Practice Note for using spatial information in Local Environmental Plans to protect and manage Environmentally Sensitive Lands

Murray–Murrumbidgee Region

NSW Government
Department of Water & Energy

NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Department of Environment & Climate Change NSW

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Yass Valley

1 Background

The management of the environment is now a primary issue in land-use planning, and needs to be implemented by all tiers of government – national, state and local.

The role of Local Government in environmental management is enshrined in the *Environmental Planning and Assessment Act 1979* (EP&A Act), and the **Local Government Act 1993**, and is reflected in the National Local Government Biodiversity Strategy, adopted at the *National Assembly of Local Government in 1998*.

The NSW Government, through the State Plan, is already committed to the achievement of the state-wide natural resource targets for biodiversity, water and land, and delivering these through regional land use planning strategies and local government planning.

More recently, Local Planning Directions: 2.1 Environmental Protection Zones, issued under s117(2) of the EP&A Act on 19 July 2007, clearly indicate to councils that Environmentally Sensitive Lands (ESLs) must be identified and protected in Local Environmental Plans (LEPs).

Finding the balance between environment and development in LEPs can seem daunting, with the range of environmental issues that need to be considered. Three State Government agencies have collaborated to provide consistent spatial information to assist local government better identify ESLs. This spatial information, and its use, is described in two Planning Practice Notes:

- this document, *Using spatial information in Local Environmental Plans to protect and manage Environmentally Sensitive Lands*
- and also, *Using spatial information in Strategic Plans and Local Environmental Studies to identify Environmentally Sensitive Lands*.

Who has developed this?

The project has been undertaken as a collaborative regional effort by the Natural Resource Management (NRM) related agencies. This includes the Department of Water & Energy (DWE), Department of Environment and Climate Change (DECC), and Department of Primary Industries – Fisheries Ecosystems (DPI Fisheries).

The Department of Planning has provided specific advice on what is required to conform with the Standard Instrument and wider Planning Reform.

The approach

One of the objects of the Planning Reform is to create one 'planning language' for NSW. This document outlines an approach that uses consistent terms and definitions for 'environmentally sensitive lands', to ensure that these areas are mapped and described consistently within the region, across local government areas.

The approach uses maps which show:

- sensitive land resources
- sensitive water resources
- sensitive biodiversity assets

These maps can be used to develop overlays as local provisions within a LEP. This Practice Note includes:

- *example* **maps**, which can be used as overlays in an LEP
- *example* **clauses**, which can be incorporated in the LEP as a local clause
- *example* **applicants kit**, which can be used by applicants to ensure that the additional information required by the clause can be provided
- *example* **explanatory notes** for council planners, on how to use the clause, and the information provided by the applicant.

2 Why overlays in the LEP?

Zones are traditionally the main tool in LEPs, but not the only tool. They may prohibit some developments which could be undertaken with little risk to the natural environment, if sensitively designed and constructed. Conversely, they may allow developments in some sensitive areas without adequate consideration of the issues. Zones can also be difficult to apply to narrow or small areas.

Environmental zones will be appropriate where areas of environmentally valuable land have been accurately mapped and based on known validated attributes. In other circumstances, a simple, standard set of ESL overlays may be the best solution – particularly in some inland councils, which have limited spatial data as explained in Practice Note PN 007-001.

Overlays are simply a map, with an associated clause in the LEP that details the matters that must be considered in assessing a DA. Importantly, the overlay approach does not introduce absolute prohibitions on land use or development and is a flexible planning approach that is often more acceptable to the community and landowners.

Zoning and ESL overlays can be readily used in combination, as several existing LEPs in the region do.

The recommended clauses in this Practice Note represent one way of implementing NRM considerations in an LEP. The Standard Instrument (LEP) Order Q&A document (DoP 31 March 2006) states:

> *The standard instrument provides a range of environmental protection tools… it provides councils with eight different environment related zones from which to choose when considering the zoning of different types of environmentally sensitive land. To provide additional environmental protection, councils can also set out 'overlays' that apply in addition to zones.*

The Department of Planning LEP practice note PN 06-002 (12 April 2006) entitled *Preparing LEPs using the Standard Instrument* states that:

> *LEPs may, where appropriate, set out additional overlay controls in the standard instrument as local provisions that apply to land that has particular environmental, hazard, or design constraint. These additional provisions may apply to land that is in several zones and would consist of a map and associated heads of consideration for development within the identified area. The overlay however may not alter the mandated permissible or prohibited uses and … must be consistent with any relevant State or regional policy guidance.*

Adequacy of current ESL overlays

The use of an 'overlay' in the form of crosshatching on the LEP map, with an accompanying clause, is not something new and is currently in many of the existing comprehensive LEPs. It was promoted by DoP in the Rural Sample LEP in the 1980s and early 90s.

There are, however, good reasons to update these overlays, including:

Poor mapping. The mapping was based on limited information: often simply a basic interpretation of topographic maps.

Lack of justification. The reason for including some lands in some overlays is unclear. There's little information why a particular area was included, or how the clause should be applied.

Inconsistency with land-use tables. The structure of the existing ESL clause is also outdated. It prohibits certain types of development, and requires consent for additional uses outside the land-use tables (usually vegetation clearance over a certain size.)

Requirement for consultation or concurrence. It also requires consultation or concurrence with a state agency or other organisations. DoP now wishes to minimise the number of referrals within LEPs (s117 direction 19.7.07, sec 6.1)

3 Recommended overlays and clauses

A minimum standard

The ESL overlays and clauses in this Practice Note are considered the minimum requirement and most relevant to councils which are preparing a comprehensive LEP for the first time, have a basic existing plan or are subject to relatively low levels of development pressure.

Where councils already have some controls relating to ESLs, s117 direction no. 2.1 (19.7.2007), clearly states the draft LEP should not weaken existing controls.

What do the overlays prohibit?

The overlay clauses do not prohibit any proposed activity. They list matters required to be considered by the applicant in developing a proposal, and by the Council in assessing it. The overlay map and clause may identify the circumstances where more comprehensive assessment, or further information, is required. These matters may also contribute to a case for Council to refuse DAs, where appropriate.

Impact on clearing for agriculture

The overlays and clauses will only be used where the LEP specifies that a certain proposal requires a Development Application (DA). In rural zones, LEPs will specify that agriculture is an activity that does not require consent. Therefore, clearing of native vegetation for agriculture in rural zones will remain a matter for the *Native Vegetation Act 2003* (NV Act).

Despite this, the assessment of DAs still plays an important role in protecting the environment in rural areas. The usual range of matters requiring development consent in rural areas (e.g rural dwellings, rural infrastructure sheds etc, major roads, quarries, feedlots, and most subdivisions) are outside the NV Act requirements.

It is important to note the processes for consideration of matters under the NV Act, and under an LEP, are quite different. The NV Act, operates through a 'traffic light' system. Where a Property Vegetation Plan is developed, clearing of certain areas of high conservation value will be 'red-lighted', and hence, refused.

However, the ESL overlay map and clauses operate as part of an LEP (under the EP&A Act) and, essentially, trigger consideration of certain matters in the DA assessment process, rather than prohibiting certain activities.

No referral to agencies

The overlay clauses do not introduce a requirement to refer applications to agencies. However, there is a commitment from the NRM agencies to provide assistance to Councils when requested.

Links to catchment planning

The Biodiversity, Land and Water layers have been specifically adopted to parallel the Catchment Management Authorities (CMAs) NRM priorities as outlined in the Catchment Action Plans of the region.

Similar data sets, criteria and classifications to identify environmentally sensitive mapped areas have been applied. This is considered an important step in integrating NRM and land-use planning in the area, and will ensure the two processes complement each other.

