

Richmond Valley Development Control Plan 2021



Part H Natural Resources and Hazards

This DCP applies to all land within the Richmond Valley Local Government Area.

Date adopted by Council:
22/06/2021

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01/08/2021

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This is a subject based Part relating to natural hazards and natural resources and sensitivities provided for within the *Richmond Valley Local Environmental Plan 2012*.

It provides more detailed information to assist applicants address the requirements contained within the LEP in the preparation of the development application.

There are a range of other environmental and hazard requirements that may apply to a site under other legislation or environmental planning instruments, including bush fire, koala habitat, contaminated lands and coastal management. These matters are not addressed in the DCP.

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Richmond Valley Development Control Plan 2021



Part H-1

Flood Planning

This DCP applies to all land within the Richmond Valley Local Government Area.

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This Chapter provides guidance for development of land below the Flood Planning Level and should be read in conjunction with the *NSW Floodplain Development Manual* and Council's adopted *Floodplain Risk Management Plan(s)*.

H-1.1 General Objectives

The general objectives of this Chapter are to:

- (1) align flood planning with the NSW Government's Floodplain Policy.
- (2) explain the relevance of the adopted Flood Planning Level.
- (3) call up Flood Planning Development Controls from Council's *Floodplain Risk Management Plans*, which adopt a flood planning approach taking into account social and environmental considerations alongside economic benefits to reach the most objective balance.
- (4) explain the adopted floodplain risk hazard categories and encourage suitable development compatible with flood hazard.
- (5) make allowances for alterations to existing development, or on compassionate grounds such as when a building has been lost to fire or storm.

H-1.2 Floodplain Risk Management Plans

Objectives

- (a) to explain the flood risk categories adopted by Council's *Floodplain Risk Management Plan(s)*.
- (b) to recognise the 1 in 100 year (1% AEP) ARI design flood (including climate change) for appropriate flood planning development controls.
- (c) explain the probability of the various design flood events occurring.

Controls

- (1) Council has ~~se~~ 2 adopted *Floodplain Risk Management Plans*, one each for of Casino and the Mid-Richmond.
- (2) These Plans have modelled a number of design floods ranging from a 1 in 20 year (including climate change) event to the Probable Maximum Flood (PMF). The models have been calibrated for each event frequency, based upon anecdotal and recorded information, to improve their resilience.
- (3) The *NSW Floodplain Development Manual* advocates a ~~merits~~ merit based approach to selection of appropriate flood planning levels (FPLs) recognising the need to consider the full range of flood sizes, up to and including the PMF, and the corresponding risks associated with each flood. With few exceptions, it recognises that it is neither feasible nor socially or economically justifiable to adopt the PMF as the basis for flood planning. Council's Flood Plain Risk Management Plans retain the NSW 1 in 100 year ARI (1% AEP) design flood (including climate change) as the reference flood for planning purposes, except for more critical development in accordance with the adopted *Matrix of Development Type v Flood Hazard Category*.

Note. A 1 in 100 year ARI flood event may also be referred to as a 1% AEP flood (including climate change)—measured as having a 1% probability of occurring or being exceeded in any single year.

Part H-1 Flood Planning

Other flood design levels often cited are 1 in 20 year (or 5% Flood), 1 in 50 year (or 2% Flood), 1 in 500 year (or 0.2% Flood), and PMF (the ultimate flood event that can occur).

- (5) The Risk Plans also reference Floodplain Hazard Categories. These are tools for assessing the suitability and minimum requirements for development based on a combination of depth (D) and velocity (V). These categories are:
- (a) **High Floodway Hazard (HFH)** - based on a 100 year (1% AEP including climate change) design flood – Flow paths that carry significant volumes of flood water during a 100 year flood. Danger to life and limb, evacuation difficult, potential for structural damage, high social disruption, and economic losses.
 $V > 2\text{m/s}$ or $V \times D > 1$ [for $D > 1\text{m}$] or $D + (0.3 \times V) > 1$ [for $V > 1\text{m/s}$]
 - (b) **High Depth Hazard (HDH)** - based on a 100 year (1% AEP including climate change) design flood – Area where floodwaters are deep but are not flowing with high velocity.
 $V < 1\text{m/s}$ and $V \times D < 1$ or $D + (0.3 \times V) > 1$
 - (c) **High Isolation Hazard (HIH)** - based on a 100 year (1% AEP including climate change) design flood – As per High Depth but with no easy access to safe refuge (ie more than 500m to high ground)
 - (d) **Possible High Depth Hazard (HFH) or Low Hazard (LH)** - based on a 100 year (1% AEP including climate change) design flood – Insufficient ground level information. Final category dependent on the exact ground levels at the particular site.
 - (e) **Low Hazard (LH)** - based on a 100 year (1% AEP including climate change) design flood – Flood depths and velocities are sufficiently low that people and their possessions can be evacuated. ~~- based on a~~
 - (f) **Rare Low Hazard (RLH)** – based on PMF - Any land that is inundated in the PMF event and has not been assigned one of the other hazard categories. These areas are generally above the 100 year (1% AEP including climate change) design flood.
 - (g) **Rare High Floodway Hazard (RHFH)** - based on 500 year (0.2% AEP including climate change) design flood - Flow paths that carry significant volumes of flood water during a 500 year design flood.
 These areas may or may not be affected by the 100 year (1% AEP including climate change) design flood. Danger to life and limb, evacuation difficult, potential for structural damage, high social disruption, and economic losses. $V > 2\text{m/s}$ or $V \times D > 1$ [for $D > 1\text{m}$] or $D + (0.3 \times V) > 1$ [for $V > 1\text{m/s}$]

H-1.3 Flood Planning Level

Objectives

- (a) ~~To~~ explain the Flood Planning Level.

Controls

Part H-1 Flood Planning

- (1) Council's *Floodplain Risk Management Plans* have adopted the 1 in 100 year ARI flood (1% AEP including climate change) event to be most appropriate for flood planning.
- (2) The *Richmond Valley LEP 2012* (clause 6.5) adopts the 1 in 100 year ARI flood event from the Risk Plans, plus a 500mm freeboard for residential development, as the *Flood Planning Level (FPL)*.
- (3) All development at or below the FPL must take into account flood hazards in the area, thereby reducing the risk to life and lowering the health, social, and psychological trauma associated with flooding, and greatly reducing property damage. Additional requirements exist for more critical development.

H-1.4 Flood Planning Controls for development

Objectives

- (a) ~~To~~ adopt appropriate flood planning controls from the *Floodplain Risk Management Plans*, where applicable.
- (b) ~~Allow~~ some flexibility in the flood planning controls, without compromising the safety of residents and the community, for minor extensions or where there are compassionate grounds.

