BMX Track Maintenance Best Practice Guidelines

Version
06.20.A

These maintenance standards may be used in conjunction with the track regulations of BMX New Zealand and of the UCI.

Contents

Version & Content Updates

Please note latest content in version updates are noted in red.

Document version is noted as Month/Year/Version in alphabetical sequence.

Purpose

Like any other sport facility, a BMX track requires regular maintenance to ensure that it stays in a race ready & safe condition. This maintenance is normally the responsibility of the club which is generally the primary carer of the track when open for public use. If other parties (private, contracted or council bodies) are responsible for track maintenance, then the BMXNZ Best Practice Standard should apply for delivery of an sport acceptable track surface. Where possible a BMX Club volunteer or manager should be inducted into the Maintenance Supplier business, so to assist or deliver the maintenance to the BMXNZ Best Practice Standard.
Regular maintenance of a BMX racing track is very important; the condition of the surface has a direct impact on the safety of all those using it.

BMXNZ Accepted Standard for BMX Tracks

All BMX tracks for affiliated club must conform to the specifications within BMXNZ rules & regulations. Where track are used for international events, UCI track regulations may also be required to be followed.
All tracks must have a hard, smooth and consistent surface, free from any irregularities that may pose a safety hazard to any riders. Hydrated Lime is concidered the 'normal' surface material in New Zealand.
Corners may be made of the same surface material as the main track. But it is highly recommended that all corners be sealed with an asphalt coating over a compacted metal base to reduce maintenance & increase safety of riders. Concrete corners are acceptable, but not recommended.

Suggested Equipment for Maintenance

- small rakes
- long-head rakes with bladed back
- square mouth shovels
- Watering hoses(approximately 200m total length)
- Spray gun for watering hoses
- Wheelbarrows
- 4-wheel All-Terrain-Vehicle (ATV) with slick tires

Long Head Rake

Wide Mouth Shovel

Slick Tired ATV or raised 4x4 Vehicle

Basic points on BMX track maintenance which are very important to note:

- It is normal for a thin layer of lime fines to rise to the track surface over time. Do not sweep it away, but instead water the track and compact the surface. A 4-wheel All-Terrain-Vehicle (ATV) with smooth tires can be used for this.
- Regular use of the track (racing / practice / public) will also help smooth and pack the surface layer.
- In dry weather, it is important to regularly water the track to help the surface maintain its integrity. This may need to be done every evening.
- In dry weather, always water the track before it is used.
- Do not ride on the track when it is very wet; this will help prevent ruts from forming. Ruts hold water and in turn compromise the surface, leading to larger damage.
- If puddles appear on the track surface during rain, it is important not to sweep away the water. Let the puddle dry and if needed, cover the area with a small layer of spare lime surface material to build up the low spot and pack it using the ATV for even compaction.

Maintenance Method

for Lime Surface Tracks

The aim of maintenance is to keep the race surface layer solid and firm. It is this 'crust' of lime that is the ultimate goal. The crust will slowly degrade with normal use, but faster with poor maintenance or extreme weather. Without consistent maintenance of the surface, it will dry up before disintegrating, and lose its compaction, then the race surface becomes patchy, loose and a safety risk.

The BMXNZ recommended standard is a minimum of 50mm of compacted lime (crust).

Lime application or maintenance is recommended when the track is dry and the weather benefits the curing process, either sunny dry weather or dry windy days. After any major re-liming the track or facility should be closed and rolled intensively until the lime has cured/hardened. This time period will vary from approximately 2-10 days depending on;

- Thickness of lime application
- Quality of Lime & Hardener
- Temperature, and other weather conditions
- How intensive the compaction, watering and raking methodology is.
- Any further damage to the surface before curing can be achieved

Two common issues are, when a poorly compacted surface becomes significantly loose, this is the main safety concern. Then secondly, if insufficient compacted lime is maintained, there is a risk of bleed through of the underlying substrate which can lead to more intensive repair requirements. In both cases, it is quicker, cheaper and better to maintain the surface regularly, rather than fix once issues arise.

Please note the use of plate compactors are not ideal or recommended for general maintenance, due to the effect of this machine to break down the formed crust with the vibration, also in wet areas the vibration will cause liquefaction, the process of altering the surface into a very soft, liquefied state. Do not run heavy machinery or large vehicles over a formed track as they can damage the race surface, but also alter the underlying substrates, creating an uneven base for the race surface.

