Constructing Outdoor All-Weather Arenas

Series No. 2

Teagasc
Agriculture and Food Development Authority

Constructing Outdoor All-Weather Arenas

When constructing an all-weather riding arena it is important to follow the correct procedures for design and construction to ensure the arena remains useable for many years. The aim is to provide a riding arena that can be used under all weather conditions. The surface should be firm, yet offer some cushioning effect to minimise jarring and at the same time allow some forward movement of the foot on landing to give controlled deceleration. Both these properties help to keep the horse sound.

The following notes provide an outline of the procedures involved in constructing an all-weather riding arena.

Planning permission

Under the Planning and Development Act 2000 (Part 3 - Exempted Development) outdoor all weather arenas are listed in class 10 as being exempt from planning permission provided the following are adhered to:

- No such structure shall be used for any other purpose other than the exercising or training of horses and ponies
- No such area shall be used for the staging of public events
- No such structure shall be situated within 10m of any public road, and no entrance to such areas shall be directly off any public road
- The height of any such structure shall not exceed 2m

Site

Consider the following when choosing a suitable site for an all-weather outdoor arena:

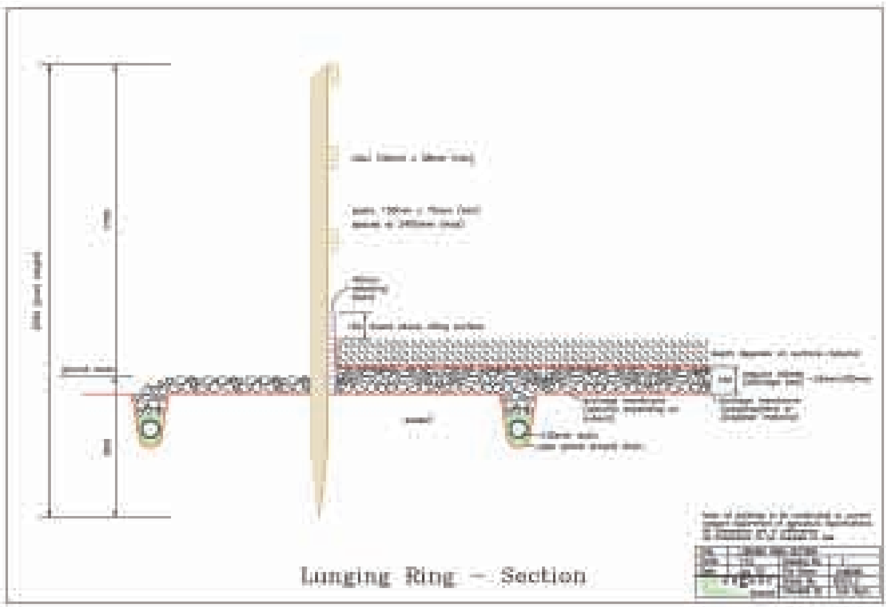
- Proximity to the stables with good approach and access under poor weather conditions
- Drainage from the site and the surrounding land
- Access to service road during construction
- The slope of the site
- The prevailing winds and shelter
- Access to electricity and water
- Proximity to visual or noisy distractions
- Scope for future extension

Recommended Specifications for New All Weather Arenas

Size

The size will be determined by the intended use and may either help dictate, or be dictated by, the site.

For lunging the minimum size should be 15m x 15m square or for circular arenas 15m diameter. A 20m square or diameter is recommended.
A standard dressage arena must measure 20m x 40m. For jumping 25m width is recommended.



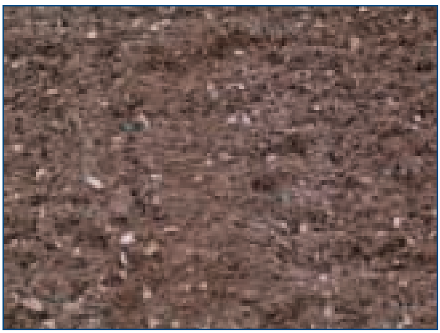
Construction

Having selected the site and the surface, it is necessary to design and construct a base to link the two together. The base must be strong enough to withstand impact damage. It must not break up or add unsuitable material to the surface. The arena should be constructed above ground level to facilitate drainage. Sloping sites must be levelled out by the cut and fill method. Check that:

- the fill is compacted
- the banks formed by the cut are sloped
- the area levelled is at least 1m larger on all sides than the required arena size
- the finished site is level
- run off water cannot ingress into the site

Topsoil

The top soil should be removed.



Field Drains

Field drainage should be provided 5m apart under the drainage bed especially in areas of local high rainfall or if site considerations dictate. It may also be necessary to provide drainage away from the site to a watercourse or soak away.

