zones.

All areas currently within a rural zone on Flinders Island and King Island were mapped as potentially having access to irrigation water. Irrigation water is currently limited on both islands. However, their coastal climate, latitude and relatively small distances and elevation changes means there are potential opportunities for low water use irrigated agricultural enterprises across the breadth of the islands in the future.

The output area identified with potential access to irrigation water (Figure 2) was applied as a filter to the ES Clusters mapped in Step 2. Where an ES1, ES2 or ES3 Cluster fell outside the mapped potential irrigation area, the land was allocated a suitable lesser ES Cluster which is not reliant on access to irrigation water (e.g. ES4 or ES5).

Table 3 Potential Access to Irrigation Water Methodology

Dataset Used	*Data and Assumptions*
Water Information Management System (WIMS), DPIPWE	Current direct take and storage allocations for irrigation mapped. 3km buffer created as a conservative maximum distance deemed as economically viable to pump.
Hydrogeological Bore Data, DPIPWE	Functioning bores mapped with a flow rate of 10 L/s or higher (suitable for irrigation). 3km buffer created as a conservative maximum distance deemed as economically viable to pump.
Irrigation Schemes – Existing & Planned, Tasmanian Irrigation	Area included.
Conservation of Freshwater Ecosystem Values (CFEV)	Major Watercourses mapped. 3km buffer created as a conservative maximum distance deemed as economically viable to pump.
Contour (10m), the LIST	Elevation data used in assessment of potential access to water
TasWater infrastructure data	Current TasWater infrastructure data used to take into account of current farm irrigation off-takes.
Data combined, reviewed and edited by Senior Macquarie Franklin Water Resource consultants to practically reflect land that has potential access to water for irrigation now and in the future.	

2.2.4 Step 4 – Consideration of existing forestry land

Step 4 involved the analysis of existing forestry land to identify areas of broad-scale forestry production. The aim was to identify existing forestry land that may be of higher value for agriculture as a consequence of it being potentially suited to a greater range of agricultural enterprises. Such land is potentially suitable for the Agriculture Zone.

Broad-scale forestry production often occurs on land with limited potential for other agricultural uses. Forestry production generally has a longer lifespan than most other agricultural enterprises meaning the land is likely to remain under forestry use for at least the short to medium term.

The Rural Zone is considered appropriate for most land under broad-scale forestry production given many areas have limited suitability for a broader range of other agricultural uses. The Rural Zone provides for agricultural use, including plantation forestry, as a No Permit Required use and includes appropriate protection from land use conflicts. The Agriculture Zone is considered more appropriate for forestry land with potential for a range of other agricultural uses.

The identification of any existing forestry land within the Agriculture Zone does not suggest the land should be transferred to other agricultural enterprises. It instead identifies land that may be of higher value to agriculture due to its potential to support a greater range of agricultural enterprises.

A large proportion of forestry operations also fall outside the planning system. Forestry operations within State forests and on land declared as private timber reserves are not subject to the requirements of a planning scheme.

For the purposes of Step 4, the ES Cluster mapping was overlayed with land mapped as:

- plantation hardwood or plantation softwood in the 'Forest Group' mapping layer on the LIST; and
- under the authority of Forestry Tasmania in the 'Authority Land' mapping layer on the LIST, which included all land within the Permanent Timber Production Zone.

Areas where the ES Cluster mapping overlapped with any of the above mapped forestry land were further analysed. Forestry land was identified as potentially suitable for the Agriculture Zone if it overlapped with:

- areas mapped as either ES1, ES2 or ES3 Clusters; or
- the ES Cluster mapping and the land capability classification was in the range of 1 to 4.

No land currently within the Permanent Timber Production Zone was included in the final mapping data.

Table 4 Consideration of existing forestry land

Dataset Used	*Data and Assumptions*
Forest Group dataset, the LIST	Existing hardwood and softwood plantations mapped
Authority Land dataset, the LIST	Existing land under the authority of Forestry Tasmania, which includes all land within the Permanent Timber Production Zone.
Enterprise Suitability Clusters, Agricultural Land Mapping Project	Where overlap occurred with 'high value' Enterprise Suitability Clusters ES1-3, land included as potentially suitable for the Agriculture Zone.
Land Capability, 1:100,000, DPIPWE	Where overlap occurred with land capability Class 1-4, land included as potentially suitable for the Agriculture Zone.

The mapping produced through Steps 1 to 4 created the Potential Agricultural Land Initial Analysis mapping layer (Mapping Layer 1) in Figure 3.