Controls

- (1) Council's *Floodplain Risk Management Plans* adopt various flood development control requirements. The Risk Plans should be the primary source of appropriate development controls, however, some have been reproduced below.
- (2) **Residential development**
 - (a) The floor level of habitable rooms ~~are~~ to be erected above the Flood Planning Level.
 - (b) No new residential development is permitted where the flood depth of a 1 in 100 year ARI flood (1% AEP including climate change) event is >2 metres.
 - (c) Some exceptions will be permitted for minor extensions to existing dwellings, or on compassionate grounds, such as where an existing dwelling must be rebuilt after it has been damaged.
- (3) **Commercial & Industrial Development**
 - (a) Areas within the *Mid Richmond Floodplain Risk Management Plan* are required to have floor levels located above a 1 in 20 year ARI flood level (5% AEP including climate change). A storage area with a floor level greater than or equal to the ~~the~~ 1 in 100 year ARI flood level (1% AEP including climate change) is to be provided for stock/equipment subject to water damage.
 - (b) Areas within the *Casino Floodplain Risk Management Plan* are ~~requirement~~ required to have floor levels located above the 1 in 100 year ARI flood level (1% AEP including climate change).

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If the development located within the RJP sub-precincts includes storage of hazardous materials, it must have a storage area that is located above the 1 in 100 year flood event plus appropriate Risk-Based Freeboard (RBF) flood level or an approved plan of management.

- (c) A combination of design, flood level and freeboard will be used to determine the suitability of development through consultation of the Risk Plans.
- (4) **Other Development**
 - (a) A combination of design, flood level and freeboard will be used to determine the suitability of development through consultation of the Risk Plans.

H-1.5 Flood information

Objectives

- (a) ~~To~~ ensure that flood information is freely available to the community.

Design Criteria

- (1) Flood information relevant to individual properties, based upon contemporary design flood modelling, is available free of charge from Council. These models extend along the length of the Richmond River from just north of Casino to below Broadwater and include parts of the lower Bungawalbin Creek and the Evans River to the ocean discharge.
- (2) For localities outside a modelled area, the proponent of a development may be required to predict the flood planning level by conducting a localised flood assessment, utilising anecdotal evidence of past flood heights and consequences.

A registered Surveyor must be used to establish the level of flooding over the land and issue a Compliance Certificate along with details of the source of the flood information, and the height of natural ground level, the flood level and finished floor level for the building site. In addition, a diagram shall be provided identifying the location of the building site and any other relevant information such as location of ~~bench marks~~ benchmarks used to source the flood information.

Richmond Valley Development Control Plan 2021



Part H-2

Acid Sulfate Soils

This DCP applies to all land within the Richmond Valley Local Government Area.

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Acid Sulfate Soils (ASS) occur in low lying coastal areas of the LGA that are subject to occasional flooding and high water tables. The soils are usually buried below alluvial sediments, of variable depth, so the ASS may be found close to the surface or several metres deep.

If left undisturbed these soils are relatively harmless, however, when exposed to air, by excavation or dewatering, the oxygen reacts with pyrite in the soil to produce sulfuric acid.

Sulfuric acid has the potential to dissolve metals, such as iron and aluminium, from the soil. When ground water carrying these metals is discharged into waterways the metals can be concentrated to toxic levels. Acid water also corrodes concrete and aluminium, rusts steel, kills water bugs, and causes disease in fish. Acidic waterways may be crystal clear, cloudy white, yellow, orange or blue/green (the colours generally representing flocculation of concentrated minerals and/or metals that have been leached from the adjoining soils). The bed and banks of these waterways may also have an orange (iron) floc, black ooze, or green copper coloured appearance.

Black ooze (monosulfidic black ooze) forms in some waterways and when disturbed contribute to deoxygenation and fish kills.

Acidic soils become infertile because their nutrients are unavailable to plants, and toxic concentrations of metals may stunt or kill plants.

In appearance the soils can range from black gel, to a dull grey clay, to grey sands and peat, and may contain yellow or orange streaks.

Acid tolerant species, such as sedges, rushes or paperbarks, are indicative vegetation types for these soils. However, in extreme situations the soil could be scalded bare, with a red, orange or yellow colouration.

H-3.12.1 General Objectives

The general objectives of this Chapter are:

- (1) to identify what are acid sulfate soils.
- (2) explain the provisions of *Richmond Valley LEP 2012* Clause 6.1 Acid Sulfate Soils, and the Acid Sulfate Soils Map.
- (3) to ensure effective management of areas affected by acid sulfate soils.
- (4) provide guidance to landowners, consultants and the general community on the procedures involved in the management of areas affected by acid sulfate soils.
- (5) to outline the preliminary assessment process for acid sulfate soils.
- (6) to assist with the preparation of an acid sulfate soil management plan, which is necessary when the nature of development poses an acid sulfate soil risk.

H-3.22.2 Acid Sulfate Soils Map

Objectives

- (a) ~~To~~ reference the acid sulfate soils map and outline each of the 5 classes depicted.

Design Criteria

- (1) *Clause 6.1 Acid Sulfate Soils Map* calls upon the *Acid Sulfate Soils Map*.
- (2) This map represents the predicted location and likely depth of acid sulfate soil in the Richmond Valley Council area. It was derived from the *NSW Acid Sulfate Soils Risk Maps*, that were produced by the NSW Soil Conservation Service in June 1995, by removing reference to probability.
- (3) The map identifies 5 classes of acid sulfate soil, see figure H-3.1-
 - Class 1 – representing the bed of creeks and rivers where acid sulfate soil is likely.
 - Class 2 – representing where acid sulfate soils may be present at or below the natural ground surface.
 - Class 3 – representing where acid sulfate soils may be present from and below a metre of the nature ground surface.
 - Class 4 – representing where acid sulfate soils may be present from and below 2 metres of the nature ground surface.
 - Class 5 – representing a 500 metre buffer to classes 1, 2, 3 & 4. This class is not expected to have acid sulfate soil present but works in this area must avoid lowering the watertable of an adjoining class.

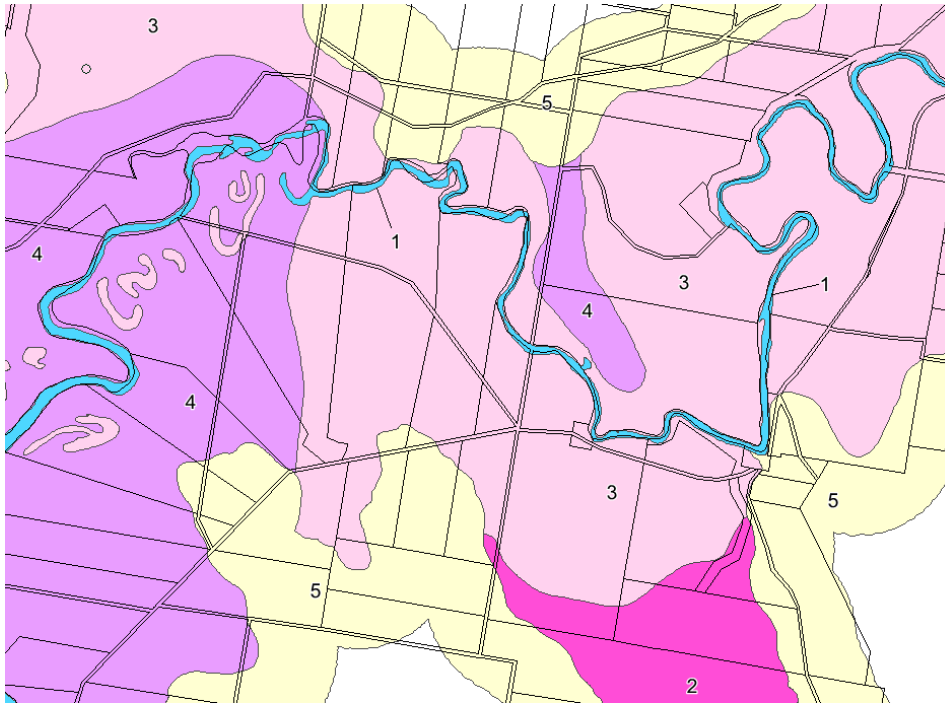


Figure H-3.12.1 Extract from the Acid Sulfate Soils Map showing the 5 classes.