Here are some key points to remember:

- Water the track as much as possible every night and before each use in case of daily use, and also in very dry weather.
- It is highly recommended to identify the times of peak of use of the BMX track and plan watering accordingly (for example, on the weekend). Water as much as possible – that is, to the point just before puddles just begin to form. Then stop watering.
- Identify the common damage areas on the track. These are normally as follows:
  - Jump landings: The surface can begin to break-up in areas where the riders commonly land after jumping due to impact and braking.
  - Take offs of jumps: these can gradually degrade due to pressure applied by bikes at speed.
  - Areas on the track where riders commonly stop to rest or watch what others are doing; quite often these are on obstacles located just before the turns, or sides of the track & obstacles.
  - Tracks are often frequented by mountain bikes. Which can prematurely erode the surface due to the hard knobbly tires and heavy braking with powerful disk brakes. Smooth and compact all MTB tire tracks as these attract sitting water and/or increase loose surface material.

Common damage areas must be treated with a special care:

- Instant replacement of the existing loose surface material with better quality lime, with the rake, the square point shovel. The shovel can be used to smooth and add to the initial compact, then used for shaping of surface.
- This is especially important in the approximately 1yr period after the track is first built; the surface will continue to harden with use, provided additional lime layers ae applied on a regular basis; however, after construction, the surface will be more susceptible to damage than usual.
- Thoroughly water these areas before and after each practice session or race, ideally, watering the track just before the facility closes for the night. This will allow the deep penetration of the water into the track surface, which helps to stabilize it.
- Areas damaged by riders should be closed after watering. BMX brakes are very powerful and can degrade the lime surface when it is not hard packed. Smooth the area then roll with an ATV with a pendulum movement in order to pack the surface (that is, don't start and stop the compacting movement of the ATV directly on top of the area that is being repaired; this will help to keep it smooth and aligned with the surrounding surface).

Over time, good maintenance and regular application of lime layers will progressively allow the track surface to become thicker and stronger, and the amount of work needed to maintain it will be reduced. Likewise, it is wise for coaches to set some good usage rules for the first year after construction and also in case of very dry weather. These include:

- Prohibit intentional skidding.
- Prohibit any motorized vehicle e.g. R/C Cars, e-scooters, e-bikes
- Prohibit unnecessary walking on the track.
- Ask people to ride only in the normal riding direction on the track (don't ride the track backwards).
- Prohibit U-turns on the obstacles.
- Prohibit hard wheeled vehicles such as skateboards and scooters.

In case small areas of the track begin to loosen or become less solid than others:

- Close the harder areas next to the soft spot with small cones to direct riders to roll on the soft/sandy area; this will help to compact it.
- Water the soft area to help the lime to bind.
- If larger, re-compact the sandy area with the garden roller, ATV.
- Direct riders to roll over this soft area until it becomes as hard as the rest of the track surface.

Again, please note:

- Do not sweep away loose material if an area appears too loose or sandy. Sometimes the mistake is to think "there is too much surface material in this location".
- Instead, replace the loose material with better quality material
- Use the long head rake to replace any loose material which has collected at the bottoms of the obstacles higher up where it came from.
- Water the area abundantly and pack the area with the ATV.

Track Maintenance Frequency

Maintaining a BMX track is daily work. Weather such as wind or sun can degrade the track surface quickly.
Someone must be assigned responsibility for maintaining the BMX track & plan its maintenance for the both the race season & off season.

Seasonal Maintenance – Full track lime coating of typically 50-100mm thickness across the entirety of the track. This is best done twice annually, prior to the season start, to build the surface. Then again after the season has ended, to protect the surface during winter.

Monthly Maintenance – For major issue resolution. Best done outside of general track use. Targeting reoccurring issue areas or high use areas. Surface replacement, ATV rolling, with larger time allowed for crust hardening.

Weekly Maintenance – For small issue repair. Track raking & rolling. Issue identification for major repairs.

Daily Maintenance – Raking, watering & rolling. Surface material replacement as needed in high use areas.

Track Surface Material

The accepted norm in New Zealand is to use Hydrated Lime as the race surface material. This is source from many locations around New Zealand. Each BMX Club will have a contact & quality that they are happy with. The quality of lime varies greatly & continuous communication is recommended with other clubs to define the best supplier at any point of time. Poor quality lime with poor quality hardner or poorer grade fines (coarser or larger metal), will increase maintenance times, frequency of maintenance & increase rider risk.