Figure 1 Agricultural land mapping project study area

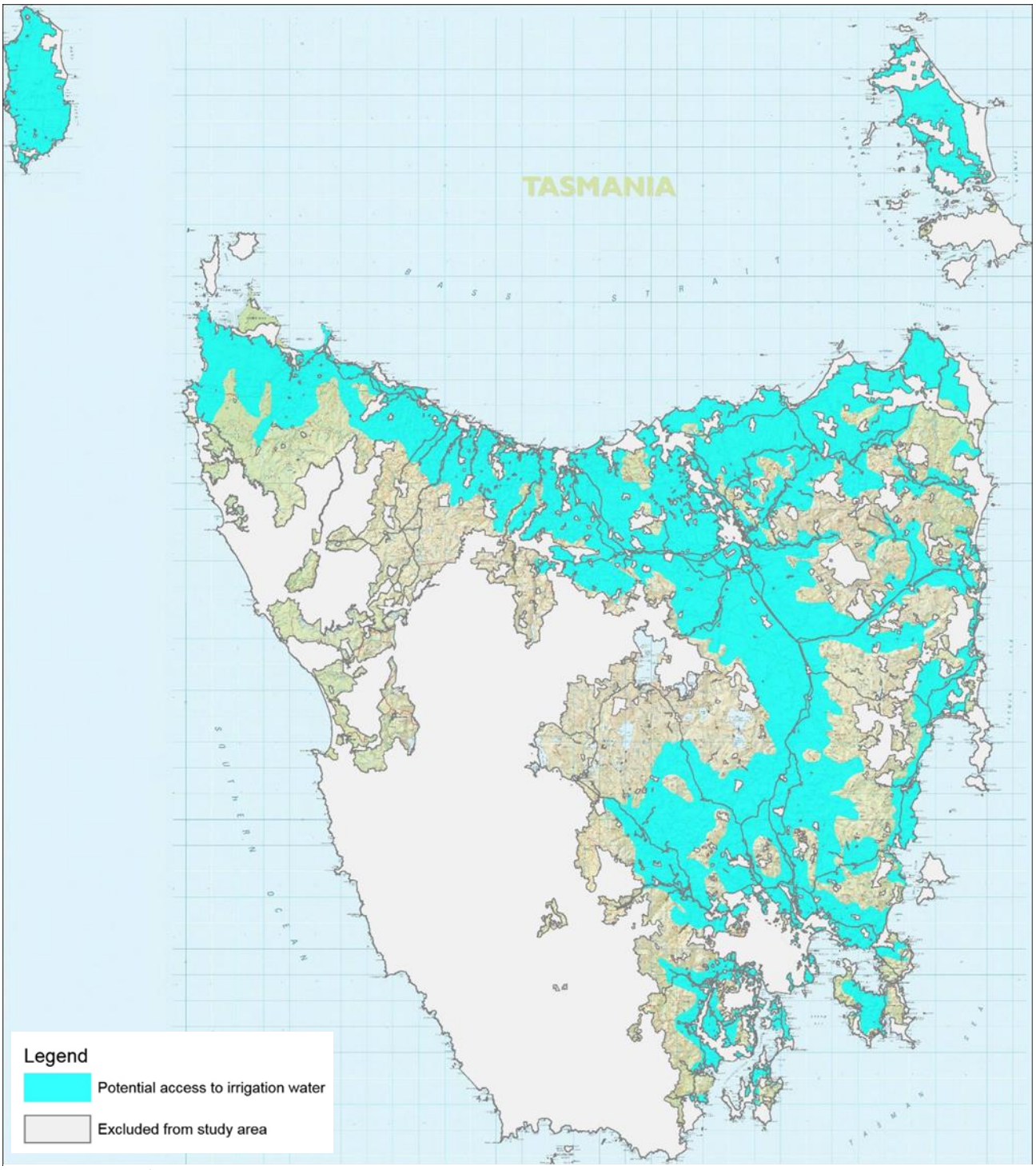


Figure 2 Potential access to irrigation water

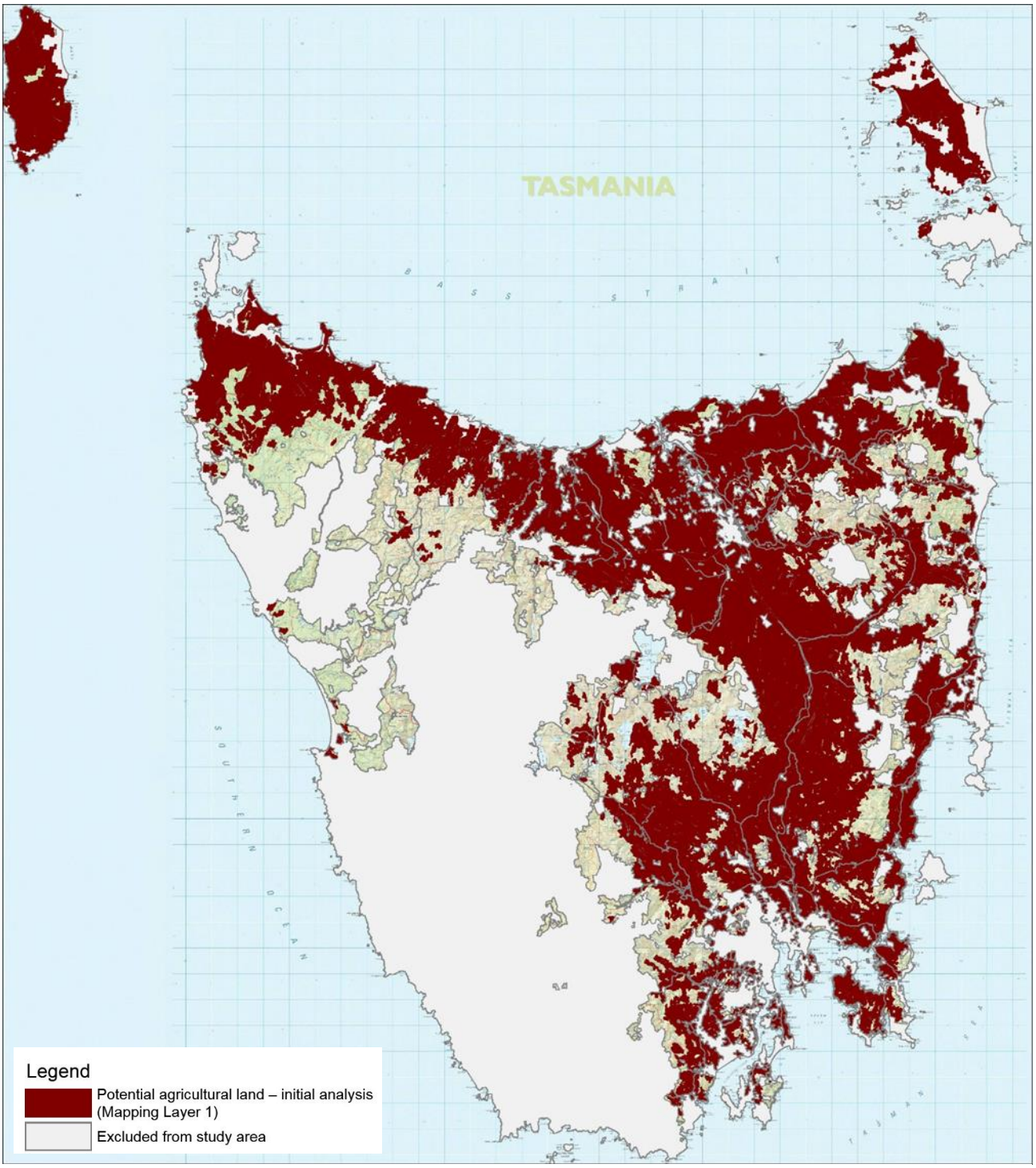


Figure 3 Potential agricultural land – initial analysis (Mapping Layer 1)

2.2.5 Step 5 – Allocation of potential agricultural land to cadastre

The initial analysis of potential agricultural land was allocated to cadastre data. Smoothing of the mapping was undertaken in an effort to refine data into a more user friendly planning tool by aligning the mapping to cadastre boundaries where appropriate. Where a title contained greater than 50% of land mapped in Mapping Layer 1, the entire title was mapped as potentially suitable for the Agricultural Zone. Titles with areas less than 50% mapped in Mapping Layer 1 were further analysed by Senior Agricultural Consultants for potential inclusion, taking into consideration the areas of mapped ES Clusters.

2.2.6 Step 6 – Potential constraints analysis

Step 6 involved an analysis of potential constraints for agricultural use on the titles mapped under Step 5. The analysis was undertaken to identify titles where agricultural use may be constrained due to the high capital value of the title, impact of isolation from other agricultural land, and the proximity of conflicting land use.

The potential constraints analysis was not meant to provide a comprehensive analysis of all factors that may contribute to constraining agricultural uses from occurring on the land. It is not possible to achieve this at a statewide level and many factors would be dependent on the agricultural enterprise, the characteristics of the operations, and the locational circumstances. It was also considered unnecessary to analyse all potential constraints for the purposes of developing a strategic planning mapping tool for the identification of the future agricultural potential of the land.

The potential constraints analysis did not exclude any titles from the mapping data. Instead the analysis aimed to highlight titles or areas that may require further investigation by local planning authorities in strategically applying the Agriculture Zone.

The constraints analysis may be useful for local planning authorities in identifying individual titles or clusters of titles where agricultural use may be significantly constrained. This aims to provide additional guidance on whether the land is suitable for the Agriculture Zone.

The mapping of titles as 'potentially constrained' does not in itself indicate or justify an alternate zoning to the Agriculture Zone for that title. Further investigation should be undertaken to determine its suitability.

