



Kestor Lane Longridge Pump Track Design Information

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1 Introduction

1.1 Site Location

The site is in the existing open grass area in Longridge Recreation Ground. Site coordinates are 53.829638, -2.604115. The pump track is to be located immediately to the South of the existing skate park (which is to be retained). It is entirely within the boundary of land under the ownership of Ribble Valley Borough Council. The available area for the pump track and associated infrastructure is approximately ~1500m² in size.

1.2 Site Constraints

1.2.1 Utilities

Line searches have concluded the immediate site area has been found to not affect any underground utilities or services.

1.2.2 Safety

A 3 metre safety buffer is maintained between the track and any obstruction in line with RoSPA guidelines.

1.2.3 Trees

There are no trees within the immediate site area. There are trees around the development area which have been given adequate clearance buffers. No trees are to be felled.

1.2.4 Archaeology

No archaeological designations or areas of interest have been identified at the site.

1.2.5 Access

The site is to be accessed from Kestor Lane.

2 Project Brief

2.1 Client Brief

- Provide a safe, friendly, public community space that encourages sociability in the area.
- Caters to a range of ages and skill levels – a place to play and gain skills on bikes.
- The pump track must be designed in such a way as to be fun and challenging for all abilities – from beginners to seasoned riders.
- The track should consist of a continuous circuit of landscaped banked turns and mounds, carefully spaced and positioned so they can be ridden entirely by riders "pumping" their bike.
- The track must flow from one feature to another and ride smoothly.



Suitable for a wide range of users and abilities



2.2 Consultation Outcomes

A public consultation was held by Velosolutions where the initial design and its featured was presented to the local community as part of the design development process. Feedback and discussion over the design was welcomed and used to revise the final design.

The following points were raised during the consultation process to add to the client brief:

- Inclusion of a double berm
- Inclusion of 4 jumps on the advanced line
- Multiple connection areas

3 Design

3.1 Pump Tracks Overview



Example of a Pump Track in Lisbon, Portugal

A pump track is an all wheeled sports facility defined as a closed loop with closely spaced rollers, rolling features and bermed corners. Pump tracks provide a technical learning facility for different disciplines and considered a place where riders go to relax, ride themselves but also to watch other riders and socialise. A learning rider will initially pedal/push around the loop, but as their speed and skill increases, they are able to generate speed from the corners and rollers without pedalling/pushing, which is the overall concept behind a pump track. Once a rider is able to do this, they can progress to being able to manual and jump between features in various combinations limited only by their ability and creativity. This highlights the inclusive nature of a pump track and their appeal to the widest possible range of rider abilities and wheeled sports users. Pump tracks also offer a range of other benefits. All features on the track are relatively low in elevation and the speeds involved are low too, keeping the safety risk factor to a minimum, whilst offering an exciting facility to ride. The pump track is also an excellent cross training facility for wheeled sports disciplines. Riding a pump track involves using not only your legs, but also works your upper body and core muscles. Although riding without pedalling sounds easy, it is physically much more tiring than pedalling alone. Indeed, for riders who have mastered any given pump track, the number of laps possible is then usually only limited by their own fitness.

3.2 Proposed Design Overview

Our proposed design is outlined in this document alongside the attached drawings as listed in the table below.

Drawing Number	Drawing Title
Kestor Lane Pump Track Location Plan	Location plan with Site Boundary
KLN01_2	Site Plan
KLN02_2	Pump Track Plan
KLN03_2	Drainage Plan
KLN04_2	Pump Track Formation
KLN05_2	Signage Specification
KLN07_2	Site Sections

3.3 Track Layout

Velosolutions UK (AVUK) have designed a cutting-edge asphalt pump track for all wheeled sports to enjoy. The 175m length track has been designed to be suitable for all ages and experience with progression as a key part of the design. The interconnecting nature of the layout lends allows for creative riding options, but also provides a clear route as a continuous loop, as well as start and finish to the track. As with all Velosolutions tracks, no corners have been cut and the track is always doing something allowing riders to pump and flow around the track. Minimum track width is 2m.



Interconnecting Layout, Inverness, Scotland

3.4 Track Dimensions

The track is to be up to 175m in length with a fluid series of rolling features of variable height (from 0.4m – 1.8m in height) along each of the straights. The rest and connection areas are to be a maximum of 1.8m in height.

3.5 Design Details



Connected Design

The design has multiple connection areas to allow for transfer lines and creative riding options.



Long Straights

The design includes a long straight on the outside of the track providing a fun rhythm section and variable height rollers with double, and triple features included in the design.