H-3.32.3 Development Consent Required for Work

Objectives

- (a) **To** explain the workings of clause 6.1 of the *Richmond Valley LEP 2012* and when development consent is required for works.
- (b) **To** give an overview of the development application process when acid sulfate soils are involved.
- (c) **To** itemise the requirements of an acid sulfate soils assessment and for drainage management plans.

Design Criteria

(1) Works that require development consent

- (a) *Clause 6.1 Acid Sulfate Soils* requires development consent for works that are likely to expose acid sulfate soil.
- (b) The Table to clause 6.1 indicates when works will require consent in each of the 5 classes. **E.g.** Work in Class 3 will be required where they extend over 1 metre below the natural ground surface, or would lower the watertable beyond a 1 metre below the natural ground surface.

Note. Development consent in accordance with the land use tables of the particular zone may still be required even if the Acid Sulfate Soils provisions do not require consent.

- (c) The onus is on the landowner, contractor and proponent proposing any works to check which class(es) of acid sulfate soil may apply to the land and whether a development application, or preliminary soil assessment, is required.

Extract from *Richmond Valley Local Environmental Plan 2012*

Clause 6.1 Acid sulfate soils

- (1) The objective of this clause is to ensure that development does not disturb, expose or drain acid sulfate soils and cause environmental damage.
- (2) Development consent is required for the carrying out of works described in the Table to this subclause on land shown on the Acid Sulfate Soils Map as being of the class specified for those works.

Class of land	Works
1	Any works
2	Works below the natural ground surface. Works by which the watertable is likely to be lowered.
3	Works more than 1 metre below the natural ground surface. Works by which the watertable is likely to be lowered more than 1 metre below the natural ground surface.
4	Works more than 2 metres below the natural ground surface. Works by which the watertable is likely to be lowered more than 2 metres below the natural ground surface.
5	Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.

- (3) Development consent must not be granted under this clause for the carrying out of works unless an acid sulfate soils management plan has been prepared for the proposed works in accordance with the Acid Sulfate Soils Manual and has been provided to the consent authority.
- (4) Despite subclause (2), development consent is not required under this clause for the carrying out of works if:
 - (a) a preliminary assessment of the proposed works prepared in accordance with the Acid Sulfate Soils Manual indicates that an acid sulfate soils management plan is -required the works, and
 - (b) the preliminary assessment has been provided to the consent authority and the consent authority has confirmed the assessment by notice in writing to the person proposing to carry out the works.
- (5) Despite subclause (2), development consent is not required under this clause for the carrying out of any of the following works by a public authority (including ancillary work such as excavation, construction of access ways or the supply of power):
 - (a) emergency work, being the repair or replacement of the works of the public authority required to be carried out urgently because the works have been damaged, have ceased to function or pose a risk to the environment or to public health and safety,
 - (b) routine management work, being the periodic inspection, cleaning, repair or replacement of the works of the public authority (other than work that involves the disturbance of more than 1 tonne of soil),
 - (c) minor work, being work that costs less than \$20,000 (other than drainage work).
- (6) Despite subclause (2), development consent is not required under this clause to carry out any works if:
 - (a) the works involve the disturbance of less than 1 tonne of soil, such as occurs in carrying out agriculture, the construction or maintenance of drains, extractive industries, dredging, the construction of artificial water bodies (including canals, dams and detention basins) or foundations or flood mitigation works, or
 - (b) the works are not likely to lower the watertable.
- (7) Despite subclause (2), development consent is not required under this clause for the carrying out of works for the purpose of agriculture if:
 - (a) a production area entitlement is n force in respect of the land when the works are carried out, and
 - (b) the works are carried out in accordance with a drainage management plan, and
 - (c) the works are not carried out in respect of a major drain identified on the Acid Sulfate Soils Map, and
 - (d) the works are not carried out on land in Zone E2 Environmental Conservation or on land to which *State Environmental Planning Policy No 14—Coastal Wetlands* applies.
- (8) In this clause:
 - drainage management plan** means an irrigation and drainage management plan that:
 - (a) has been prepared in accordance with the *NSW Sugar Industry Best Practice Guidelines for Acid Sulfate Soils (2005)*, and

- (b) specifies the management practices to be adopted, to avoid or minimise an acid hazard on the land, and
- (c) provides information about:
 - (i) the depth, location and nature of acid sulfate soils on the land, and
 - (ii) the location and dimensions of existing, new and redesigned drains on the land, and
 - (iii) the nature of any earth moving activities to be carried out on the land, such as laser levelling, construction or enlargement of dams, and
- (d) is endorsed by the Sugar Milling Cooperative as being appropriate for the land.

NSW Sugar Industry Best Practice Guidelines for Acid Sulfate Soils (2005) means guidelines approved by the Director-General of the Department of Infrastructure, Planning and Natural Resources on 25 May 2005.

production area entitlement means a contractual arrangement between the Sugar Milling Cooperative and a grower member of that Cooperative for the production of sugar cane for milling.

Sugar Milling Co-operative means the New South Wales Sugar Milling Co-operative Limited (ACN 051 052 209) or its successor.

Note. The *NSW Sugar Industry Best Practice Guidelines for Acid Sulfate Soils (2005)* is available on the Department of Planning and Environment's website.

(2) Development Application Procedures

- (a) Figure H-3.2 provides a flow-diagram outlining the general procedure landowners, applicants and proponents will need to follow when proposing to undertake certain works within land classes 1 - 5 on the Acid Sulfate Soil Map.
- (b) During the preparation of a soil assessment or management plan, applicants are advised to liaise with the local offices of the:
 - Department of Primary Industries [and Regional Development](#) (Agriculture and Fisheries), and
 - Environment Protection Authority (Pollution).
- (c) Applications accompanied by copies of correspondence from the above agencies, which provide comments on the Soil Assessment or Management Plan, will be determined by Council more expeditiously than those applications not providing this information. Applications, not accompanied by relevant advice, will be referred to the relevant Departments for comment prior to consideration by Council.

(3) Soils Assessment and/or Soil Management Plan

- (a) Development applications triggering assessment under clause 6.1 must be accompanied by a preliminary soils assessment, and/or soil management plan.
- (b) A preliminary soils assessment must be prepared by a suitably qualified person. The assessment must include matters outlined in the *Acid Sulfate Soil Manual*. As illustrated in Figure H3.3, an Applicant has an opportunity to assume the proposed development site contains Acid Sulfate Soil. This will by-pass the need to undertake a preliminary soils assessment, however, it will still necessitate a soil management plan to be prepared.