The constraints analysis involved assessment against three criteria as outlined below and in Figure 4, with the approach of criteria 1 providing the first filter, criteria 2 the next and criteria 3 providing the final filter in identifying titles that may be constrained for agricultural use.

Criteria 1 – Is the title size a potential constraint for agricultural use?
A conservative approach was taken to identify minimum threshold title sizes that could potentially sustain a standalone agricultural enterprise. These were identified for each ES Cluster as shown in Figure 4.

The thresholds identified for Criteria 1 were determined by utilising models based on Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), DPIPWE gross margins,

DairyTas, and Holmes & Sackett data, and determining typical values for estimated value of agricultural operations (EVAO).

It is acknowledged there is a high degree of disagreement amongst experts on determining potential minimum areas that are able to sustain the various agricultural enterprises. The minimum areas will depend on a number of factors including the efficiencies of the operator, the type of agricultural enterprises, technology and markets. These factors will also change overtime. Farmers are also likely to incorporate a number of different agricultural or other enterprises in order to maintain a sustainable business. Nevertheless, it was considered important to establish a suitable indicator for titles requiring further analysis of potential constraints.

A title that is below the specified size threshold does not necessarily mean there are constraints to agriculture occurring on the title. Smaller titles are, and can be, used in a variety of ways for viable agricultural uses. The purpose of Criteria 1 is to narrow down the analysis to those titles that may be more susceptible to constraints.

Smaller titles have a greater potential to become unviable for agricultural use as a consequence of being more susceptible to constraints caused by isolation from other agricultural land or fettering by conflicting land uses. The agricultural use of some smaller titles may also be cost prohibitive if its capital value is excessive.

Criteria 1 provided the first filter in identifying titles that may be constrained for agricultural use. These titles were then considered against additional criteria to identify those that may be constrained by:

- economic barriers, in that the title is of higher capital value which may inhibit the land being purchased or used for agricultural purposes (Criteria 2A);
- physical barriers, in that the surrounding land is potentially unsuitable or unviable for agriculture (Criteria 2B); or
- land use conflicts created by proximity to residential development of adjoining land which causes agricultural use on the title to be confined or restrained (Criteria 3).

Criteria 2 – Are there potential constraints for the title being used or amalgamated with adjoining agricultural land?

Criteria 2 consisted of two components to further analyse the smaller titles identified in Criteria 1. Criteria 2A considered the capital value of the title and Criteria 2B considered the land surrounding the title.

For Criteria 2A, capital value data from the Valuer General was applied to the titles and a capital value per hectare was determined. Titles with a capital value greater than a conservative value of $50,000/ha was identified as a potential economic constraint for purchasing and amalgamating the land with neighbouring agricultural land.

Small titles with a high capital value per hectare can indicate that a high proportion of the value of the title relates to physical improvements such as buildings, structures and other fixtures. The high capital values can often indicate the presence of a dwelling on the title. The identification of such

titles can also indicate the presence of 'residential nodes', or clusters of smaller titles that are largely residential in nature with the current rural zones.

Titles with a capital value of greater than $50,000/ha were further considered against Criteria 3. Those with a capital value of less than $50,000/ha were considered against Criteria 2B.

For Criteria 2B, land surrounding the title was considered to determine whether the title was adjoining other agricultural land. Small titles may be compromised by having limited connectivity with other unconstrained agricultural land. Titles that were not adjoining a title above the Criteria 1 size thresholds or with a capital value of less than $50,000/ha were identified and considered against Criteria 3.

Criteria 3 – Is residential development potentially constraining agriculture land?

Criteria 3 identified whether any of the titles were adjoining:

- a current Interim Planning Scheme General Residential Zone, Low Density Residential Zone, Rural Living Zone or Village Zone; or
- a Residential Zone, Low Density Residential Zone, Rural Residential Zone or Village Zone under the *Flinders Planning Scheme 2000*.

This analysis further aimed to identify any potential constraints due to potential land use conflicts from adjoining residential development in designated residential zones in addition to any potential constraints identified in Criteria 2A or 2B. A 25m buffer was applied around the titles to compensate for any zoning anomalies, such as a zone boundary being aligned to the centre line of a road instead of the cadastre boundary. This was a common occurrence in Interim Planning Schemes where the zone boundary corresponded with a road.

The analysis against Criteria 3 did not include the consideration of any constraints caused by clusters of smaller titles (or 'residential nodes') within current rural zones. While such clusters may create land use conflicts, their impact can be difficult to analyse. Some of these titles may be owned or occupied in conjunction with surrounding farms. The potential impact differs to that potentially caused by proximity to a residential zone, as this land has been identified strategically for residential use and development and therefore has greater potential to impact on adjoining agricultural operations.