Potentially, the ESL mapping in the overlays may be able to be used by councils to attract funding for environmental restoration and protection projects, through CMAs and other sources.

4 Data and Mapping Information

Data availability

The examples used throughout this document have been created for the Wagga Wagga local government area. However, data exists for all local government areas in the Murray–Murrumbidgee region.

To access the data for your local government area, the Local Government Data Access tool is available on:
www.mmlga.dnr.nsw.gov.au (user ID and password, both 'mmb_read').

Simply select the drop down box to the particular LGA and all land and water spatial data available will be highlighted on the screen. There are coverage maps and examples of the data as well as instructions on how to order the data from DWE/DECC. It should be noted that the most recent biodiversity (native vegetation or wetlands) mapping may not be available on this website. The DECC office in Queanbeyan should be contacted to obtain this information.

This web tool will provide you with access to relevant spatial data, ready for use in your local plan. Metadata statements are available from the Agencies on how the data was collected and collated as well as the data licence agreements to obtain it.

Using the data in an LEP

In mapping the data the DoP Standard technical requirements for LEP maps Planning Circular PS07-007 (April 2007) at: http://planning.nsw.gov.au/planningsystem/pdf/lepmapping_complete_lowres.pdf gives the requirements for preparing LEP maps. This provides map templates that can be applied for local provisions such as ESL overlays. It is envisaged that NRM information would be applied as 'Land', 'Water' and 'Biodiversity' sheets with the attribute mapped as a solid colour.

Information at regional scale only

It must be understood that the scale of the mapping when used with cadastral information causes inaccuracies at cadastre level and should be used a guide only to potential issues that may affect a proposed development site. However, it highlights information to guide a detailed site assessment during the process.

What is the difference between 'maps for strategic plans' and 'overlays for LEPs'?

While the information in the maps for strategic plans is virtually the same as that in the LEP Overlays, the agencies have sieved out only the most important considerations to be included in the overlays for consideration beyond the strategic planning stage, during development assessment.

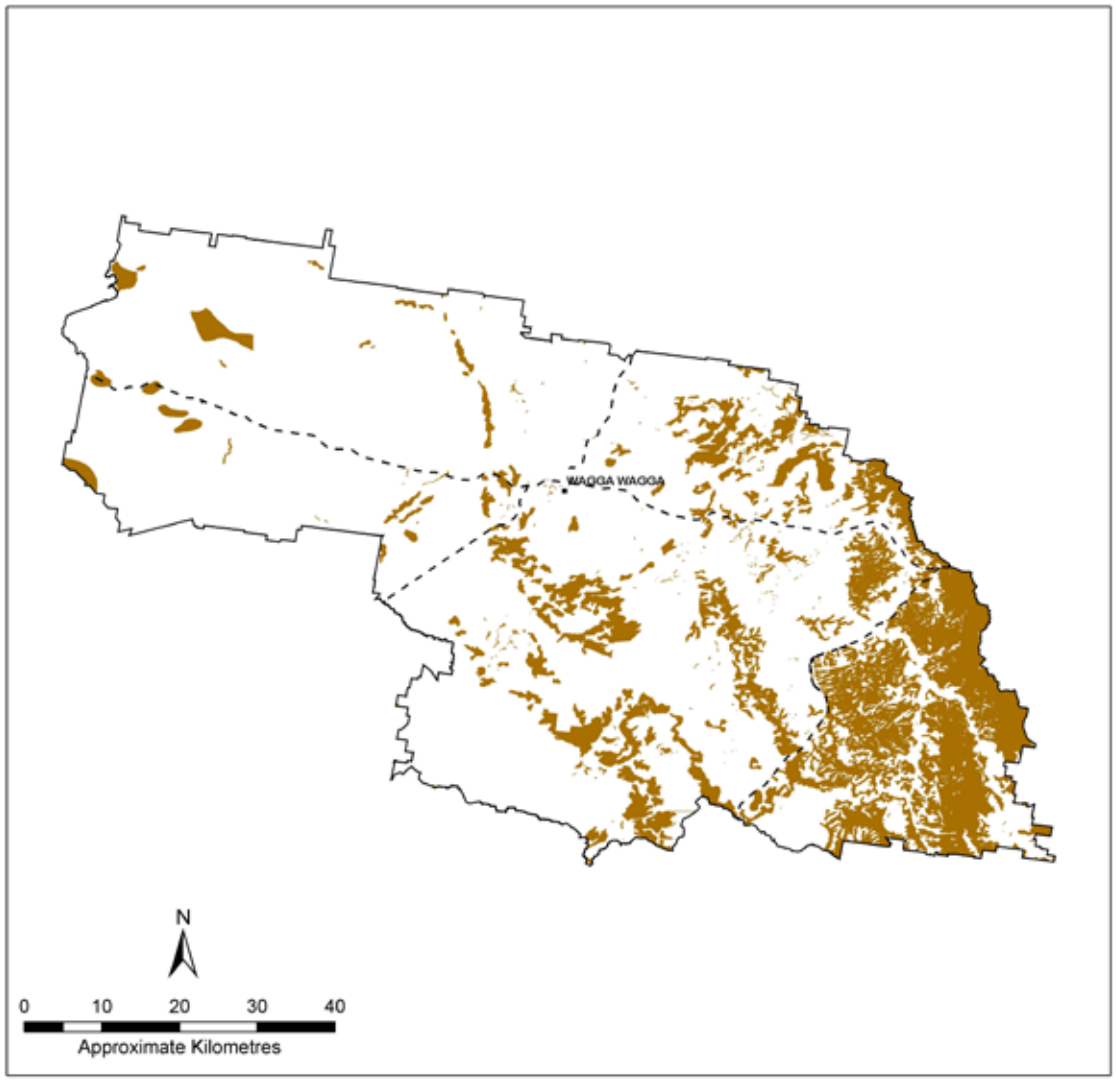
Further Information

Please contact the relevant regional offices of:

- Department of Water and Energy (www.dwe.nsw.gov.au)
- Department of Environment and Climate Change (www.environment.nsw.gov.au)
- Department of Primary Industries (Fisheries Ecosystems) (www.fisheries.nsw.gov.au/aquatic_habitats).

5 Land

Environmentally Sensitive Lands: Land Overlay (Example)



Wagga Wagga LGA

Environmentally Sensitive Land - Land Overlay

This land use decision making tool is based on information produced by the Department s of Water and Energy & Environment and Climate Change and does not represent other NSW Government agency information.

This information should be used as a guide only and scale must be taken into consideration when used with cadastral information.

Environmentally Sensitive Areas
Land Overlay Data

Data Source	Data Codes
Vulnerable Land-Steep land over 18° slope	
Land Capability	Classes 6, 7, 8
NSW Erosion Mapping (AJ)-Salting	Codes 15, 25, 45
Murray or Murrumbidgee Salt Outbreaks	Codes 15, 25, 45
NSW Erosion Mapping (AJ)- Moderate to severe sheet and rill erosion hazard	Codes 43, 44, 91-94
Soil Regolith Mapping-Highly dispersible soil	R4
Riverine Soils	Generally not suitable for intensification of landuse (category only)

Legend

- Local Government Boundary
- Environmentally Senstive Areas-Land subject to one or more of the following: steep slopes, shallow soils, salinity, permanent inundation, high proportion of rock outcrop, high dispersability & erosion potential.
- NSW Highway
- Town

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Example Clause

Environmentally Sensitive Lands – Land Overlay

(1) The objectives of this clause are to protect, maintain or improve the diversity and stability of landscapes, including:

(a) restricting development on land that is unsuitable for development due to steep slopes or shallow soils or both, and

(b) restricting development on land that is subject to soil salinity, and

(c) restricting the removal of native vegetation, and

(d) restricting development on land that is subject to permanent inundation, and

(e) restricting development on land with a high proportion of rock outcropping.