(4) Drainage Management Plans

- (a) Where a property contains a series of drains or works that would require development consent for each individual section, the owner is encouraged to submit a drainage management plan for the whole property. This plan would form part of the development application. Such a management

plan would cover all the drains on that specific property, including their maintenance and rehabilitation details, as needed.

- (b) Council encourages this approach by landowners as it promotes better overall management and provides Council with a more complete overview of the location, ongoing maintenance and interaction of such drains.
- (c) A property owner who has prepared a drainage management plan may also enter into a joint application with adjoining property owners, however, the applicant should be aware that in the case of a joint development consent any amendment to the drainage management plan would require the written support of each landowner involved in the consent.

(5) Determination by Council

- (a) Where development consent is granted for drainage work, no further development consent will be required to maintain those works provided the ongoing maintenance and management is carried out in accordance with the terms and conditions of the consent.
- (b) An applicant working under a drainage management plan is encouraged to contact Council if there is any question as to the terms and conditions of consent. New owners of land should also contact Council regarding the terms and conditions of any development consent issued by Council and applying to the property. When a property is bought or sold the consent stays with the land and the new owner must comply with the terms of the consent.

(6) Consultation

- (a) As stipulated in Section H3.4, proponents, applicants and developers are advised to consult with the following government agencies when preparing a soil assessments or soil management plan.
- (b) When considering a development application, Council shall consult with:
 - the Environment Protection Authority—where a management plan is submitted (unless advice is supplied that indicates the EPA is satisfied with the Management Plan)
 - Department of Primary Industries [and Regional Development](#) (Agriculture)—where the development specifically relates to agricultural purposes which involves enhancing and/or maintaining agricultural production
 - Department of Primary Industries [and Regional Development](#) (Fisheries)—as integrated development where it involves runoff into a Key Fish Habitat
- (c) The matters on which the Departments shall be consulted are the adequacy of the soil assessment and/or management plan, the conclusions of those assessments and in the case of the Department of Primary Industries (Agriculture), its likely impact on the agricultural production.

Part H-2 Acid Sulfate Soils

- (d) Council shall give Government agencies 21 days to respond to the consultation. If no response is forthcoming within that period Council may proceed to finalise assessment of the application. It should be noted that major applications may take longer than 21 days for a response from Government agencies. Minor applications may, at Council's discretion, be dealt with without consultation.
- (e) In deciding whether to grant consent to the application, Council shall take into consideration the likelihood of the development resulting in the oxidation of acid sulfate soils and the adequacy of any management plan having regard to any government department's comments.

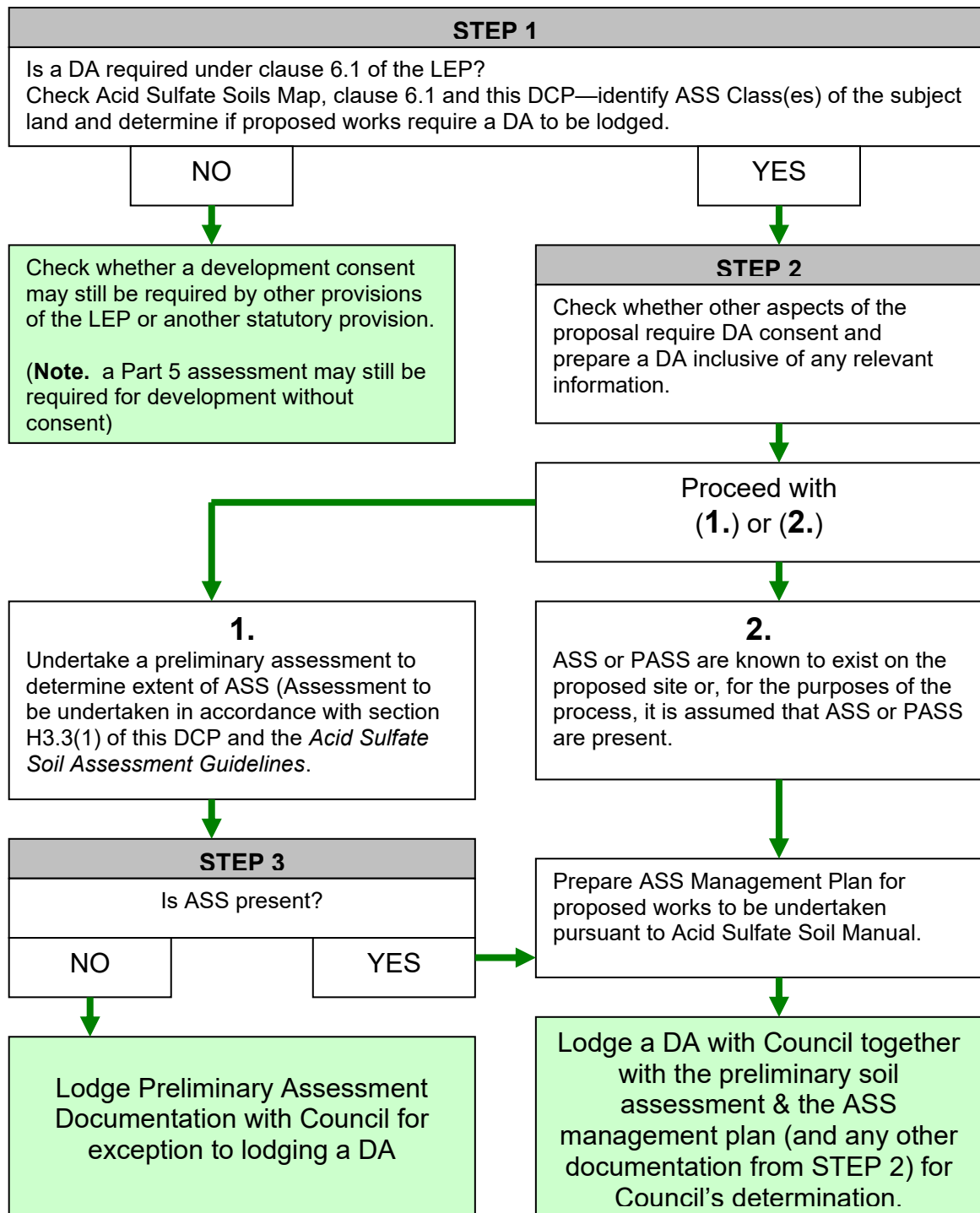


Figure H-3.22.2 –Development Application Process for Proposed Works in Acid Sulfate Soil Areas

H-3.42.4 Exceptions to requiring development consent

Objectives

- (a) Tote explain development consent exceptions provided for in clause 6.1 of the *Richmond Valley LEP 2012*.

