

## Planning for horse establishments

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This Primefact identifies critical planning issues and relevant planning principles and recommendations to consider when assessing proposals for horse establishments, particularly in rural locations. It applies to all equines including horses, ponies, donkeys, mules and other members of the *Equidae* family.

This document is part of a guideline series aimed at helping consent authorities (typically local councils) to minimise the risk of land use conflict and maintain sustainable primary industry development opportunities and production.

The guidelines focus on agricultural issues and do not purport to cover the full range of issues that consent authorities must address.

Proposals that trigger integrated development under the *Environmental Planning and Assessment Act 1979*, the provisions of the *Fisheries Management Act 1994*, the *Mining Act 1992* or the *Plantations and Reafforestation (Code) Regulation 2001* should continue to be referred to NSW Department of Industry and Investment (Industry & Investment NSW).

The guidelines may also help applicants, developers, consultants and the general public to identify important design considerations.

Applications for equine establishments may also require the applicant, or Council, to seek specialist technical advice from an independent consultant with relevant expertise.

Councils are the local planning and development authority in NSW, hence all enquiries with regard to applications for horse establishments should be directed to the relevant local council.

### Strategic planning for horse establishments

Councils are encouraged to develop rural planning and settlement strategies that consider the available rural resources and balance sustainable development opportunities for horse establishments with other rural land uses.

A key strategic planning outcome is the minimisation of land use conflicts between horse establishments, and between horse establishments and other land uses.

Table 1 provides examples of the types of horse establishments for the relevant definitions in the NSW standard Local Environmental Plan (LEP). Councils that have not yet developed a new LEP may have different classifications for horse establishments.

Table 1. Standard LEP definitions for horse establishments

Standard LEP definition	Type of development
Extensive agriculture	Horse grazing Rural small holding
Intensive livestock agriculture	Horse studs Agistment centres Rural small holding
Animal boarding or training establishments	Riding schools Race training centres
Recreation facility (major)	Racecourses Pony club grounds Showgrounds
Recreation facility (outdoor)	Equestrian centre



**Industry and Investment NSW recommends the following guiding principles to help plan for horse enterprises.**

- Horse establishments are consistent with strategic planning policies and zone objectives.
- Land use conflicts are minimised, amenity values are protected and the expectations of local communities are managed.
- Horse properties are designed and sustainably managed to minimise environmental impacts.
- Horse establishments that fragment rural resources, and/or increase land use conflicts are unsuitable for Primary Production Zones (RU1) or most Rural 1(a) Zones.
- Development application document and identify suitable mitigatory responses for:
  - environmental protection
  - horse health and welfare and biosecurity
  - amenity issues and land use conflict.

**Environmental protection**

**Sustainable stocking rates**

The biggest problem with most horse properties is overstocking. Well planned and managed horse establishments match the capability of the land with the stocking rate. This is essential to minimise or avoid soil erosion and sedimentation, weeds, reduced water quality and quantity, poor horse health and conflicts with neighbours. Although stocking rates are a useful guide for calculating the number of horses a property can reasonably support, they are subjective.

Table 2 is a generic guide setting out desirable stocking rates for smaller scale horse establishments that are typically non-commercial.

*Table 2. Guide to stocking rates on small holdings*

Pasture	Horses per hectare
Highly improved pasture with both summer and winter growing species. High rates of fertiliser and irrigation.	2
Reasonable summer dominant pasture with some winter pasture species and moderate rate of fertiliser.	1
Poor pasture, low rate of fertiliser mainly summer dominant pasture.	0.5

*Note: the above is only a guide for new horse owners.*

For larger establishments the sustainable carrying capacity should be calculated by comparing the productivity of pastures on the site (DSE per hectare per year) with the feed intake needs of horses (average DSE/horse).

DSE (dry sheep equivalent) is a comparative measure of feed needs which varies with the size and work of the horse as shown in Table 3.