(2) This clause applies to land that is identified as a 'Sensitive area' on the Natural Resources Sensitivity Map—Land.

(3) Development consent must not be granted to development that involves the disturbance of soil, including the erection of a building or the undertaking of a work, on land to which this clause applies unless the consent authority has considered an environmental or geotechnical assessment that addresses the potential for any adverse impact on land:

(a) with a slope greater than 25%, or

(b) with a high proportion of rock outcropping, or

(c) subject to high erosion potential, or

(d) subject to soil salinity or impeded drainage, or

(e) subject to regular or permanent inundation.

(4) Development consent must not be granted for development on land to which this clause applies unless the consent authority is satisfied that the development is consistent with the objectives of this clause and:

(a) the development is:

(i) designed, sited and managed to avoid any potential adverse impact on the land, and

(ii) unlikely to affect the rate, volume and quality of water leaving the land, or

(b) if a potential adverse impact cannot be avoided, that the development:

(i) is designed and sited so as to have minimum adverse impact, and

(ii) incorporates effective measures to remedy or mitigate any adverse impact, and

(iii) encourages the rehabilitation of areas to maintain landscape stability, such as re-vegetation of areas subject to soil salinity and high erosion potential.

Applicants Kit

Additional information required for Development Applications within the Sensitive Land Overlay

_____ Shire has a Land Overlay (map) and associated clause in its Local Environmental Plan.

This overlay identifies areas with land that is subject to one of the following:

- any land with slopes greater than 25%
- any land with a high proportion of rock outcropping
- any land subject to high erosion potential
- any land subject to salinity or impeded drainage
- any land subject to regular or permanent inundation.

The areas of potential land considerations are those areas defined by the overlay area. While the mapping is an indication that the land is the subject of one of the above issues, an on-site investigation is recommended.

The aim of the land clause associated with the Land Overlay is to minimise the potential for the acceleration or exacerbation of erosion, sedimentation, sub-surface drainage and inundation (salinity and waterlogging) in sensitive areas on the landscape.

If any part of your Development Application (DA) falls in the defined area within the Land Overlay, you will need to complete this form to provide additional information to Council about the site, and about your development proposal. This will enable your DA to be assessed more quickly, and will also assist in reducing potential environmental impacts.

Before you submit your application

You should talk to the Council about your proposal. They can advise:

- what information should be included in your application
- whether a pre-application site visit is warranted
- how your proposal could avoid or minimise impacts to land resources, through improved design or siting of the development.

Information to be provided

1. Site plan

You should attach a site plan to your application. Preferably, you should use an aerial photograph or satellite image as a base, although this is not absolutely essential. The plan should identify:

- the boundary of the property
- areas of sloping land, rock outcrops, land subject to temporary or permanent inundation (including wetlands), native vegetation, or scattered trees, on the property
- location of watercourses and drainage lines
- the location of the development site within the property
- the location and extent of land that is required to be disturbed, within the development site
- the exact location of where works and buildings are to be located
- justification that there are no other areas on the property that may be more suitable for the proposed development.

2. Describe the development proposal

The disturbance of soil in areas that are highly susceptible to erosion, sedimentation or inundation (waterlogging and salinity) require particular development standards to ensure that impacts from development do not affect areas adjacent or outside the subject site.

Some types of development can have an impact on accelerating erosion and sedimentation on steep land, or on land with particularly fragile and dispersible soils. Developments in areas subject to impeded drainage, waterlogging or salinity should also be carefully examined to ensure expensive intervention mechanisms are not required in the future, to avoid damage to the infrastructure developed.

Areas mapped as having potential land considerations are likely to require additional information in a development application to demonstrate the proponent has identified the particular issue(s) affecting the development site, and that appropriate mitigation measures will be employed to alleviate any potential adverse impacts.

You should conduct an appropriate on-site investigation to ascertain:

- the particular natural resource issue (e.g. slope, erosion risk, salinity) that may be affecting your the development area. The mapping available from Council will assist
- the level of risk your development poses to the identified natural resource issue
- that your development has appropriate mitigation options that alleviate the particular issue
- that there are no other viable sites for the development within the property
- what remedial actions should be undertaken if impacts eventuate.

3. Evaluate the potential impacts of the development proposal

Answer **Yes** or **No** to each of the following questions.

Could the development proposal have an impact upon:	During the construction phase	During the operational phase
1. the volume of soil leaving the site		
2. the stability of the site		
3. native vegetation		
4. the volume and quality of rainfall runoff leaving the site		
5. the water quality or bed and bank stability of downstream watercourses		
6. the sub-surface drainage of the site or areas downstream		
7. any rock outcrops on the site		
8. the waterlogging or salinity status of the site or downstream areas		

4. Minimising impacts

a. For each of the boxes above where you answered '**Yes**', describe how you propose to minimise the impacts of your development proposal and monitor the effectiveness of your mitigation measures (attach additional page if necessary).

Explanatory Notes

Implementing the Environmentally Sensitive Lands – Land Overlay

Guideline for Local Government Planners

This Guideline aims to assist Local Government Planners implement the Land clause attached to the Land Overlay.

How was the Land layer compiled?

Land capability mapping of the Eastern and Central divisions of NSW were prepared by the then Soil Conservation Service (SCS). An eight-class classification was used based on an assessment of the biophysical characteristics of the land, the extent to which these will limit a particular type of land use and the technology available for land management. The primary concern was minimising soil erosion risk. Land with the greatest potential for agricultural or pastoral use is Class 1, grading to land entirely unsuitable for either being Class 8. A descriptive table and report are available from DWE.

Standard aerial photography was the principal interpretation base, with line-work being mapped directly onto relevant topographic sheets. Land capability was determined using best available land use data, and, extensive local knowledge of climate, soils, geology, geomorphology, soil erosion, site and soil drainage characteristics. Mapping was captured at 1:100,000 scale, and on completion, maps were field checked.

The Land layer includes a range of attributes. These include any land:

- with slopes greater than 25%
- with a high proportion of rock outcropping
- any land subject to high erosion potential,
- any land subject to salinity or impeded drainage; and,
- any land subject to regular or permanent inundation.

Step 1: Verifying the Land Overlay

The information in the layer has been composed from existing available data, including mapping that was completed at up to a 1:100 000 scale. Therefore, the mapping may not always be accurate at the site scale.

Firstly, confirm that a land 'attribute' is present on the site. Generally, these attributes relate to a hazard/physical constraint, as listed above. It is relatively simple to confirm the boundaries of the map units on the site.

The DA should include information about the particular land attribute that is found on the site.

Step 2: Avoiding impacts to Land attributes

Applicants, and council planners, should ensure that any proposed development avoids impacts on the attributes listed on the previous page. In particular:

- Has the proponent documented the particular land issue relevant to the site (ie steep land, saline outbreak, subject to inundation etc)?
- Has the proponent documented whether the impact on a particular land attribute can be mitigated and how adverse impacts have been avoided?
- Are there alternative sites on the property that could reasonably accommodate the proposed use or development that avoids potential impacts?

- Are there alternative viable property management options that will avoid or minimise impacts on the attributes identified in the Land layer?

If it is considered that adverse impacts are likely, and cannot be further minimised or avoided, and are still likely to be significant, is the land suitable for the proposed use or development? The DWE recommends in this scenario that the application not proceed to Step 3.