S Corner

The swooping S-corner provides a variation from the straights, and allows riders to be playful with the track and hone on cornering skills.



Split Line

The track features a 55m split line where riders can opt into more advanced features.

3.6 Feature Shapes

The track is to contain a constant flow of rolling features of varying height (0.4m – 1.8m) and spacing to allow all wheeled sports to use the track effectively and maximise usability of the track. There are to be no flat areas on the track surface. All features are to be designed to be rollable and pumpable.



Shaping Detail, Cathkin Braes, Glasgow



The base shape of all features will be hand-finished by our highly experienced shapers to ensure the facility flows well, providing a fun and safe facility prior to laying the asphalt course.

Rollers are to be shaped with progressing riders in mind, with the amplitude and spacing of the features to allow the track to flow well without the need for aggressive riding. The profile of the transitions and backslopes of rollers will consider the users and speeds appropriately.

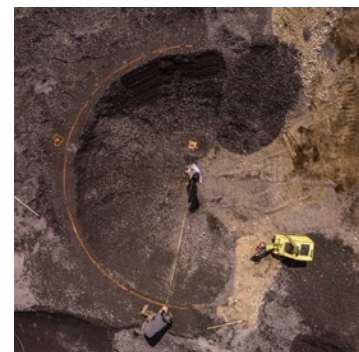
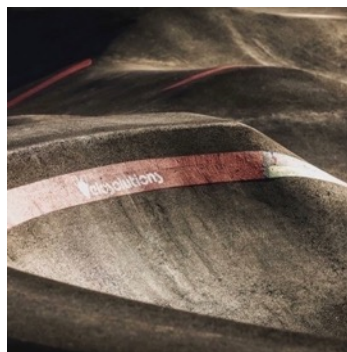


Young riders, Skelf, Edinburgh and Hartcliffe, Bristol

Berms are to concave in shape from 2% at the base up to 50°+ at the top section. This is to ensure riders can cater for the speeds that the track is capable and provide plenty of support for riders of higher ability. The concave shape of the turns also provides progression for improving riders with a flat area at the base of the turn with increasing slope angle higher up the turn as their speed increases.



Progressive shape berms cater for both high and low speeds.



Shaping a consistent corner radius

Corner radii are also carefully considered in the design to ensure riders can generate speed by pumping through the turns, whilst not being too tight and slowing riders down.

3.7 Rest Areas

Rest areas are included in the track design. Riders spend a large proportion of time observing and coaching others than riding themselves, so provision of areas to safely spend time is important. Riders like to hang out and observe other riders from other elevated areas. Areas of flat ground adjacent to the track are not generally used. This design method reduces damage to the surrounding area of the track as well as reducing the risk of collision, making this a paramount consideration in the infrastructure design.



Rest Area, Wishawhill, Craigneuk and Skelf, Edinburgh



3.8 Start/Finish Ramps

From the elevated rest areas start/finish ramps will allow riders to safely join/leave the track. These are to be a minimum of 1m in width. Dropping in from an elevated position will help riders to get up to speed. Conversely, exiting up the ramp will help riders to easily slow down when exiting the track.



Dropping in at Wishawhill



Start Ramp, Swiss Bike Park, Bern

3.9 Lighting

No lighting is proposed within this development.

4 Safety Considerations and Standards

Velsolutions ensures the safety of our pump tracks is a key priority in their design. As well as ensuring the tracks flow well with no abrupt features the following considerations are taken into account in the design.

4.1 RoSPA Safety

The track is to meet RoSPA guidelines. This includes considerations of factors given below:

- 3m safety buffer zones, free from any obstacles (e.g. fencing and proposed lighting columns)
- Access point enters directly onto the facility across a suitable surface
- Avoid building near/under tree canopies.
- Turfed embankments to ensure no bare soils.
- Line marking and arrows
- Provision of safety signage (outlined below)

A post installation inspection will be booked in advance to be carried out on the completion date.

4.2 BSI Standards

The track design meets safety standard BS EN 14874:2019, where appropriate.

4.3 British Cycling Standards

The track design meets and exceeds British Cycling's BMX track guidance (*Developing the Right Cycling Facilities: BMX Tracks, Sport England/British Cycling, 2017*), where applicable for pump tracks.

4.4 Additional Safety Measures

4.4.1 Safety Lines

Painted lines are to partly follow the edges of the pump track. The lines will play with the design of the final features, as well as to show lines of priority. Where sections of track are connected, painted lines give a visual indication of track layout, which is especially useful during busy periods. Paint is a highways standard hard wearing, traffic line marking paint, embedded with glass grain for slip resistance.