*Table 3. Average DSE ratings for horses*

Horse Type	DSE
Light horse	10
Pony	6
Horse in light work	13.5
Horse in heavy work	18.7

Different pastures (and soil types) are also capable of carrying differing stocking rates. Typical DSE ratings for common pastures in NSW tableland and coastal regions is shown in Table 4.

Where the capacity of the land is exceeded, animals will require supplementary feeding and there is a higher risk of overgrazing pastures, environmental degradation, fall in horse welfare and biosecurity risks. For further information on stocking rates for horses see Primefact 525 *Pastures for horses*.

*Table 4. Average DSE/ha rating for NSW tablelands and coastal pastures.*

Type of pasture (unirrigated)	Average DSE / ha*
Native, unimproved, low fertility or country dominated by poa tussock	1.25–3
Cleared, moderate fertility, native grasses, no seed or fertiliser	2.0–5
Moderate fertility, native grasses plus sub clover and fertiliser	5.75–10.0
Moderate fertility sown with phalaris sub clover and fertiliser	7.5–15
Rotational grazed lucerne	12.5
Extensively grazed lucerne	8.75
Kikuyu + clover + over-sown ryegrass and fertiliser (highly improved)	25–30 summer 16 winter

To identify the carrying capacity of a horse property, calculate **A** and **B** as per below.

**A** = Total area available for grazing (in hectares) multiplied by the average DSE rating for the property (see Table 4).  
*Exclude areas not suitable for grazing (e.g. dense bushland, wetlands, areas occupied by buildings).*

**B** = the total number of horses on the property multiplied by the average DSE for the type of horses (see Table 3).

If **A** equals or exceeds **B** there should be sufficient pasture to meet ongoing feed requirements.

To identify the number of horses that the property should be able to sustain divide **A** by the **average DSE** for the type of horses (see Table 3).

### Intensive horse establishments

Yarding or stabling horses allows higher stocking rates to be sustained, but also requires greater inputs and outputs. There is also greater risk of land use conflicts and environmental impacts. For instance, where horses are confined to yards, ground disturbance and manure deposition is also confined and concentrated. There can also be increased risk of neighbour disputes due to dust, flies, odour or traffic.

To ensure that environmental, amenity and land use conflicts are minimised, intensive horse establishments require careful planning, effective environmental protection measures and a higher level of management.

Intensive horse establishments are better suited to rural production zones with appropriate separation from residences and smallholdings.

The suitability of an intensive management system can also be limited by the physical and chemical properties of the soil. Sodic soils, for instance, are highly dispersive and susceptible to erosion and are less suited to intensive horse establishments.

### Soil, vegetation and weed issues

Good soil and pasture management will prevent soil erosion and sedimentation, pugging and compaction, and maintain the health and welfare of horses.

Pugging from the impact of horse hooves on wet and muddy land will damage pastures and soil structure and can lead to erosion. Also, on muddy ground, horses can suffer hoof problems, skin irritations and falls.

Weed management is particularly critical for horse properties because of selective horse grazing and the introduction of weed seeds through imported feed.

Weeds thrive on land that is bare, has limited competition from pasture, and/or has too many nutrients. Weeds compete with good pasture land and spread to surrounding properties, potentially causing neighbour disputes and increasing the costs of weed control for other land users.

Weeds can also affect horse health. For instance, Paterson's curse (*Echium plantagineum*) and fireweed (*Senecio madagascariensis*) can cause liver disease. Crofton weed (*Ageratina adenophora*) is very poisonous and flatweed or cat's ear (*Hypochaeris radicata*) is associated with causing stringhalt in horses.

Horse establishments that are well designed can minimise soil erosion and overgrazing by managing the social behaviour of horses. For instance horses tracking along fence lines can lead to channelling and gullying as the top and sub soil layers are removed. This can be aggravated if the fences run down the contour of the land.

Remnant bushland, endangered ecological communities, areas of high biodiversity value and individual trees within horse paddocks can be easily damaged by foraging and trampling from horses. Mid-storey vegetation and ground cover are particularly vulnerable. Fencing off remnant vegetation will provide ecological benefits as well as providing shelter and shade for horses.