Step 3: Mitigating or minimising impacts to Land attributes

If the potential impacts to land matters cannot be avoided, but can be mitigated or minimised, the third step requires the proponent to identify how these impacts can be mitigated/minimised. This is likely to require expert input to project design or management. Questions to be considered in this step include:

- Has the proposal been planned and designed to minimise potential impacts?
- Has the proponent identified the measures required to mitigate/minimise potential impacts?
- Would a modified proposal actually reduce potential impacts?
- Is a modified proposal that minimises impacts feasible?

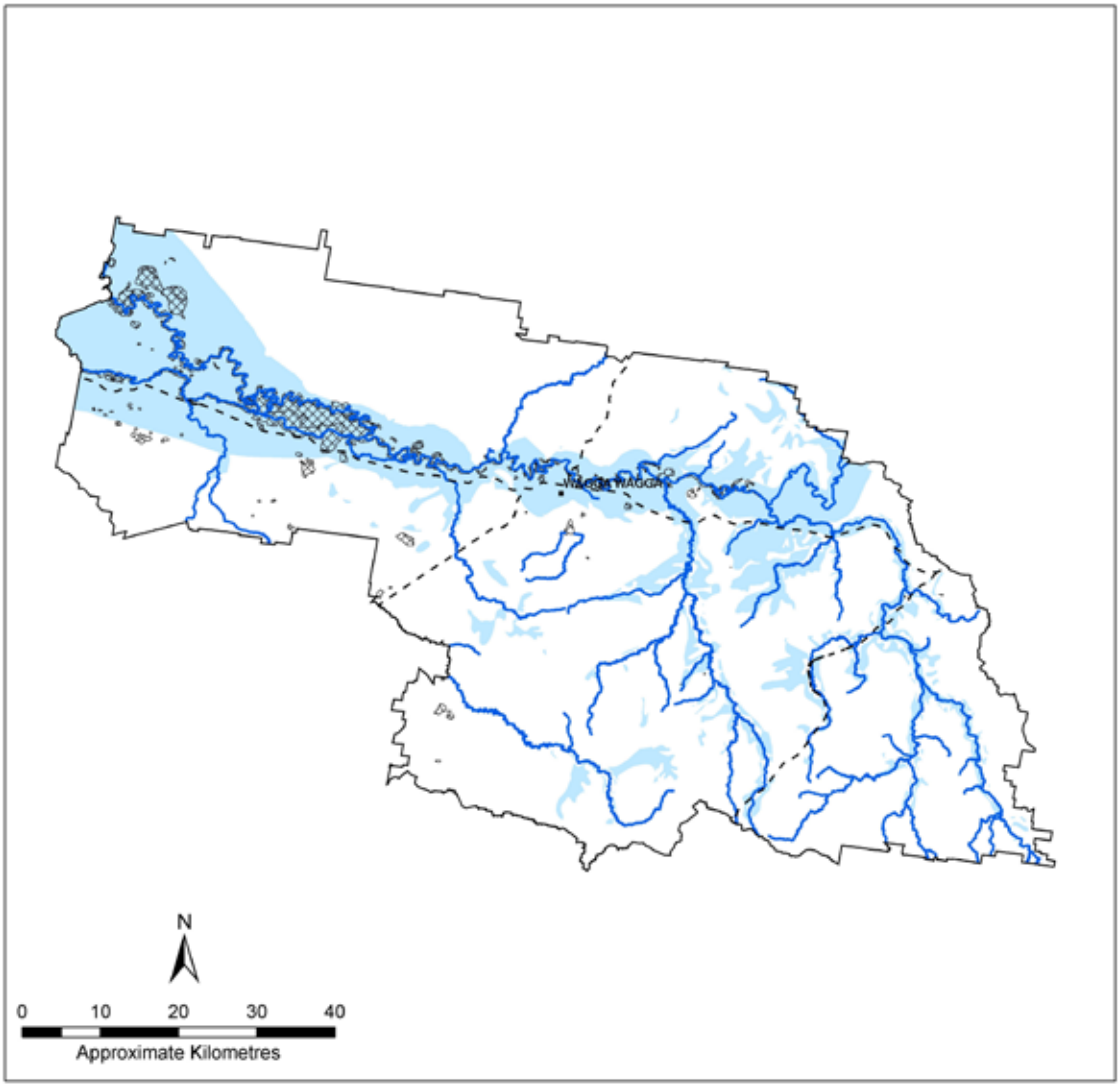
If impacts to land assets have been avoided and/or minimised to the fullest extent practicable, assessment of the proposal should proceed.

Step 4: Assessment

If the issues relevant to the site requires additional expert assessment, the determination of the application should be deferred until this assessment has been undertaken. The consideration by Council should include all relevant expert information to ensure the particular land issue is appropriately addressed.

6 Water

Environmentally Sensitive Lands: Water Overlay (Example)



Wagga Wagga LGA

Environmentally Sensitive Land - Water Overlay

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Legend

- Local Government Boundary
- Sensitive Waterways (Major freshwater habitats -40m buffer either side for bed & bank stability; protection of riparian vegetation & connectivity of habitat)
- Wetland
- High & moderately high groundwater vulnerability
- NSW Highway
- Town

Environmentally Sensitive Areas
Water Overlay Data

Data Source	Data Codes
Vulnerable Riparian Areas	All codes + 40m buffer either side of high bank
Groundwater vulnerability	High and Moderately High
Kingsford Wetlands Data	

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Groundwater

Example Clause

Environmentally Sensitive Lands – Groundwater

(1) The objective of this clause is to protect and preserve groundwater sources.

(2) This clause applies to land that is identified as a "Sensitive area" on the Natural Resources Sensitivity Map—Water.

(3) Development consent must not be granted for development specified for the purposes of this clause on land to which this clause applies unless the consent authority is satisfied that the development:

(a) is unlikely to adversely impact on existing groundwater sources, and

(b) is unlikely to adversely impact on future extraction from groundwater sources for domestic and stock water supplies, and

(c) is designed to prevent adverse environmental impacts, including the risk of contamination of groundwater sources from on-site storage or disposal facilities.

(4) The following development is specified for the purposes of this clause:

(a) aquaculture,

(b) intensive livestock agriculture,

(c) industries,

(d) liquid fuel depots,

(e) mines,

(f) rural industries,

(g) service stations,

(h) sewerage systems,

(i) turf farming,

(j) waste or resource management facilities,

(k) water supply systems,

(l) works comprising waterbodies (artificial).

Applicants Kit

Additional information required for Development Applications within the Groundwater Vulnerability Overlay

_____ Shire has a 'Water Overlay' (map) and associated clause in its Local Environmental Plan. This identifies areas with Groundwater Vulnerability – those that have highest susceptibility to groundwater contamination, or, are likely to have high value for supply of water to town, stock and domestic, irrigation and commercial users, where contamination can not be tolerated.

The aim of this clause is to minimise the potential for contamination of vulnerable aquifers that are essential for use as sources of town, stock, domestic and irrigation water, particularly in drought. These areas are not the preferred location of development that requires land based solid and liquid waste disposal, such as intensive animal agriculture.

If any part of your Development Application (DA) falls in the defined area within the Groundwater Overlay and is a land use specified in subclause 4, you will need to complete this form to provide additional information to Council about the site, and about your development proposal. This will enable your DA to be assessed more quickly, and to reduce potential environmental impacts. While the mapping is an indication that the area is underlain by permeable soils more susceptible to contamination, an on-site soils and hydrogeological investigation is recommended.

Before you submit your application

You should talk to the Council about your proposal. They can advise:

- what information should be included in your application, and
- whether a pre-application site visit is warranted.