Red Lines, Wishaw



Painted Lines, Norway

5 Specification

5.1 Materials

Velosolutions' team of experienced and skilled construction staff will ensure the track will be built to the highest quality standard, guaranteeing longevity. The track is to be constructed from the following materials

5.1.1 Base Course - Type 1

The frost proof type 1 base course is also compacted in 300mm layers using an RC trench compactor, ensuring no settlement of the base material occurs after the asphalt has been laid, which can cause the asphalt surface to crack over the coming years. It also reduces the pore space within the material and therefore reduces the chance of frost heave. The base course is shaped and compacted to extend a minimum of 200mm from the edge of the asphalt surface to avoid edge cracking from occurring. We will aim to use recycled aggregates to reduce the environmental impact of the development.

5.1.2 Surface Course - Asphalt

The surface course is a bespoke recipe single pass asphalt, designed specifically for pump tracks and only found on Velosolutions tracks. The asphalt mix provides an ultra-smooth, maintenance free surface offers a high level of grip which has the ability to hold on the steep berm slopes. The asphalt is laid by hand in 12 tonne loads by a team of no less than 10 workers from hatches and mixed at maximum temperature (180°C). This ensures that the asphalt can be compacted to refusal before it cools, providing a low porosity finish with a super smooth finish. This avoids water ingress and therefore frost heave. The asphalt is laid thick at 80mm compacted depth, which increases longevity of the surface and reduces fatigue cracking. Asphalt edges are chamfered at 45° and compacted. Deliveries of asphalt are scheduled back-to-back to ensure hot joints can be made to avoid water ingress. Joints are never located in the bottom of bowls to further reduce this risk. When starting a new day of asphalt, joint edges are cut vertically with a cut off saw, heated, and sandwiched with bitumen banding. The asphalt includes as high a recycled aggregate content as possible to keep the environmental impact to a minimum.



Example of Velosolutions custom specification asphalt



Skateboarding at Wishawhill Pump Track, Craigneuk

The result is a durable, smooth surface that provides plenty of grip (even in wet conditions) for not just bikes, but other wheeled sports, such as scooters and skateboards. This asphalt specification has been tried and tested on over 200 Velosolutions tracks across the globe. A combination of the asphalt recipe, sub and base course preparation and expert asphalt laying and compaction techniques will allow the asphalt surface to last at least 10 years and expected to last around 15 years.

5.2 Drainage

Pump Tracks' undulating nature and bowled shapes can lead to ponding if not designed properly.

5.2.1 Cambers and Crossfalls

To ensure that ponding does not occur on the track surface, a minimum of 2% crossfall will be used.

5.2.2 Surface water drainage

Surface water shed from the low permeability track surface will be managed by a series of inlets with silt traps, with culverts piping excess water away from the track into a French drain.



Installing drainage silt traps, Cheddar, Somerset



Clean drainage stone set away from track edge, Cathkin Braes, Glasgow

5.3 Landscaping

To avoid premature erosion, side batters around the perimeter of the track are to be graded to 2:3 gradient and no steeper than 1:1. Embankments are to be graded with smooth forms.

5.3.1 Topsoil

A minimum of an 80mm layer of topsoil is to be laid on embankments and ground requiring reinstatement.

5.3.2 Turf

A 1.2m strip of amenity turf is to be laid around all edges of the asphalt on the pump track and surrounding area. This is to ensure the landscape is protected and hardwearing from the opening of the facility. It is maintainable and minimises encroachment onto the track area.

5.3.3 Wildflower

The soiled areas within the track outside of the 1.2m turf strip will be wildflower seeded to help promote biodiversity and provide a great aesthetic to the facility.



Wildflower Seed, Bolton, Cumbria

5.4 Line Painting

Paint is to be a hard wearing, traffic line marking acrylic road paint, embedded with GEM 500 glass grain to increase slip resistance. Lines are to be masked at 200mm width. Line painting needs to be completed a minimum of 3 weeks after the asphalt is laid in order to prevent bitumen bleed and asphalt pulling.



Example of line painting, working with the design of the track features

5.5 Maintenance

The pump track is designed to require very minimal maintenance. It is expected that the track surface is to have a similar lifespan to that of a road (~15 years) and therefore not to require regular maintenance.

Safety checks are to be periodically carried out by site staff to ensure the track, landscape and drainage remain in a safe and functioning condition.

The track edge should be strimmed to ensure a defined edge that does not encroach on the riding surface.