Recommended soil, weed and vegetation management practices include:

- Stock paddocks at a sustainable level based on DSE and pasture types.
- Have sufficient space and paddocks to rotate horses to allow pasture regeneration and prevent weed growth, soil erosion and contamination with intestinal worms.
- Maintain at least 80% groundcover and 2.5 cm high pasture all year round to reduce erosion risk, dust, sedimentation and weed infestations.
- Surface high traffic areas (e.g. yards, riding areas, gateways, laneways, watering and feeding points) to reduce dust, mud and soil erosion. Rubber matting, sand, asphalt, cement or quarry rubble are sometimes used.
- Locate facilities on well drained areas, avoiding water courses and dams (preferably fence out such areas).
- Avoid slopes greater than 15% due to the increased risk of soil erosion, particularly if not well vegetated. A slight slope encourages drainage.
- Minimise tracking up and down fences by keeping horses in herds rather than as individuals.

- ☑ Double fence and plant vegetated buffers to discourage congregation of horses near fences.
- ☑ Encourage the growth of trees around yards and in paddocks to help stabilise the soil. Trees also provide shelter in paddocks and yards.
- ☑ Protect individual trees and ecological communities by fencing them out of areas accessible to horse trampling or foraging.
- ☑ Develop an Environmental Management Plan (EMP) that identifies target and priority weeds and outlines actions to maintain effective pasture cover, manage weeds and protect vegetation over an extended period.

An EMP provides a useful resource for the property owner/ manager that identifies critical environmental issues and outlines when and how to rejuvenate pastures and control weeds.

### Water management

Surface water runoff from horse paddocks and yards can transport soil, pasture and weed seeds, chemicals and manure into waterways such as rivers, lakes and estuaries. Sub surface or ground waters can also be affected by excessive nutrients or water extraction.

Neighbourhood disputes frequently arise as a result of water pollution events affecting individual properties. Water pollution can also have a regional cumulative effect.

Recommended management practices include:

- ☑ Maintain a competitive pasture and actively manage soil erosion.
- ☑ Maintain well pastured buffers between yards/ paddocks and waterways to assist with reducing erosion and reducing runoff to waterways.

Manage surface water by separating 'clean' (rainwater) from the 'dirty' or grey water that runs off more intensively used sites such as yards.

Subject to requirements in the [NSW Farm Dams Policy](#), diverted clean water may be captured on-site or allowed to re-enter the natural water system at a stable point.

Grey water can be productively reused on gardens or paddocks but this depends on the quantity and quality of the water and the capacity of the soils to absorb nutrients. Water and soil testing will identify appropriateness for reuse.

- ☑ Water from washing down stables, floats and horses can pollute waterways and should be directed to swales or diversion drains to allow

water to be dispersed across a paddock before leaving the property. Councils may also require disposal to a grey-water or sewerage system particularly if cleaning products are used.

- ☑ Stables, yards and manure piles should be located above dams or diversion drains so that they trap sediment and nutrients below the horse facilities. Where possible, periodically clean out such structures to minimise nutrient build up.
- ☑ Floors of yards, stables and sheds should provide adequate drainage by using materials such as gravel, woodchips, sawdust or recycled shredded cardboard.



*Water troughs minimise impacts on stream banks and riparian vegetation. Photo Scott Richards.*

### Manure management

An average horse produces about 22 kg of manure every day. Horse manure and used stable bedding can emit odour (mostly ammonia) and attract flies, particularly during hot weather. Manure can also contaminate waterways if it comes into contact with surface water.

Overloading fertiliser on soils will additionally create a nutrient imbalance that can affect pasture growth, encourage weed and algal growth, affect groundwater and choke waterways.

Recommended management practices include:

- ☑ Document how manure will be dealt with.
- ☑ Harrow manure in paddocks to spread nutrients uniformly, encourage quicker break down and assist with parasite control. Balance the application of manure (and fertiliser) with soil and pasture nutrient needs. A test for salinity will determine whether salt levels in the soil need to be managed and monitored.
- ☑ Establishments with more than 5 horses and confined areas (< 2 ha) should complete a nutrient budget to ensure that nutrients applied do not overload the soils.