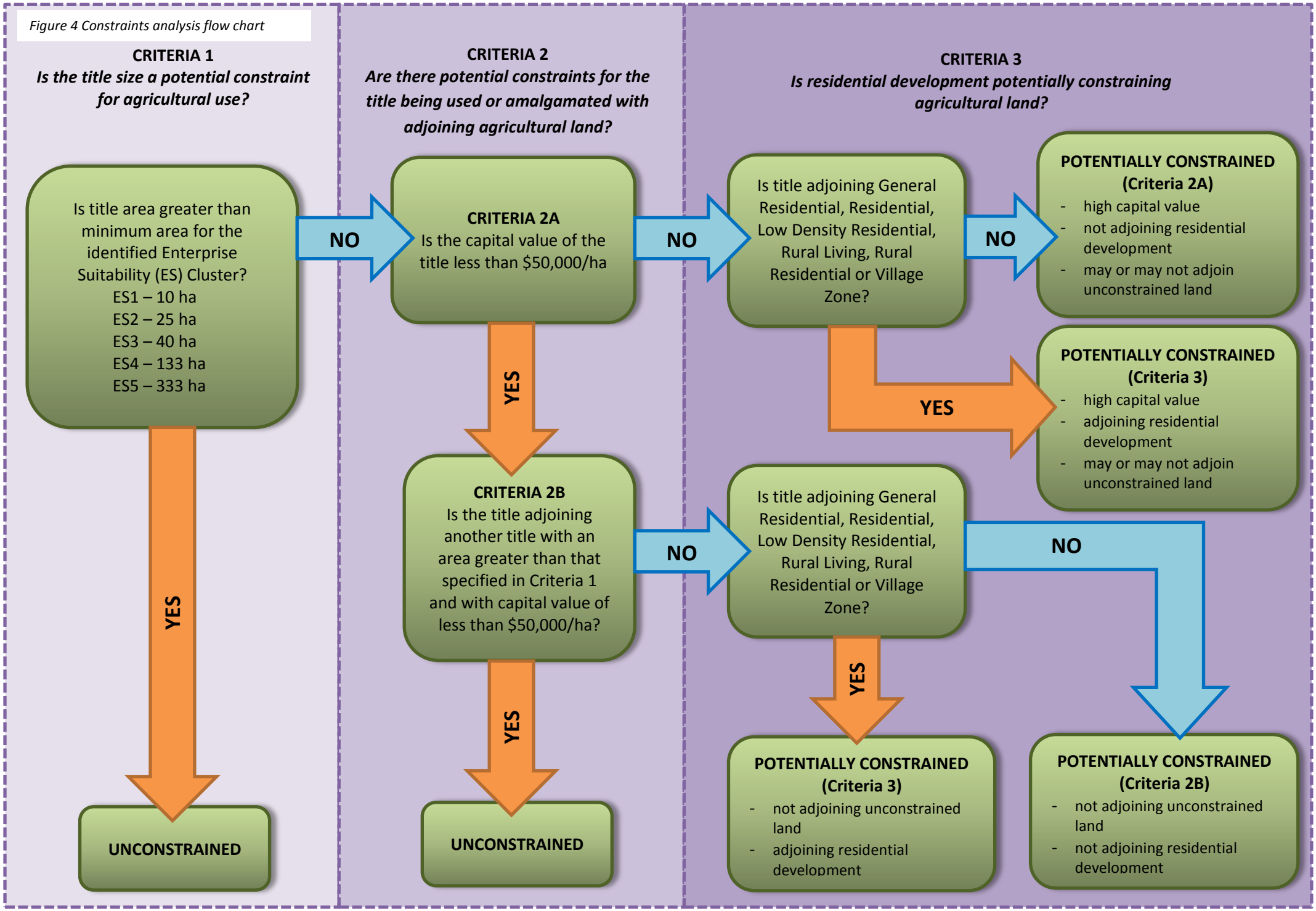
Analysis against all three criteria allocated the titles into four categories as per Table 5.

Table 5 Results on the constraints analysis

Unconstrained	*Potentially Constrained (Criteria 2A)*	*Potentially Constrained (Criteria 2B)*	*Potentially Constrained (Criteria 3)*
– an area greater than the Criteria 1 size thresholds; or – an area less than the Criteria 1 thresholds, but adjoining another title with an area greater than the Criteria 1 size thresholds and a capital value of less than $50,000/ha.	– an area less than the Criteria 1 size thresholds; – a capital value of greater than $50,000/ha; and – not adjoining a residential zone.	– an area less than the Criteria 1 size thresholds; – a capital value of less than $50,000/ha; – not adjoining a title with an area greater than the Criteria 1 size thresholds; and – not adjoining a residential zone.	– an area less than the Criteria 1 size thresholds; – a capital value of less than $50,000/ha, or not adjoining a title with an area greater than the Criteria 1 size thresholds; and – adjoining a residential zone.