Drainage Membrane

A drainage membrane will prevent soil from mixing with and fouling the drainage bed. It should be placed on subsoil that is loose. It shall also line the drainage channels.
When the base is firm this membrane is not essential. The membrane should be porous polypropylene and be laid and overlapped to the manufacturer's instructions.

Drainage Bed

The drainage bed will provide a foundation to the arena and provide space for the rainwater falling on the surface to collect and drain out. Therefore part of the drainage bed must be above ground level. The bed should be constructed of angular stones, 50mm to 100mm, with no fines and not be less than 150mm in depth. The aim is to produce a base surface which is level, solidly locked together, yet porous. It has to provide adequate drainage, but not let any fine material in the surface pass down into the base.

Fence Posts

Posts should be rectangular, minimum of 150mm x 75mm (preferably 150mm x 100mm) and the longer side at 90 degrees to the rails, 2.55m long, and placed 0.8m into the ground. The maximum space between the posts should be 2.4m. Space of at least 3m must be left for gateways.

Drainage Bed Surface

A drainage membrane placed over the stone drainage bed is strongly recommended. Overlaps should be stitched together and the edges turned up and fixed to the inside of the retaining boards, using batons. A 40-50mm layer of permeable tarmac may be substituted for the drainage membrane.

Retaining Boards

Retaining boards 40mm thick should be used to confine the surface material. The top of the boards should be 150mm above the finished height of the arena. They should be supported at 1.2m intervals using a combination of posts driven into the ground and the fencing posts.

Riding Surface

There are many variations and materials which can be used for the riding surface. Daily usage and maintenance must be considered to be critical factors to balance against price.
A good surface should enable the user to carry out all equestrian disciplines in both the best and the worst weather. The speed at which the water drains through the riding surface is paramount to its correct functioning. A surface should suit the needs of the user of the arena. The cost of the surface will also influence the final choice.

The following surface materials are acceptable, (a) wood chips (b) washed sand or clean pit-run sand (c) granulated PVC (d) rubber chips (e) latex covered sand (f) polypropylene fibre (g) combinations of these (h) or other accepted surface.

Maintenance

All artificial surfaces need maintenance. Maintenance will determine the quality of going, the effective life of the arena and the frequency with which it can be used. Procedures must take account of weather, type of use, and amount of use. Weather conditions can affect the frequency of watering. Type and amount of use will govern the frequency of levelling, harrowing, or rolling – whichever is appropriate.

Riding school arenas tend to experience intensive use, possibly with follow-the-leader type tracking. It is always worthwhile using as much of the surface as possible by changing the track used and not always sticking to the boards. Lunge areas can require a high level of maintenance as the same track is compounded over and over.

All surfaces need keeping level. Some surfaces like the monofilament-bonded sand need periodic rotovation to keep the fibre mixed. This can also apply to blended materials, like PVC with fibre and sand. Other materials like fibred rubber have relatively large particles which tend to stay on top by natural regeneration. A high ratio of fibred rubber in the mix can be used to lay a surface of relatively low volume which allows the use of a roller to keep it level, rather than harrowing to break up the surface. Surfaces bonded with water, wax or oil-based materials will compact to give a dead ride and need harrowing or rotovating to keep the surface open for drainage, and to fluff it up.

Any arena perimeter will tend to build up surplus material. This must be returned to the adjacent track whenever necessary. Most surfaces require a minimum depth either to protect the membrane, or to prevent the surface material being crushed between the horse and the base.

The other maintenance factor is how often you will need to top up or replace the surface. Again, this will vary according to material, usage and the efficiency of interim maintenance.

Fence Rails

Rails should be 100mm x 38mm. A minimum of three rails shall be on the arena side of the post. Post and rails may be constructed of proprietary PVC systems.

Gates

Gates should open both inwards and outwards and be at least 3m wide. The gates should be unsheeted and when erected be at least 1.75m high. Wooden gates should have four horizontal 100mm x 40mm rails.

Whilst all-weather has become the accepted term for ‘artificial surfaces’ there really is no such thing if we are truly honest with ourselves. The best we can therefore hope for is to construct a surface that will meet most of our requirements most of the time.

Remember to be realistic in your expectations, visit as many arenas as you can. Find out for how long they have been in use, how intensively they are used and how much maintenance is required.

For further Information contact:

Wendy Conlon, Teagasc
Mellows Centre, Athenry, Co. Galway
Tel: 091 845200 Mobile: 087 9879083
Email: wendy.conlon@teagasc.ie

Declan McArdle, Teagasc
Grange, Dunsany, Co. Meath
Tel: 046 9026718 Mobile: 087 6831876
Email: declan.mcardle@teagasc.ie

Teagasc
Agriculture and Food Development Authority

NDP
National Development Plan