Design Criteria

(1) Preliminary assessment process

- (a) When work involves disturbing soil, or lowering the watertable, a preliminary assessment can be undertaken to determine whether acid sulfate soils are present and if the proposed works are likely to disturb these soils.
- (b) The purpose of a preliminary assessment is to:
 - (i) establish the characteristics of the proposed works;
 - (ii) establish whether acid sulfate soils are present on the site and if they are in such concentrations so as to warrant the preparation of an acid sulfate soils management plan;
 - (iii) provide information to assist in designing a soil and water assessment program; and
 - (iv) provide information to assist in decision making.
- (c) The preliminary assessment process is outlined in Figure H-~~3-32.3~~.
- (d) Development consent under clause 6.1 is not required for the carrying out of works if:
 - (i) a preliminary assessment of the proposed works has been undertaken and supplied to Council;
 - (ii) the preliminary assessment indicates that an acid sulfate soils management plan need not be carried out for the works; and
 - (iii) Council has provided a written confirmation that it accepts the findings of the assessment.
- (e) A preliminary assessment must be undertaken in accordance with the *Acid Sulfate Soils Manual* by a suitably qualified person.
- (f) Submitting Preliminary Assessments - to assist Council with processing preliminary assessments they should be accompanied by:
 - (i) a letter requesting Council advice;
 - (ii) identify the proposed works;
 - (iii) identify the land (Lot and Deposited Plan numbers);
 - (iv) contain a map identifying-
 - the property;
 - location of sample points; and
 - (v) identify the nature of the proposed works.

(2) Emergency works by a Public Authority

- (a) Public Authorities are exempt from requiring development consent for certain works under the provisions of *State Environmental Planning Policy (Transport and Infrastructure) 2007/2021* (iSEPP). ~~However, clause 20(2)(d) of the iSEPP requires that exempt development shall have no more than minimal impact on the environment.~~ Due to the environmental significance of Acid Sulfate Soils, the provisions of the ~~iSEPP~~-SEPP may be revoked and will default to a consentable use under clause 6.1.
- (b) Notwithstanding clause 6.1(5) provides that development consent is not required for the carrying out of the following works by a public authority:

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- emergency work;
 - routine management work; and
 - minor work.
- (c) Such works are without consent under Part 4 of the *Environmental Planning and Assessment Act 1979*, but will require assessment under Part 5 of the Act to determine whether the activity will have a significant impact on the environment.
- (3) Minor works**
- (a) Consent under clause 6.1 is not required to carry out works involving the disturbance of less than 1 tonne of soil (acid sulfate soil), or where the works are not likely to lower the watertable.
- (b) Liming the excavated soil material will neutralise any potential acid production. Liming rates should be determined from lab testing of the soils (refer to the Acid Sulfate Soil Manual). Notwithstanding, small volumes of excavated material where the liming rate is unknown can assume a worst case scenario and apply lime at a rate of 24 kg per m².
- (4) Agricultural works in sugar cane areas**
- (a) Clause 6.1(7) provides an exemption from requiring development consent under the clause for sugar cane farms with Production Area Entitlements (PAE). It provides that development consent is not required where that work is undertaken in accordance with a drainage management plan.
- (b) Clause 6.1(7) operates under the *NSW Sugar Industry Best Practice Guidelines for Acid Sulfate Soils (2005)* with the support of the NSW Sugar Milling Cooperative.
- (c) The contents of Drainage Management Plans are determined by the above guidelines, and the *Acid Sulfate Soils Manual*.

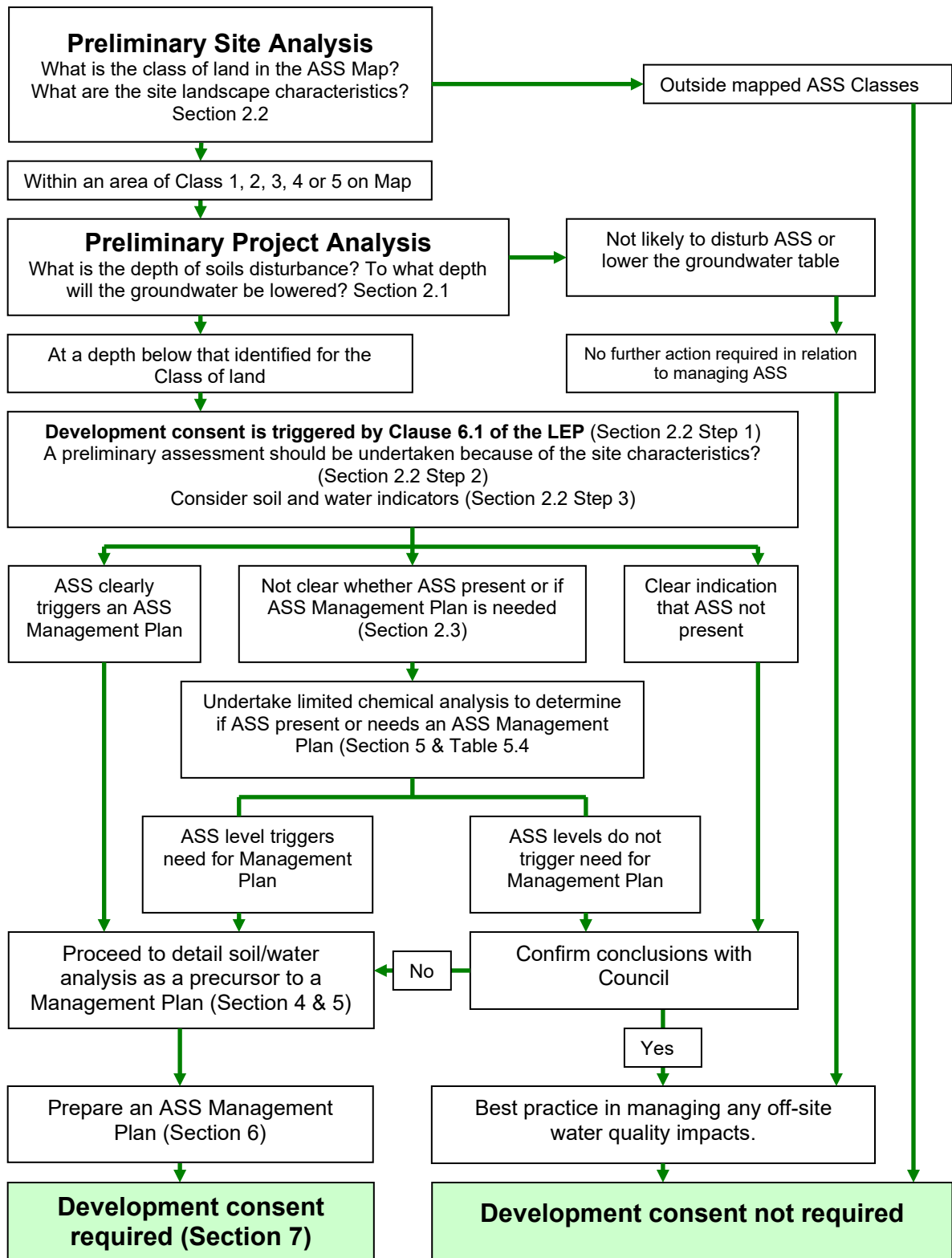


Figure H-3.32.3 The preliminary assessment process (referenced sections and tables are from Section 2 of the *Acid Sulfate Soils Assessment Guidelines* within the *Acid Sulfate Soil Manual*).

Richmond Valley Development Control Plan 2021



Part H-3

Natural Resources (NRS)

This DCP applies to all land within the Richmond Valley Local Government Area.