Information to be provided

1. Site plan

You should attach a site plan to your application. Ideally, you should use an aerial photograph or satellite image as a base. The plan should identify:

- the boundary of the property
- areas mapped as having moderate or moderately high groundwater vulnerability. This mapping will be available from Council
- location of watercourses, drainage lines, and seasonally inundated areas (wetlands)
- the location of the site, within the property, where the development is proposed
- within the development site, identify the location and extent of land that is required for waste storage and/or recycling
- justification that there are no other areas on the property that may be more suitable for waste storage and/or recycling.

2. Describe the development proposal

In preparing your proposal, you should be mindful that effluent irrigation and/or solid waste application is encouraged when it is safe and practicable to do so, and where it provides the best environmental outcome. Substituting effluent for high quality water (wherever high quality water is being used for a purpose for which effluent water would be acceptable) is encouraged. Where this is not possible, or would not provide the best environmental outcome, effluent should be returned to the water cycle in a socially and environmentally responsible manner.

Some types of development can have a degrading impact on groundwater aquifers, particularly those that store, or recycle solid or liquid waste on land that is identified as having high or moderately high susceptibility to groundwater contamination.

It will be impossible to determine if effluent irrigation or solid waste application is sustainable without undertaking a hydrogeological assessment of the site to which waste will be applied. A common misconception of sustainability of waste application is the agronomic sustainability which generally involves moving salts beneath the root zone of plants to ensure growth and high yields (required for managing nutrients in waste). This is not the sustainability criteria that DWE use in determining potential impacts from waste application.

It is important that the quality of the groundwater aquifer is ascertained, along with the nearby users of the resources through DWE. The quality of the aquifer should not be placed at risk of contamination, even over the long term. This is achieved by undertaking on site investigation, as described below.

You should fully investigate the soil and hydrogeological conditions of the area through an appropriate level of on-site drilling to ascertain:

- the soil lithology beneath the site through drillers logs
- the depth to the shallowest aquifer (water bearing zone) through water level measurements and survey plan of the water level in surveyed to the Australian Height Datum (AHD)
- the flow gradient of the aquifer which can be derived from the survey plan and an appropriate level of drilling
- the location of transmissive alluvial aquifers, through calibrated EM 31 or 38 surveys
- the quality of the aquifer in terms of water chemistry
- potential interaction with deeper aquifers
- proposed groundwater monitoring program
- proposed remedial actions should contamination be detected.

3. Evaluate potential impacts of the development proposal on aquifer quality

Answer '**Yes'** or '**No'** to each of the following questions.

Could the development proposal have an impact upon:	During the construction phase	During the operational phase
1. the water quality within the aquifer (e.g. by salts or nutrients leaching into aquifer)		
2. the volume of effluent moving through the soil profile and recharging the aquifer (i.e. mound formation)		
3. any nearby groundwater bores/users		

4. Minimising impacts

For each of the boxes above where you answered '**Yes**', describe how you propose to minimise the impacts of your development proposal and monitor the effectiveness of your mitigation measures.

Explanatory Notes

Implementing the Environmentally Sensitive Lands – Water Overlay (Groundwater Vulnerability)

Guideline for Local Government Planners

This Guideline aims to assist Local Government Planners implement the groundwater vulnerability clause associated with the Water Overlay. This clause is most relevant to those developments that store, dispose or recycle solid or liquid wastes on-site.

How was the Groundwater Vulnerability layer compiled?

The mapping was based on the DRASTIC methodology. DRASTIC is an acronym for the most important mappable features within the hydrogeologic setting which control groundwater pollution.

These features are:

- D – Depth to watertable
- R – (Net) Recharge
- A – Aquifer media
- S – Soil media
- T – Topography (slope)
- I – Impact of Vadose Zone Media
- C – Conductivity (Hydraulic) of Aquifer.

To assess groundwater pollution potential within hydrogeologic settings, numerical ranking is used on the DRASTIC features. There are 3 significant parts – Weights, Ranges and Ratings.

Step 1: Verifying the Groundwater Vulnerability layer

The information in the layer has been compiled from existing available data, including mapping at a 1:250 000 scale. Therefore, the mapping may not always be accurate at the site scale.

Generally, the attributes shown in the mapping relate to the potential for groundwater contamination of a site. It is difficult to confirm the boundaries of the map units on the site unless an on-site investigation is undertaken.

The DA should include information about the depth to groundwater and particular soil types present beneath the site through on-site investigation.

Step 2: Avoiding impacts to Groundwater resources:

Applicants, and council planners, should ensure that any proposed development avoids impacts on groundwater resources. Consideration of the following questions will assist:

- Has the proponent documented the standing water level of groundwater beneath the proposed development site?
- Has the proponent documented the soil types beneath the site and determined if they are suitable to eliminate the potential for groundwater contamination?
- Has the proponent documented the quality of the groundwater and identified any nearby users of the resource?
- Has the proponent documented whether potential contamination can be avoided or mitigated and how adverse impacts will be monitored?

- Are there alternative sites on the property that could reasonably accommodate the proposed use or development that avoid potential groundwater impacts?
- Are there alternative ways to manage the waste that may avoid contamination?

If it is considered that adverse impacts to groundwater are likely and cannot be further minimised or avoided, and are still likely to be significant, is the land suitable for the proposed use or development? The DWE recommends in this circumstance that the application not proceed to Step 3 particularly in areas with high quality groundwater aquifers that are used or interconnected with those used for potable or stock water supplies. The NSW Groundwater Quality Policy states that groundwater resources must be protected from contamination, and special protection must be given to town and drinking water supplies.

Step 3: Mitigating or Minimising impacts to Groundwater resources

If the potential impacts to groundwater resources cannot be avoided, but can be mitigated or minimised the third step requires the proponent to identify how the impacts will be mitigated/minimised, and monitored. This is likely to require expert input to project design or management. Consideration of the following questions will assist:

- Has the proposal been planned and designed to minimise potential impacts?
- Has the proponent identified the measures required to mitigate/minimise potential impacts?
- Would a modified proposal actually reduce potential impacts?
- Is a modified proposal that minimises impacts feasible?
- Has the proposal detailed how monitoring of groundwater will occur?

If impacts to groundwater resources have been avoided and/or minimised to the fullest extent practicable, and a credible monitoring program that meets DWE requirements is proposed, assessment of the proposal should proceed.

Step 4: Assessment

If the issue relevant to the site requires additional expert assessment, the determination of the application should be deferred until this assessment has been undertaken. The consideration by council should include all relevant expert information to ensure that the groundwater contamination issue is appropriately addressed, and contamination of aquifers used for or connected to those used for potable and stock water are protected.

Waterways

Example Clause

Environmentally Sensitive Lands – Waterways

(1) The objectives of this clause are to protect or improve:

(a) water quality within waterways, and

(b) stability of the bed and banks of waterways, and

(c) aquatic and riparian habitats, and

(d) ecological processes within waterways and riparian areas, and

(e) threatened aquatic species, communities, populations and their habitats, and

(f) scenic and cultural heritage values of waterways and riparian areas.

(2) This clause applies to land that is:

(a) identified as a "Sensitive area" on the Natural Resources Sensitivity Map—Water, or

(b) situated within 40 metres of the bank or shore (measured horizontally from the top of the bank or shore), of a waterway on land identified in subclause (a).

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority has considered a report that addresses the following matters:

(a) identification of any potential adverse impact on any of the following:

(i) water quality within the waterway,

(ii) aquatic and riparian habitats and ecosystems,

(iii) stability of the bed, shore and banks of the waterway,

(iv) the free passage of fish and other aquatic organisms within or along the waterway,

(v) habitat of any threatened species, population or ecological community,

(b) the likelihood that the development will increase water extraction from the waterway for domestic or stock use and the potential impact of any extraction on the waterway,

(c) a description of all proposed measures that may be undertaken to ameliorate any potential adverse impact.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development is consistent with the objectives of this clause and:

(a) the development is designed, sited and managed to avoid any potential adverse environmental impact, or

(b) if a potential adverse impact cannot be avoided, the development:

(i) is designed and sited so as to have minimum adverse impact, and

(ii) incorporates effective measures so as to have minimal adverse impact, and

(iii) mitigates any adverse impact through the restoration of any existing disturbed area on the site.