- ☑ Consider options to remove manure from the site to avoid nutrient overload.
- ☑ Compost manure before spreading it if horses are predominately stabled or it's a larger scale operation (more than 5 horses). Composting should preferably be done in a well designed manure bay.
- ☑ Site the manure bay / composting area downwind from nearby neighbours.

Avoid low lying areas or drainage channels/ watercourses as that will slow down the composting process, and may cause odours and contaminate waterways.

- ☑ Monitor temperature and moisture closely to ensure effective composting of manure.

Useful additional information on managing and composting horse manure is available at: [www.horseslandwater.com](http://www.horseslandwater.com) ([Horse manure brochure](#)), or published web articles such as [Horse manure: an easy guide to composting](#).

## Horse health and welfare, biosecurity and emergency management

### Design for horse welfare & hygiene

- ☑ Design stables / yards to allow ready cleaning out, especially in intensively managed horse establishments.
- ☑ Where possible, orient horse shelters and yards to the north to capture the winter sun and avoid the prevailing winds. Ensure shelters are adequately drained and sited to prevent water capture.
- ☑ Clean stables, yards and horse floats on a regular basis and clean up feed and hay spills as quickly as possible.
- ☑ Good drainage and manure management and disposal will reduce disease risks and reduce the incidence of mosquitoes and flies.
- ☑ Good insect control in stable/yard areas is also important for both animal welfare and amenity values.
- ☑ Reduce vermin problems by storing feed in vermin proof containers (i.e. drums or silos).

The Industry & Investment NSW website ([www.industry.nsw.gov.au](http://www.industry.nsw.gov.au)) provides further information on measures to ensure the [welfare of horses](#).

## Water requirements

To meet welfare needs and minimise conflicts, horse facilities need a reliable source(s) of water of sufficient quantity and quality, particularly during dry seasons.

- ☑ Allow an average of 25–30 litres of water daily for adult horses (weighing 450 kg to 600 kg) to drink on average. Water requirements are less for horses on lush pastures, while working horses on dry feed will consume considerably more, especially in warm weather. Ageing and lactating horses will vary in their water requirements.
- ☑ Ensure that drinking water for horses is fresh and clean. Dam water may be appropriate as a water source, but algae formation can render water unpalatable, and in some cases toxic. If dam water is used, fence the dam and reticulate water to watering points to prevent muddying the water and pugging at the edges.
- ☑ Allow additional water for bushfire fighting, washing animals, facilities and floats and maintaining pastures.

## Biosecurity

Biosecurity is an important part of managing any horse facility. Horse diseases include tetanus, strangles and horse herpes. Such diseases can be introduced by the arrival to a property of a new horse that is either infected or is a carrier that has been in contact with other infected horses. Equine influenza and Hendra are exotic diseases that require special biosecurity measures for control.

Recommended design features to control horse disease to stop it from spreading include:

- ☑ Providing facilities to isolate new or infected horses. Isolate new arrivals for at least two weeks, checking daily for signs of ill health.
- ☑ Keeping all equipment used by the new or infected horse separate from other equipment.
- ☑ Where possible and practical separate horses on a property into sub groups to reduce the risk of disease spreading through the entire property.
- ☑ Preventing nose to nose contact between horses on different properties. This is often done by providing a fenced vegetated buffer.

Further information on restricting and responding to horse diseases is available in the [Primefacts Notifiable animal diseases in NSW](#) and [Stop the spread of horse diseases](#).

## Emergency plans

Planning for emergencies (e.g. fire, flood, storm events or disease) and possible horse deaths at a local and individual business level allows better coordination of emergency management responses by the relevant authorities.

All horse facilities should develop an emergency response plan to minimise the loss of life, injury and property damage and avoid costly disruption to business.