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Nil

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Richmond Valley Local Environmental Plan 2012 contains several clauses relating to management of natural resources. These are:

- clause 6.6 Terrestrial biodiversity
- clause 6.7 Landslide risk
- clause 6.8 Riparian land and watercourses
- clause 6.9 Drinking water catchments
- clause 6.10 Wetlands

These NRS clauses and the associated mapping do not prohibit development or trigger requirements for development consent. Rather, the provisions identify additional heads of consideration to assess the level of impact of the development on the mapped natural resource feature(s), and whether there may be mitigation measures employed to reduce those impacts. In this way, the mapped NRS layers serve as a reference to inform landowners and Council as to the likely presence of environmentally sensitive land issues without placing excessive restrictions over the entire land through an Environmental Conservation C Zoning.

Part H-3 Natural Resources

H-4.13.1 General Objectives

The general objectives of this Chapter are to:

- (1) provide background information on each of the Natural Resource Sensitivities mapped within the LEP.
- (2) provide protective responses and mitigation measures for sensitive environmental locations throughout Richmond Valley.
- (3) provide consistency as to how protection of natural resources ~~are~~ implemented throughout Richmond Valley LGA.
- (4) require adequate design considerations to avoid unacceptable adverse impacts upon sensitive environs.

H-4.23.2 LEP NRS Mapping

Objectives

- (a) ~~To~~ explain what has been captured in each type of NRS mapping in the *Richmond Valley LEP 2012*.

Design Criteria

- (1) The LEP contains mapping for each of the following NRS constraints, while clauses 6.6 to 6.10 prescribe development application heads of considerations.
 - Terrestrial Biodiversity Map—representing native vegetation and habitat (wildlife) corridors;
 - Landslip Risk Map—representing steep land with a slopes greater than 18 degrees (33%);
 - Riparian Lands and Watercourses Map—representing key fish habitat plus a 40 metre buffer;
 - Wetlands Map—representing wetlands and floodplain wetland vegetation communities; and
 - Drinking Water Catchments Map—representing the watershed catchment for Casino’s Jabour Weir, and a 500 metre buffer area around each of the Rous Water Groundwater Bores at Woodburn.

Refer to figures H-4.13.1 and H-4.23.2 for samples for each of these NRS overlays.

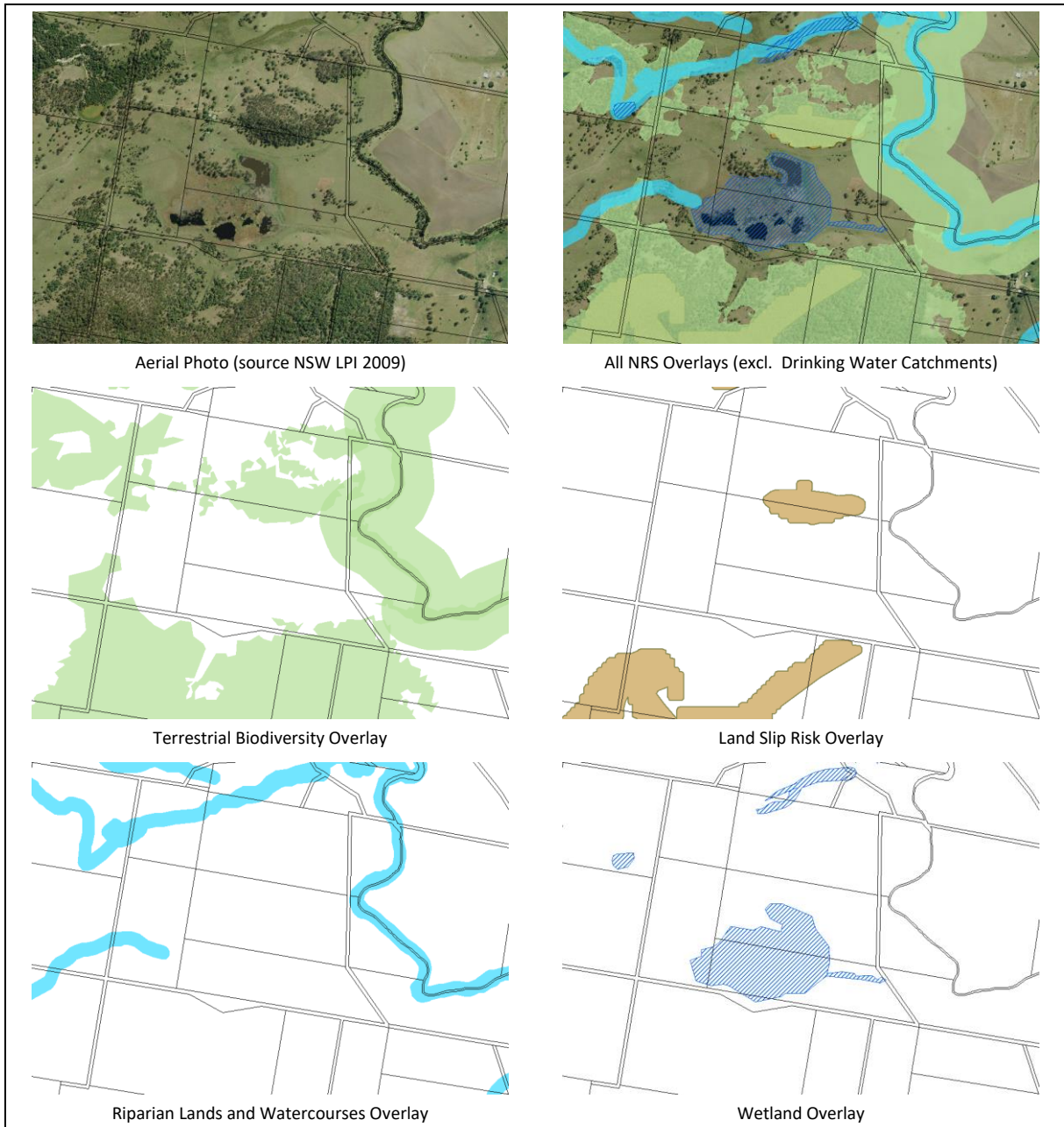


Figure H-4.13.1 Examples of NRS Overlays (excluding the Drinking Water Catchments)



Figure H-4.23.2 Drinking Water Catchments**H-4.33.3 Terrestrial Biodiversity****Objectives**

- (a) ~~To~~ assist with the interpretation of the Terrestrial Biodiversity NRS provisions of the LEP.

Design Criteria

- (1) Terrestrial Biodiversity mapping consists of 2 combined data sets depicting natural vegetation and habitat (wildlife) corridors.
- (2) Clause 6.6 of the *Richmond Valley LEP 2012* requires consideration of whether a development is likely to have:
 - an adverse impact on habitat, the survival of fauna and habitat connectivity; and/or
 - cause fragmentation of the habitat, and
 - whether there are any actions that can be taken to avoid an impact, to minimise the impact, or to mitigate the impact.