Additional hardner is required to be blended with the lime material and ranges from 3%-10% and depends of track/frequency/application needed.

Alternate Track Surface Material

As financial resources allow or the application become more affordable, alternate track coatings can be applied to track surfaces. This may be in the form of a ‘Soil-Tac’ material binder or ‘Sic-Surface’ polymer surface adhesive. These applications have specialised maintenance processes & and track managers will need to comply to the surface suppliers requirement to maintain a solid and safe race surface.

Water Fall Lines and Drainage

All track surfaces should be designed with the water fall line to dissipate water away from the race surface. During maintenance these fall lines should be maintain at all times, if not, sitting water on the race surface will cause further issues. Particular attention should be made to features with flat top surfaces, that the fall line is to the side of the feature, rather than down the front or back face.

Drainage is key to a track area that is possible to be used in all weather or all seasons. Under surface drain lines should follow beside all straights, these should be checked and maintained monthly, then fully cleared twice annually prior to the start of the summer season & prior to the winter season. As noted above, standing water leads to soft surface or sub-surface material, this in turn leads to easy damage and additional problems and remedies.

Track Marking

BMXNZ recommends track marking, but this is not critical. Highest importance is the inside of straights and corners as a visual guide for riders. Faces of the track features being the next requirement, then then whole track for BMXNZ Major Events.
Lines can be any colour, but one best that contrasts the surface material.

Track Maintenance Risk Management Plans (RMPs)

All Clubs must have in place a risk management process for track maintenance days. BMXNZ has available basic templates for BMX Club maintenance days, these RMPs can be used & customised for your use. Risk Management is a basic requirement for all Club activities.
Contact admin@bmxnz.co.nz for the templates

Other safety procedures to be undertaken during a maintenance session.

- Club Track manager to oversee the working bee & is responsible for all procedures and volunteers on site
- Track to be closed during a working bee if machinery is used. Complete single straight sections may be coned off for hand work on sections
- High vis vests supplied to all workers
- Volunteer age limits for all those at a working be of 15 years plus
- Machinery operators to hold the appropriate licence for any machinery being used

Track Facility Information

Track Fencing

It is recommended that all track facilities be fenced with a low 1-1.5m high solid frame fencing. The main goal of this is to stop motorised bike access. These bikes inflict the most damage to the track surface causing major safety hazards and results in extensive maintenance.
All fencing must be at least a minimum of 2m set back from the track edge.

Track Lighting

Track lighting is a large outlay for any BMX Club. But the advantages of increase facility usage is substantial. BMXNZ recommend that any lighting poles be placed outside the track area. Where poles cannot be placed outside the track area, any poles placed between the track straights, should be protected with padding.
Lighting strength for BMX racing must be a minimum of 200-300LUX

Infield Post Protection

The following spec recommendation should be applied for any infield posts. As an example, Lighting Poles or commentary hut poles.

- Cross-section can be round or square tube to fit posts as required
- Height: 2 m
- Padding Thickness: Minimum of 10 cm
- Material: 23 kg/m3 density polyurethane foam
- Cover: 1000-denier PVC
- Fasteners: Self-gripping velcro joining flaps

All padding should be resistant to humidity and adverse weather.

Track Signage

Signage is recommended to cover rider safety requirements as a priority, so rider clothing and expressly helmet requirements. Following these, other safety recommendations and then the rules of the track. These rules will differ from track to track and club to club. Be aware that local council regulations may be required to be concidered.
It is recommended to advise on ride rules in regards to wet or soft conditions.
It is recommended that BMX Clubs indicate what is NOT ACCEPTED USE for their track. These may or should include, scooters, cycles with knobbly mountain bike tires and especially any motorised vehicles e.g. Radio controlled cars or motorbikes.

BMX Facility Signage example;

BMXNZ Documents

BMXNZ documents are available online at www.bmxnz.co.nz these includes Club Resources, Health & Safety plans, Rules & Regulations & other sport information

UCI have developed a club track construction guide for the sport. This has further information to assist clubs build or maintain their facility. This document is also available online at the BMXNZ website.
If you have any questions regarding the above information please contact BMXNZ on admin@bmxnz.co.nz