The constraints analysis, in conjunction with the mapping produced in the preceding steps, produced the Land Potentially Suitable for Agriculture Zone mapping layer (Mapping Layer 2) (Figure 5 and Figure 6).

Figure 4 Constraints analysis flow chart



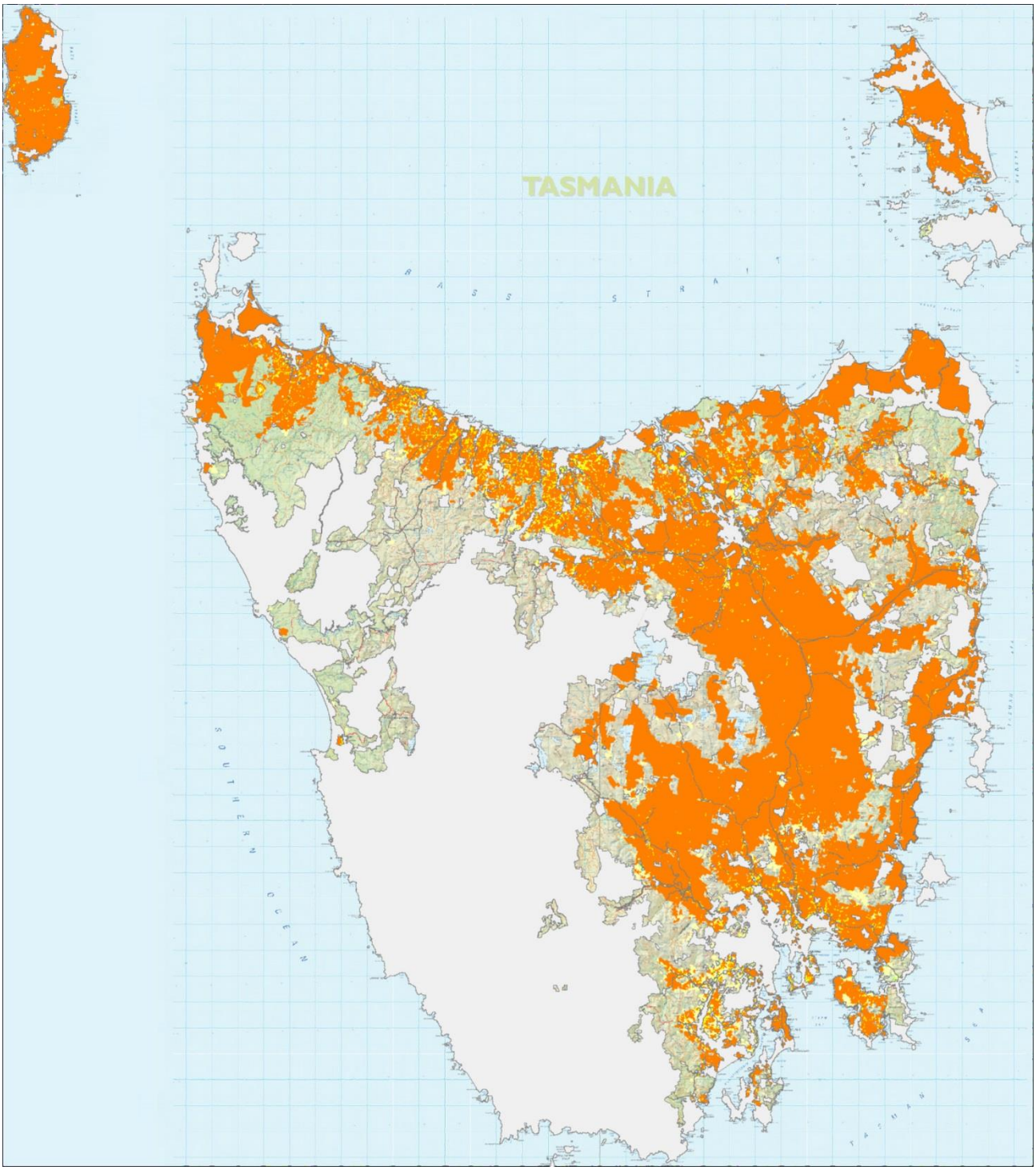


Figure 5 Land potentially suitable for the Agriculture Zone (Mapping Layer 2)