Applicants Kit

Additional information required for Development Applications within the Sensitive Waterways Overlay

_____ Shire has a 'Water Overlay' (map) and associated clause in its Local Environmental Plan. This overlay identifies 'Sensitive Waterways' that:

- have value for fish, waterbirds, frogs, turtles and other aquatic flora and fauna
- have value for supply of water to downstream users, and/or
- are at risk of bank erosion.

The Sensitive Waterway area is considered to include the bed of the waterway and to extend 40 metres from the top of the bank or 40 m from the edge of the waterway (where there is no well defined bank).

The aim of the Sensitive Waterways Overlay is to reduce impacts upon waterways, maintain and improve water quality, maintain and improve the ecological integrity of the waterway and encourage the recovery of threatened species, communities, and their habitats.

If any part of your Development Application falls within the Sensitive Waterways Overlay, you will need to complete this form to provide additional information to Council about the site, and about your development proposal. This will enable your DA to be assessed more quickly, and will also assist in reducing potential environmental impacts.

1. Site plan and site information

You should attach a site plan to your application. Preferably, you should use an aerial photograph or satellite image as a base, although a section of topographic map or well drawn sketch may suffice. The plan should identify:

- the boundary of the property and location of the waterway and all associated waterway features including high flow channels and any areas that might be seasonally inundated (wetlands)
- the location of the development site (i.e. development footprint), within the property
- the boundaries of all allotments if the proposal is for a subdivision
- the exact location of where works and buildings are to be located showing minimum distances to the waterway.

You should include colour photographs of areas within the waterway (within 40 m) that will be affected by the proposal. Pay particular attention to valuable habitat features (e.g. snags, stands of reed, native trees and shrubs), obvious problems (e.g. bank erosion, willow infestations) and existing developments (e.g. pump sheds, road crossings, weirs).

2. Describe the development proposal

In preparing your proposal, you should be mindful that developments can have a range of impacts, and it is important to consider how these might arise. Some have most impact during the construction phase, whilst others have most impact during the operational phase. An in-stream weir or road crossing may not affect vegetation or water quality but could affect fish passage. A boat ramp may not affect fish passage but could affect bank stability. A subdivision may not affect the waterway initially, but as the lots are developed, will in time lead to increased water extraction and loss of riparian vegetation.

You should fully describe the development proposal and construction method including:

- plans or sketches of the development (cross section, long section, plan views) in relation to waterway features
- construction method including site establishment and temporary structures
- proposals for water quality protection generally and erosion and sediment control in particular
- rehabilitation of disturbed areas at the completion of construction.

3. Evaluate the potential impacts of the development proposal upon waterway values

Answer '**Yes**' or '**No**' to each of the following questions.

Could the development proposal have an impact upon:	During the construction phase	During the operational phase
1. water quality within the waterway (e.g. by disposal of effluent, by disturbing soil on the banks and exposing it to erosion by streamflow, wave action or rainfall, by doing works 'in the wet')?		
2. aquatic and riparian habitats and ecosystems (e.g. by removing bank vegetation, by removing snags, gravel, sand etc, by filling the waterway, by removing aquatic vegetation)?		
3. stability of the bed, shore or banks of the waterway (e.g. by removing bank vegetation, by reshaping the bank, by placing a structure in the water or on the bank, by increasing the number of boats)?		
4. the free passage of fish and other aquatic organisms within or along the waterway (eg by constructing a weir, installing a culvert, constructing a road crossing other than a bridge).		
5. the habitat of any threatened animal or plant? (You may need to seek advice regarding what species are likely to occur along the waterway in question.)		
6. water extraction from the waterway (eg by increasing the number of allotments with frontage to the waterway)?		

4. Minimising impacts

a. For each of the boxes above where you answered '**Yes**', describe how you propose to minimise the impacts of your development proposal? (Attach additional pages if necessary.)

b. For any long term impacts identified in part 3 above that cannot be avoided or minimised to negligible levels, describe how you propose to 'mitigate' those impacts (attach additional pages if necessary).

Note: If the information provided in this form indicates that there may be impacts on threatened species, populations or communities (or their habitats), Council may require additional information to be provided.

Explanatory Notes

Implementing the Environmentally Sensitive Lands – Water Overlay (Sensitive Waterways)

Guideline for Local Government Planners

This Guideline aims to assist Local Government Planners implement the Sensitive Waterways layer.

How was the Sensitive Waterways layer compiled?

The Sensitive Waterways layer includes two main attributes. These include one or a combination of:

- Prescribed Streams i.e., streams identified under the provisions of the *Native Vegetation Act 2003*.
- Key Fish Habitat maps produced by the Department of Primary Industries. Key fish habitat includes marine waters, estuaries, lakes, lagoons, impoundments, billabongs, permanently and intermittently flowing rivers and creeks. It excludes small ephemeral streams and gullies (first-order and second-order streams) and many artificial waterways such as irrigation channels and drains, urban ponds, farm dams, etc. However, some of these may have been included where they are known to provide important habitat for threatened species.

Step 1: Verifying the Waterways layer

The information in the layer has been composed from existing available data, including mapping that was collected at a regional scale. Therefore, the mapping may not always be accurate at the site scale.

As a first step, you will need to confirm that the sensitive waterways 'attribute' is present on the site. Generally, this attribute relates to the presence of a natural waterway or waterbody (although it may have been modified in the past). It is important to note that a waterway does not fail to exist simply because it is not flowing or is dry at the time. A waterway may still considered to be a 'sensitive waterway' even though it may be intermittently flowing or ephemeral. This is because it still performs important functions in relation to downstream water quality, flood conveyance, bed and bank stability, habitat, and habitat connectivity.

A waterway would not be considered a sensitive waterway if it was wholly artificial (e.g. irrigation channel or drain), and was not habitat for listed threatened species of aquatic organisms (fish, aquatic invertebrates, amphibians etc).

This Clause is triggered if any part of the proposed development footprint comes within 40 metres (measured horizontally) of the shoreline of the waterway (where there are no obvious banks) or within 40 metres of the top of the high bank which defines the waterway (consistent with the definitions for prescribed streams in the Native Vegetation Act).

The DA should include information about the waterway attributes that are found on the site (e.g. width, depth, gradient, permanency and regularity of flow, substrate types, instream and riparian habitat type, quality and condition, water quality attributes, artificial and natural structures that may affect fish passage, presence of upstream and downstream habitats, etc.).

Step 2: Avoiding impacts to Waterway values

Applicants, and council planners, should ensure that any proposed development is sited and designed to avoid impacts on the values of the waterway as much as possible. It is important to consider activities, such as access roads, which may be ancillary to the main development and not specifically identified as being part of the proposal. Consider the following:

- Can the proposal be moved or realigned to avoid impacts upon the waterway?
- Are there alternative sites on the property that could reasonably accommodate the proposed use or development that avoid the waterway?
- Has the proponent incorporated adequate buffers between the development and the waterway?

Subdivisions which create a series of allotments with waterway frontage will create new Basic Landholder Rights (BLRs – formerly known as Riparian Rights) and thereby increase the consumption of water. Not all waterways have capacity to supply extra demand for water.