*Yards and laneways help to move horses during emergencies and to monitor their health for biosecurity reasons. Photo: Alf Manciangli.*

Emergency plans should:

- Identify and analyse the likely risks and consider preventative measures to minimise risks.
- Identify responses and responsibilities.

Smaller enterprises may need to evacuate horses from the property during bushfires or floods.

Larger horse facilities will usually keep animals on-site during emergencies. Options include: identifying and managing flood refuge areas, installing gates on higher ground, preparing bare ground areas or stables suitable for holding horses when bushfires threaten, installing sprinkler systems in buildings and holding emergency stock feed.

Fact sheets on the [NSW DII website](#) contain information on biosecurity and emergency management for horse properties.

- A guide for animal holding establishments
- Advice for pet owners during emergencies
- Help your animals survive an emergency
- Notifiable animal diseases in NSW
- Emergency assistance for horse owners
- Stop the spread of horse diseases
- Livestock flood refuge mounds.

During extreme fire danger days, horses can be moved to low risk areas such as fallow, swampy, green or closely grazed paddocks.

- Identify options for the disposal of horses in the event of death either by natural causes or from emergency situations.
- Plan for recovery.
- Be reviewed periodically to ensure the plan is relevant and effective.

## Amenity issues and additional conflict risks

### Visual and transport impacts

Well managed horse establishment can enhance the rural landscape and character. Horse facilities can also impact on local views and outlooks. Larger facilities can also generate significant traffic movement on rural roads.

- Consider the siting and colour of facilities to reduce visual impacts.
- Screening can significantly reduce visual impacts. Vegetation also provides shade and shelter for horses.
- Larger scale horse facilities should assess visual impacts and submit landscaping plans.
- Assess the likely number of vehicle movements and potential impacts on residences and the road network. This is especially critical if regular movement of horses from larger facilities and larger size vehicles are likely to be required.

### Subdivision and rural workers dwellings

Larger scale and more intensive horse establishments may require rural workers to reside on site to ensure horse welfare.

Subdivision for horse facilities, however, should not receive the support of the consent authority unless the proposed development satisfies the relevant zone objectives, planning criteria and strategic considerations. The risk of current and future land use conflict from increased residential densities also needs to be assessed.

Subdivisions that target equine pursuits or lifestyle living should fit with zone objectives and consider:

- providing road reserves of adequate width to permit recreational horse riding.
- the environmental, aesthetic and practical aspects of any facilities proposed as well as long term maintenance and upkeep issues.

Further information is available in NSW DII Primefacts on [Rural workers dwellings](#) and subdivision (in production at time of publishing).

## Additional information

Industry & Investment NSW has additional web based information ([www.industry.nsw.gov.au](http://www.industry.nsw.gov.au)) and publications related to planning for horse establishments. See the following in particular.

Put yourself in the picture – caring for your small rural property, 2006. Available from the NSW Industry & Investment bookshop.

[Living and working in rural areas](#), 2007

[Preparing a development application for intensive agriculture in NSW](#), 2006.

[PROfarm educational courses](#)

Other useful resources include:

[Managing horses on small properties by Jane Myers](#)

[Tamworth regional horse management guide](#)

Pastures for horses – a winning resource by Angela Avery, published by RIRDC. Available from the RIRDC bookshop.

[Environmental management on horse properties](#), 2007. RIRDC

[Horses, land and water: a community of practice](#), 2006

[Environmental management on the urban fringe: horse properties on the rural urban fringe](#), 2004. Department of Environment and Conservation.

[NSW Farm Dams Policy](#)

[Healthy land, healthy horses: a guidebook for small properties](#), 1998. RIRDC

Relevant local Government Development Control Plans (DCPs). Available on local government websites.

## References

[Standard Instrument \(Local Environmental Plans\) Order 2006](#)

[Horse properties on the rural urban fringe: best practice environmental guide for keeping horses](#). Department of Environment and Conservation (NSW).

[Code of Practice for the care of horse at the University of Western Sydney Horse Research and Demonstration Unit](#)

[Primefact 836. Stop the spread of horse diseases](#)

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