1

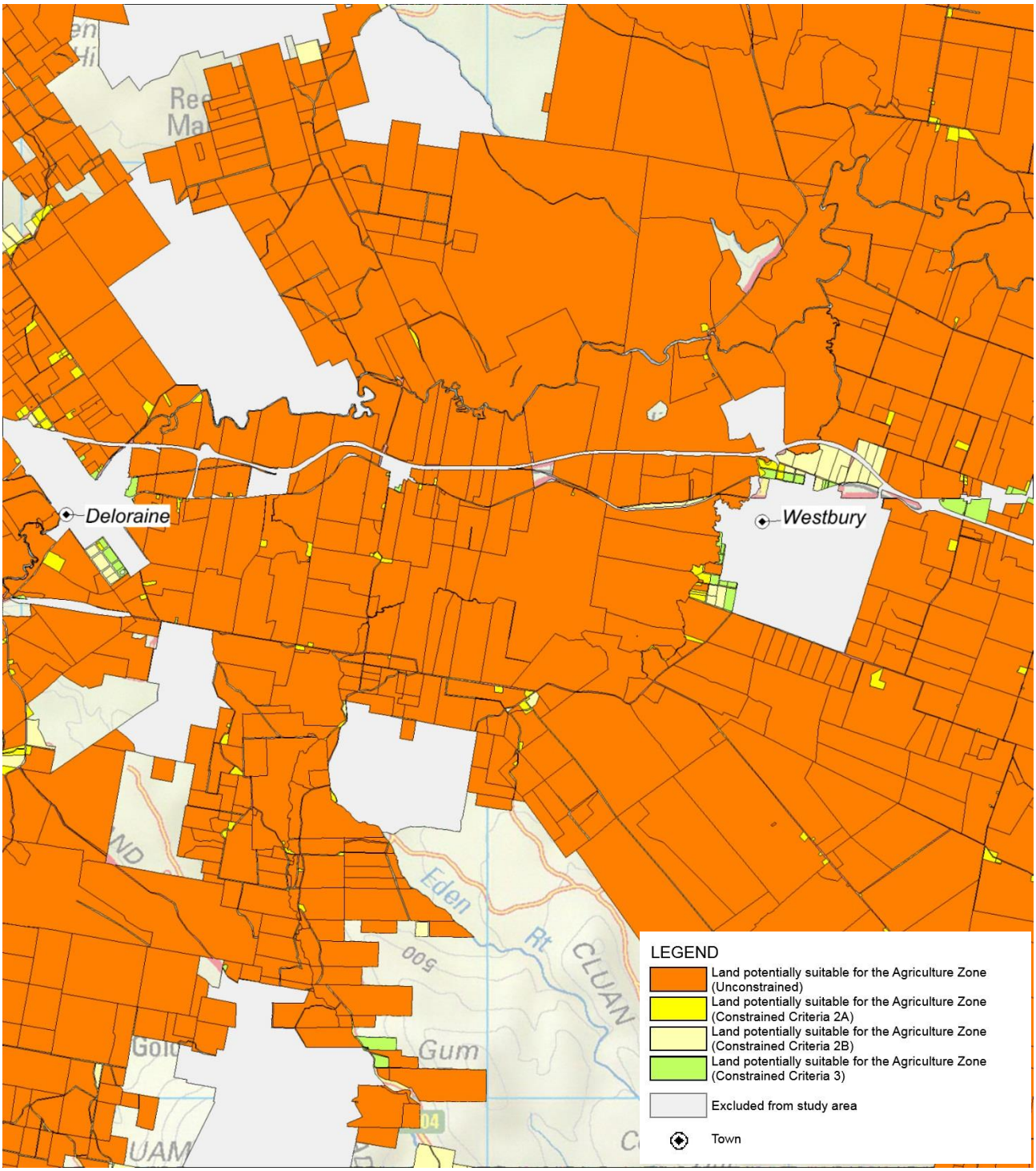


Figure 6 Distribution of land potentially suitable for the Agriculture Zone (Mapping Layer 2) within northern region between Deloraine and Westbury

3.0 Agricultural Land Mapping Data

3.1 What mapping has been produced from the project?

The Agricultural Land Mapping Project has produced two mapping layers that are available on the Land Information System Tasmania's website (the LIST). These mapping layers are:

1. **Potential Agricultural Land Initial Analysis (Mapping Layer 1)**
   This represents the land identified and mapped through the initial analysis up to Step 4 in the above methodology. A total of 21,781 square km has been mapped as potential agricultural land as part of the initial analysis.

2. **Land Potentially Suitable for Agriculture Zone (Mapping Layer 2)**
   This represents the refined mapping produced through all steps in the methodology and includes the titles mapped as part of the constraints analysis in Step 6. This layer includes:
   - Unconstrained agricultural land - 20,164 square km
   - Potentially Constrained agricultural land (Criteria 2A) - 245 square km
   - Potentially Constrained agricultural land (Criteria 2B) – 689 square km
   - Potentially Constrained (Criteria 3) - 107 square km

3.2 How should the mapping be used?

The mapping is to be used by local planning authorities as a guide for the spatial application of the Agriculture Zone through their Local Provisions Schedules. The mapping may also provide guidance to the Tasmanian Planning Commission in assessing the spatial application of the Agriculture Zone in the draft Local Provisions Schedules prepared by planning authorities.