Step 3: Minimising impacts to Waterway attributes

If impacts to the waterway cannot be avoided, the second step requires the impacts to be minimised through siting, design and long term management. Consider the following:

- Has the proposal been sited and designed to minimise impacts?
- Would a modified proposal involve fewer impacts or impacts of lower significance?
- Is a modified proposal that minimises impacts to the waterway feasible?
- Can additional management arrangements ameliorate the impacts?

If the waterway impact is considered necessary or cannot be avoided, and the impact has been minimised as much as practicable, then assessment of the application should proceed.

Step 4: Assessment

If the unavoidable impacts of the proposal are significant, the DA could be refused, or should be referred to DECC and/or DPI regional office for advice. If a DA involves (on a waterway) excavation or deposition of material, construction of a structure, or extraction of water, a permit may also be required under the *Water Management Act 2000* or the *Fisheries Management Act 1994*.

If threatened species, populations or ecological communities (including listed fish and aquatic species and communities) are likely to be impacted, the assessment should be in accordance with s5A of the EP&A Act (7-part test of significance). This may require a detailed ecological assessment, including site survey. If there are likely to be impacts on threatened species, populations or ecological communities the proposal could be referred to the relevant agency (DECC/DWE/DPI) for advice.

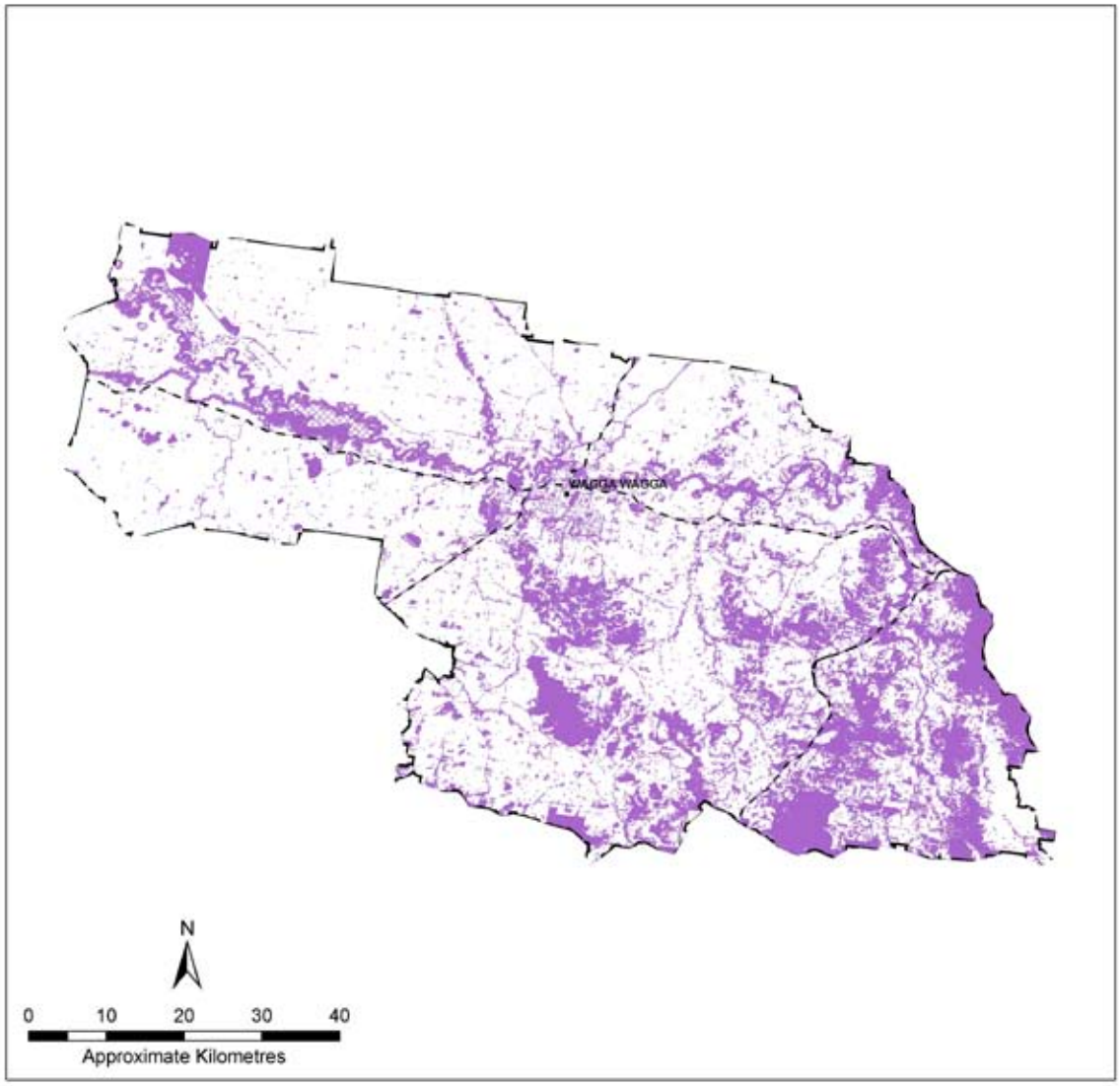
Step 5: Approval and mitigation

If the unavoidable impacts of the proposal are assessed as insignificant, the proposal can be approved. However, significant impacts should be adequately mitigated. Relevant mitigated for waterways may include:

- revegetation of degraded riparian zones
- removal of weeds from the riparian zone
- resnagging
- removal or modification of redundant weirs or road crossings which obstruct fish passage
- interception and treatment of stormwater pollution including gross pollutants and nutrients from urban areas and nutrients and turbid water from rural land
- stabilisation of eroding streambanks or foreshores
- purchase and transfer of existing water licences.

7 Biodiversity

Environmentally Sensitive Lands: Biodiversity Overlay (Example)



Wagga Wagga LGA

Environmentally Sensitive Land - Biodiversity Overlay

This land use decision making tool is based on information produced by the Departments of Water and Energy & Environment and Climate Change and does not represent other NSW Government agency information.

This information should be used as a guide only and scale must be taken into consideration when used with cadastral information.

Legend

Environmentally Sensitive Areas

- **Wetland**
- **High conservation value native vegetation**
- **Local Government Boundary**
- **NSW Highway**
- **Town**

Environmentally Sensitive Areas
Biodiversity Overlay Data

Data Source	Data Codes
Native vegetation mapping	DECC data
Wetlands	DECC data

DISCLAIMER
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Example Clause

Environmentally Sensitive Lands – Biodiversity Overlay

(1) The objectives of this clause are to protect, maintain or improve the diversity of the biodiversity, including:

(a) protecting biological diversity of native flora and fauna, and

(b) protecting the ecological processes necessary for their continued existence, and

(c) encouraging the recovery of threatened species, communities or populations and their habitats.

(2) This clause applies to development on land that is identified as a "Sensitive area" on the Natural Resources Sensitivity Map—Biodiversity.

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority has considered a report that addresses the following matters:

(a) identification of any potential adverse impact of the proposed development on any of the following:

(i) a native vegetation community,

(ii) the habitat of any threatened species, population or ecological community,

(iii) a regionally significant species of plant, animal or habitat,

(iv) a habitat corridor,

(v) a wetland,

(vi) the biodiversity values within a reserve, including a road reserve or a stock route, and

(b) a description of any proposed measures to be undertaken to ameliorate any such potential adverse impact.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development is consistent with the objectives of this clause and:

(a) the development is designed, sited and managed to avoid the potential adverse environmental impact, or

(b) if a potential adverse impact cannot be avoided, the development:

(i) is designed and sited so as to have minimum adverse impact, and

(ii) incorporates effective measures so as to have minimal adverse impact, and

(iii) mitigates any residual adverse impact through the restoration of any existing disturbed or modified area on the site.