Extract from *Richmond Valley Local Environmental Plan 2012*

Clause 6.6 Terrestrial biodiversity

- (1) The objective of this clause is to maintain terrestrial biodiversity by:
 - (a) protecting native fauna and flora, and
 - (b) protecting the ecological processes necessary for their continued existence, and
 - (c) encouraging the conservation and recovery of native fauna and flora and their habitats.
- (2) This clause applies to land identified as “Biodiversity” on the Terrestrial Biodiversity Map.
- (3) Before determining a development application for development on land to which this clause applies, the consent authority must consider:
 - (a) whether the development:
 - (i) is likely to have any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and
 - (ii) is likely to have any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and
 - (iii) has any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and
 - (iv) is likely to have any adverse impact on the habitat elements providing connectivity on the land, and
 - (b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.
- (4) Development consent must not be granted for development on land to which this clause applies unless the consent authority is satisfied that:
 - (a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or
 - (b) if that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact, or
 - (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

(3) Natural Vegetation

As a reflection of the ‘precautionary principle’ aligned with ESD principles, all naturally vegetated areas have been mapped. It is proposed that assessment of

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development will determine whether there is likely to be a significant impact on this natural resource.

It is recognised that not all vegetation mapped will actually be ecologically sensitive, and it is accepted that much of it may constitute regrowth or be highly disturbed. It is further accepted that this mapping is a ~~snapshot~~ snapshot in time (around 2009), and that changes in the environment will not be reflected in the LEP mapping. It was for this reason that the mapping was adopted as an overlay rather than an environmental zoning.

The requirement for additional assessment will be negated in situations where the vegetation is obviously not naturally occurring, or has been removed.

(4) Habitat Corridors

Habitat corridor data was supplied by the National Parks and Wildlife Service based upon predictive modelling to establish strategic links between significant compartments of native vegetation. Additional mapping obtained by Council identifies the need to incorporate riparian zones as corridors.

It is recognised that habitat corridors can function effectively without necessarily being vegetated. As such an assessment of impact and consideration of mitigation measure need only address how the development might prevent the free passage of fauna through the development site.

(5) Possible Mitigation Measures

(a) Terrestrial Biodiversity—Habitat Corridors

Habitat corridors are likely pathways for fauna to move between important conservation areas. They needn't be vegetated to function properly.

Mitigation measures to minimise impacts could include:

- relocating the development outside the wildlife corridor.
- revegetate a compensatory area of vegetation so that the corridor can continue to function in and around the development.
- remove obstacles that prevent the passage of fauna through the development site, such as fences, long continuous buildings, dogs and cats, etc. and rather promote landscape connectivity to support movement of threatened fauna.
- provide alternative means for fauna to traverse the site, such as land bridges, under or over passes, ropes.
- Avoid locating development close to riparian zones.
- retaining existing significant trees and large hollow bearing trees where possible.

(b) Terrestrial Biodiversity—Vegetation

This NRS Overlay identifies native vegetation that was visible in aerial photography in 2009. Assessment of the vegetation will be required to determine if it is significant habitat. Clearing of native vegetation is regulated by the ~~Native Vegetation Act and Threatened Species~~

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~~Conservation Act 1995~~ Biodiversity Conservation Act 2016 as well as the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*.

Mitigation measures to minimise impacts could include:

- applying the avoid, minimise, offset hierarchy to all future development projects in line with relevant legislation. The requisite investigations may identify considerations in addition to those detailed in this master plan.
- retaining areas of high biodiversity and habitat value within open space.
- planting of native species endemic to the region. These can be included in landscaping plans.
- planting vegetated buffer at the interface of the development site and adjacent conservation zones to protect the biodiversity values in these areas and to manage nutrients and pollutants in runoff, weed incursion and changes to noise or light environments.
- undertaking ecological restoration and effectively managing of exotic grasses.
- purchasing Biodiversity Credits to offset habitat loss.
- ~~Negotiating~~negotiate a conservation agreement, and/or remediation of land, as offsets to habitat loss.

H-4.43.4 Landslip Risk

Objectives

- (a) ~~To~~to assist with the interpretation of the Landslip Risk NRS provisions of the LEP.

Design Criteria

- (1) This mapping represents steep slopes greater than 18 degrees or (33% grade). These steeper lands may be susceptible to mass movement and higher levels of erosion.
- (2) Data for this NRS mapping was supplied by the Department of Planning and Environment from its *Far North Coast Regional Strategy*. The data was used as an NRM overlay because there wasn't enough confidence in its accuracy to include it within an Environmental E Zone such as Zone E3 Environmental Conservation.
- (3) Clause 6.7 of the *Richmond Valley LEP 2012* requires consideration of:
 - measures to avoid, minimise or mitigation the risk of landslide as a result of the development; and/or
 - how waste water, stormwater and drainage will be managed.

(4) Possible Mitigation Measures

Development on steep lands requires consideration of geomorphic conditions (mass movement and erosion), as well as an assessment of scenic amenity.

Mitigation measures that could be employed-

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- Minimise vegetation removal.
- Rehabilitate exposed slopes with native vegetation, especially using plants with large root systems.
- Avoid cutting into steep slopes, especially at the base of the slope.
- Avoid siting heavy loads at the top of steep slopes.
- Stormwater drainage will need to be ~~dispersed, or~~ dispersed or contained within protective drainage lines.
- Minimise water infiltration into steep slopes where it can weaken ground stability and cause mass movement.

Extract from *Richmond Valley Local Environmental Plan 2012*

Clause 6.7 Landslide risk

- (1) The objectives of this clause are to ensure that development on land susceptible to landslide:
 - (a) matches the underlying geotechnical conditions of the land, and
 - (b) is restricted on unsuitable land, and
 - (c) does not endanger life or property.
- (2) This clause applies to land identified as “Landslide risk” on the Landslide Risk Map.
- (3) Before determining a development application for development on land to which this clause applies, the consent authority must consider the following matters to decide whether or not the development takes into account the risk of landslide:
 - (a) site layout, including access,
 - (b) the development’s design and construction methods,
 - (c) the amount of cut and fill that will be required for the development,
 - (d) waste water management, stormwater and drainage across the land,
 - (e) the geotechnical constraints of the site,
 - (f) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.
- (4) Development consent must not be granted for development on land to which this clause applies unless:
 - (a) the consent authority is satisfied that:
 - (i) the development is designed, sited and will be managed to avoid any landslide risk or significant adverse impact on the development and the land surrounding the development, or
 - (ii) if that risk or impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that risk or impact, or
 - (iii) if that risk or impact cannot be minimised—the development will be managed to mitigate that risk or impact, and
 - (b) the consent authority is satisfied that the development will appropriately manage waste water, stormwater and drainage across the site so as to not affect the rate, volume and quality of water leaving the land.

H-4.53.5 Riparian Land and Watercourses

Objectives

- (a) ~~To~~ assist with the interpretation of the Terrestrial Biodiversity Riparian Lands and Watercourses NRS provisions of the LEP.

Design Criteria

- (1) This mapping consists of Key Fish Habitat data supplied by the Department of Primary Industries and Regional Development—(Fisheries).— This mapping

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represents rivers, creeks, streams, drains and wetlands, with a 40 metre riparian zone applied, identified by Fisheries as strategically important for fish habitat.

- (2) Fisheries permits, under the *Fisheries Management Act 1994*, are required for work within the identified key fish habitats.
- (3) Clause 6.8 of the *Richmond Valley LEP 2012* requires consideration of whether a development is likely to have an adverse impact on:
 - water quality and flows; or
 - aquatic habitats; or
 - bank stability; or
 - the passage of aquatic organisms along the watercourse; and
 - whether there will be an increase in water extraction, and appropriate measures to avoid, minimise or mitigate impacts.