Despite the sophisticated methodology, the mapping is not intended to be a definitive strategic land use planning tool as it is predominantly a desktop analysis and has only focussed on assessing the agricultural potential of the land. Local planning authorities will need to utilise this data in conjunction with a range of other data sets and information sources in making strategic land use planning decisions about some of the areas identified.

The following guidelines should be considered in using the mapping to apply the Agriculture Zone in the Local Provisions Schedules:

1. The spatial application of the Agriculture Zone should be based on the land identified in the Land Potentially Suitable for Agriculture Zone mapping layer while also having regard to:

   (a) any agricultural land analysis or mapping undertaken at a local or regional level for part of the municipal area which:

      (i) incorporates more recent or detailed analysis or mapping;

      (ii) better aligns with on-ground features; or

      (iii) addresses any anomalies or inaccuracies in the Land Potentially Suitable for Agriculture Zone mapping layer, and

where appropriate, may be demonstrated in a report by a suitably qualified person, and is consistent with the relevant regional land use strategy, or supported by more detailed local strategic analysis consistent with the relevant regional land use strategy and endorsed by the relevant council;

(b) any other relevant data sets published on the LIST; and

(c) any other strategic planning undertaken at a local or regional level consistent with the relevant regional land use strategy, or supported by more detailed local strategic analysis consistent with the relevant regional land use strategy and endorsed by the relevant council.

2. Land within an interim planning scheme Significant Agriculture Zone should be included in the Agriculture Zone considered for an alternate zoning under 6.

3. Titles highlighted as Potentially Constrained Criteria 2A, 2B or 3 may require further investigation as to their suitability for inclusion within the Agriculture Zone, having regard to:

(a) existing land uses on the title and surrounding land;

(b) whether the title is isolated from other agricultural land;

(c) current ownership and whether the land is utilised in conjunction with other agricultural land;

(d) the agricultural potential of the land; and

(e) any analysis or mapping undertaken at a local or regional level consistent with the relevant regional land use strategy, or supported by more detailed local strategic analysis consistent with the relevant regional land use strategy and endorsed by the relevant council.

4. The Potential Agricultural Land Initial Analysis mapping layer may assist in making judgements on the spatial application of Agriculture Zone, including, but not limited to:

(a) any titles that have or have not been included in the Land Potential Suitable for the Agriculture Zone mapping layer, including titles that are surrounded by land mapped as part of the layer;

(b) any titles highlighted as Potentially Constrained Criteria 2A, 2B or 3;

(c) outlying titles that are either included or excluded within the Land Potential Suitable for the Agriculture Zone mapping layer; and

(d) larger titles or those with extensive areas of native vegetation cover.

5. Titles may be split-zoned to align with areas potentially suitable for agriculture or where agriculture is constrained. This may be appropriate for some larger titles.

6. Land identified in the Land Potentially Suitable for Agriculture Zone mapping layer may be considered for alternate zoning if:

    (a) local or regional strategic analysis has identified or justifies the need for an alternate zoning consistent with the relevant regional land use strategy, or supported by more detailed local strategic analysis consistent with the relevant regional land use strategy and endorsed by the relevant council;

    (b) for the identification and protection of a strategically important naturally occurring resource which require an alternate zoning;

    (c) for the identification and protection of significant natural values which require an alternate zoning;

    (d) for the identification, provision or protection of strategically important uses that require an alternate zone; or

    (e) it can be demonstrated that:

        (i) the land has limited or no potential for agricultural use and is not integral to the management of a larger farm holding that will be within the Agriculture Zone;

        (ii) there are significant constraints to agricultural use occurring on the land; or

        (iii) the Agriculture Zone is otherwise not appropriate for the land.

7. Land not identified in the Land Potentially Suitable for Agriculture Zone mapping layer may be considered for inclusion within the Agriculture Zone if:

    (a) local or regional strategic analysis has identified the land as appropriate for the Agriculture Zone consistent with the relevant regional land use strategy, or supported by more detailed local strategic analysis consistent with the relevant regional land use strategy and endorsed by the relevant council;

    (b) the land has similar characteristics to land mapped as suitable for the Agriculture Zone or forms part of a larger area of land used in conjunction with land mapped as suitable for the Agriculture Zone;

    (c) it can be demonstrated that the Agriculture Zone is appropriate for the land based on its significance for agricultural use; or

    (d) it addresses any anomalies or inaccuracies in the Land Potentially Suitable for Agriculture Zone mapping layer, and

    having regard to the extent of the land identified in the Potential Agricultural Land Initial Analysis mapping layer.