Applicants Kit

Additional information required for Development Applications within the Biodiversity Overlay

_____ Shire has a 'Biodiversity Overlay' within its planning scheme. This overlay applies to sites which may have significant or threatened flora and fauna species, or areas of significant vegetation.

The aim of the Biodiversity Overlay is to maintain and improve the diversity of the landscape by protecting biological diversity, and encouraging the recovery of threatened species, communities, and their habitats.

If the site of your Development Application is within the Biodiversity Overlay, you will need to complete this form to provide additional information to Council about the site, and about your development. This will enable your DA to be assessed more quickly, and will also assist in reducing potential environmental impacts.

Before you submit your application

You should talk to the Council about your proposal. They can advise:

- what information should be included in your application
- whether a pre-application site visit is warranted, and
- how your proposal could avoid or minimise the removal of vegetation and habitat, through design or siting of the development

1. Site plan

You should attach a site plan to your application. Preferably, you should use an aerial photograph or satellite image as a base, although this is not absolutely essential. The plan should identify:

- the boundary of the property
- areas of native vegetation, or scattered trees, on the property
- location of watercourses and drainage lines, and any areas that might be seasonally inundated (wetlands)
- the location of the site, within the property, where the development is proposed
- within the development site, identify the location and extent of native vegetation, or location of scattered trees, that are proposed to be cleared
- the exact location of where works and buildings are to be located
- any areas on the property that may be suitable for revegetation; or, areas of existing trees, vegetation, wetlands or watercourses on the property that could be protected.

2. Describe the vegetation or habitat to be removed

a. The vegetation is generally (tick one):

☐ Scattered trees over introduced pasture ☐ Scattered trees over native pasture

☐ Woodland ☐ Forest / Bushland ☐ Native grasses and shrubs only

☐ Wetland / swamp

Note: Trees are 'scattered trees' where there are generally less than 4 trees per hectare.

'Woodland' refers to area where box trees are generally dominant (> 4 per ha)

b. Provide a brief description of the vegetation
For example: 'Mature Yellow Box trees, over mixed pasture, with no shrubs'
'Ironbark and stringybark, of varying age and size, with wattles and other shrubs'

c. What area of vegetation / habitat are you proposing to remove?

_____hectares or _____m^2 (strike out whichever is not applicable)

3. How many trees are within the area proposed to be cleared? Please complete the following table.

Tree species (e.g. Yellow Box, Red Stringybark, etc)	Number of trees of this species with diameter less than 40 cm	Number of trees of this species with diameter between 40 and 80 cm.	Number of trees of this species with diameter greater than 80 cm	Total number of trees of this species proposed to be removed

Note: Diameter should be measured, not circumference.
Diameter is measured 1.3 metres above ground

Diameter Circumference

4. Minimising impacts (attach additional pages if required)

a. Please describe why the removal or destruction of vegetation and habitats cannot be avoided.

b. Please describe how you have tried to minimise the impacts of your development proposal.

c. Please describe how you may be able to 'offset' the impacts of vegetation or habitat loss by:

- revegetation on another part of your property, or
- better protecting and managing existing vegetation and habitats on your property.

(**Note:** Your site plan should show the location of these areas.)

Note: If the information provided in this form indicates that there may be impacts on threatened species, populations or communities (or their habitats), Council may require additional information to be provided.

Explanatory Notes

Implementing the Biodiversity Overlay

Guideline for Local Government Planners

This Guideline aims to assist Local Government Planners implement the biodiversity layer.

How was the biodiversity layer compiled?

The Biodiversity layer includes a range of attributes. These may include:

- significant native vegetation (including vegetation which has been cleared from >70% of its former range, or is located in a landscape that has been >70% cleared)
- habitat for threatened species, and endangered ecological communities, both listed under the NSW *Threatened Species Conservation Act 1995* and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
- habitat for species under Migratory Agreements (e.g. JAMBA, CAMBA, Bonn)
- wetlands (Ramsar, Wetlands of National Significance, or State significant wetlands)
- wildlife corridors, including roadsides and stock routes of High Conservation Value.

Process for assessment of DAs where the Biodiversity overlay is triggered

Where possible, it is always preferable for the following steps to be undertaken before the DA is lodged, as part of a pre-lodgement site meeting.

Step 1: Verifying the biodiversity layer

The information in the layer has been composed from existing available data, including mapping that was completed at a regional scale. Therefore, the mapping may not always be accurate at the site scale.

So, it is first necessary to confirm that the biodiversity 'attribute' is present on the site. Generally, these attributes relate to the presence of native vegetation. It is relatively simple to confirm the boundaries of the map units on the site.

The DA should include information about the biodiversity attributes that are found on site.

Step 2: Avoiding impacts to biodiversity attributes

Applicants, and council planners, should ensure that any proposed development avoids impacts on these attributes. The following questions will assist:

- Has the proponent documented how adverse impacts to vegetation have been avoided?
- Are there alternative sites on the property that could reasonably accommodate the proposed use or development that avoid removal?
- Are there alternative viable property management options that will avoid or minimise removal of matters identified in biodiversity layer?
- If adverse impacts are likely, is the land suitable for the proposed use or development?

Step 3: Minimising impacts to biodiversity attributes

If the removal of native vegetation (or other impacts to biodiversity) cannot be avoided, the second step requires the amount of vegetation removal to be minimised through appropriate consideration in planning processes and expert input to project design or management.

Factors to be considered in this step include:

- Has the proposal been planned and designed to minimise removal?
- Would a modified proposal involve less removal of trees or vegetation, or removal of vegetation of lower significance?
- Is a modified proposal that minimises impacts to vegetation feasible?

Step 4: Assessment

If, in the proposal, impacts to biodiversity have been avoided and minimised to the fullest extent practicable, assessment of the proposal should proceed.

Lists of threatened species, populations and ecological communities have been provided by DECC to each council in the region.

If threatened species, populations or ecological communities are to be impacted this should be assessed in accordance with s5A of the EP&A Act (7-part test of significance). This may require engagement of consultants to undertake an ecological assessment and report, including site survey. If there are likely to be impacts on threatened species, populations or ecological communities the proposal could be referred to the DECC regional office for advice. If the seven-part test of significance indicates that the proposal may have a significant impact, then the proposal must be referred to DECC.

Step 5: Offsets

If the proposal is approved, any impacts on native vegetation and biodiversity should be offset.

- For every large tree (>80 cm dbh) cleared, the proponent should identify another site containing 10 large trees that will be protected.
- For every medium-size tree (between 40 and 80 cm dbh) cleared, the proponent should identify another site containing 5 large or medium trees that will be protected.
- For each small tree (<40 cm dbh) cleared, an additional 10 trees (of a species indigenous to the site) should be replanted.

These 'offset areas' should be protected from degradation, and managed to encourage natural regeneration of native species (e.g. through fencing, weed and feral animal control). For some developments, a formal 'positive covenant', or planning agreement, to legally protect the offset site may be warranted.

The 'offset area' should be identified as part of the proposal in the DA.

Acronyms

CAP	Catchment Action Plan (developed by CMAs)
CMA	Catchment Management Authority
DA	Development Application
dbh	diameter at breast height (1.3 m)
DECC	Department of Environment and Climate Change NSW
DoP	Department of Planning (NSW)
DWE	Department of Water and Energy (NSW)
DPI	Department of Primary Industries (NSW)
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
ESLs	Environmentally Sensitive Lands (from some current LEPs)
HCV	High Conservation Value
LEP	Local Environmental Plan
LGA	Local Government Area
NRM	Natural Resource Management
NV Act	*Native Vegetation Act 2003*