(4) Possible Mitigation Measures

Development in, or within 40 metres of, a watercourse could result in removal of vegetation, destabilisation of river banks, pollution of waterways, increased recreational activity, increase water removal, or any number of similar impacts.

Mitigation measures that could be employed-

- Harmful elements of the development should be sited or re-sited away from sensitive areas.
- Stormwater and wastewaters should be treated before discharge into waterways.
- Stormwater flows should not be concentrated so they erode stream or river banks.
- Avoid removal of riparian vegetation and disturbance of stream banks.
- Consider stabilising disturbed embankments by remediating them with native vegetation.
- Do not construct in stream barriers that can prevent the passage of aquatic organisms.
- Provide riparian corridor widths as outlined in the 'Controlled activities – Guidelines for riparian corridors on waterfront land fact sheet' (DPHI 2022).

Note. Additional permits may be required from relevant State agencies in accordance with the *Water Management Act* and/or *Fisheries Management Act* to do work in a Key Fish Habitat.

Extract from *Richmond Valley Local Environmental Plan 2012*

Clause 6.8 Riparian land and watercourses

- (1) The objective of this clause is to protect and maintain the following:
 - (a) water quality within watercourses,
 - (b) the stability of the bed and banks of watercourses,
 - (c) aquatic and riparian habitats,
 - (d) ecological processes within watercourses and riparian areas.
- (2) This clause applies to land identified as "Key Fish Habitat" on the Riparian Land and Waterways Map.

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- (3) Before determining a development application for development on land to which this clause applies, the consent authority must consider:
 - (a) whether or not the development is likely to have any adverse impact on the following:
 - (i) the water quality and flows within the watercourse,
 - (ii) aquatic and riparian species, habitats and ecosystems of the watercourse,
 - (iii) the stability of the bed and banks of the watercourse,
 - (iv) the free passage of fish and other aquatic organisms within or along the watercourse,
 - (v) any future rehabilitation of the watercourse and its riparian areas, and
 - (b) whether or not the development is likely to increase water extraction from the watercourse, and
 - (c) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.
- (4) Development consent must not be granted for development on land to which this clause applies unless the consent authority is satisfied that:
 - (a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or
 - (b) if that impact cannot be avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact, or
 - (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

H-4.63.6 Drinking Water Catchments

Objectives

- (a) ~~To~~ assist with the interpretation of the ~~Terrestrial Biodiversity~~ Drinking Water Catchments NRS provisions of the LEP.

Design Criteria

- (1) Protection of drinking water catchments is considered important primarily for its public health implications but also for the future health of the waterways.
- (2) Two (2) drinking water catchments have been mapped.
- (3) Clause 6.9 of the *Richmond Valley LEP 2012* requires consideration of whether a development is likely to adversely impact the water quality and quantities entering the drinking water storage, and whether there are any actions that can be taken to avoid an impact, to minimise the impact, or to mitigate the impact.

Extract from *Richmond Valley Local Environmental Plan 2012*

Clause 6.9 Drinking water catchments

- (1) The objective of this clause is to protect drinking water catchments by minimising the adverse impacts of development on the quality and quantity of water entering drinking water storages.
- (2) This clause applies to land identified as “Drinking water catchment” on the Drinking Water Catchment Map.
- (3) Before determining a development application for development on land to which this clause applies, the consent authority must consider:
 - (a) whether or not the development is likely to have any adverse impact on the quality and quantity of water entering the drinking water storage, having regard to:
 - (i) the distance between the development and any waterway that feeds into the drinking water storage, and
 - (ii) the on-site use, storage and disposal of any chemicals on the land, and
 - (iii) the treatment, storage and disposal of waste water and solid waste generated or used by the development, and

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- | | |
|-----|--|
| (b) | any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development. |
| (4) | Development consent must not be granted for development on land to which this clause applies unless the consent authority is satisfied that: |
| (a) | the development is designed, sited and will be managed to avoid any significant adverse impact on water quality and flows, or |
| (b) | if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or |
| (c) | if that impact cannot be minimised—the development will be managed to mitigate that impact. |

(4) Casino Drinking Water Catchment

The source of Casino's town water supply consists of a weir pool located on the Richmond River above Jabour Weir. The watershed for this weir pool, while extending beyond the LGA, has only been mapped as far as the LGA's boundary with Kyogle Council. At its shortest distance there is about 25 kilometres of stream length between the weir and the nearest LGA boundary. This length of river is currently considered adequate to enable buffering of activities undertaken outside the LGA.

(5) Rous Water's Groundwater Bores at Woodburn

Rous Water operates an extensive reticulated drinking water network servicing Byron Shire, Lismore City, Ballina Shire and the Mid-Richmond areas of Richmond Valley Council. The primary source of water in this network is from Rocky Mouth Dam, however, it is supplemented by several groundwater sources including 3 bores at Woodburn. The Woodburn bores are occasionally used to supplement drinking water in Woodburn, Broadwater and Evans Head.

The mapping identifies a 500 metre buffer around each bore.

H-4.73.7 Wetlands

Objectives

- (a) to assist with the interpretation of the ~~Terrestrial Biodiversity~~ Wetlands NRS provisions of the LEP.

Design Criteria

- (1) Wetland mapping was originally sourced from Wetland Care Australia but has been updated by consultants engaged by Council.
- (2) The mapping is inclusive of naturally occurring wetlands as well as artificial wetlands such as farm dams.
- (3) Clause 6.10 of the *Richmond Valley LEP 2012* requires consideration of whether a development is likely to have a significant adverse impact on:
 - the condition and provision of quality wetland habitat; or
 - water quality and flows; and

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- whether there are any actions that can be taken to avoid an impact, to minimise the impact, or to mitigate the impact.

(4) Possible Mitigation Measures

Development within, or that drains into, a wetland could cause the removal of vegetation, pollute the wetland, lower the watertable, or cause any number of similar impacts.

Mitigation measures that could be employed-

- On-site Sewage Management Systems may require:
 - upgrading to a higher treatment standards.
 - Re-siting the system away from the receiving wetland area.
 - diversion of stormwater around and away from the disposal area.
 - water treatment interceptors to improve water quality before it reaches the wetland, or that diverts runoff away from the wetland.
- Stormwater runoff may require diversion around or away from the wetland, or have appropriate water treatment to improve water quality before it reaches the wetland.
- Avoid constructing drains next to wetlands where they could lower the watertable and alter hydrology in the wetland area.

Extract from *Richmond Valley Local Environmental Plan 2012*

Clause 6.10 Wetlands

- (1) The objective of this clause is to ensure that wetlands are preserved and protected from the impacts of development.
- (2) This clause applies to land identified as "Wetland" on the Wetlands Map.
- (3) Before determining a development application for development on land to which this clause applies, the consent authority must consider:
 - (a) whether or not the development is likely to have any significant adverse impact on the following:
 - (i) the condition and significance of the existing native fauna and flora on the land,
 - (ii) the provision and quality of habitats on the land for indigenous and migratory species,
 - (iii) the surface and groundwater characteristics of the land, including water quality, natural water flows and salinity, and
 - (b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.
- (4) Development consent must not be granted for development on land to which this clause applies unless the consent authority is satisfied that:
 - (a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or

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- (b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
- (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.