COLLECTIVE trax

Design & Construction of

Mountain Bike Facilities

at

Levenmouth Academy, Methilhaven Rd, Buckhaven, Leven, KY8 1EA

Consultation Report V2

Re-imagining The Project as a Community Build

Report Produced By: Tom Durham

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Collective Trax – Background

Tom Durham formed Collective Trax in 2012, and has been busy working on mountain bike facility projects of various scales across Scotland ever since. These have ranged from small back garden pump tracks for young children, to feasibility and macro design studies for national scale trail centres. Clients have included many community groups, landowners, local authorities, national agencies, and large multinational companies in the renewables sector.

Tom blends his insight from being a mountain bike guide and coach, with several years as a ground worker, to identify what type of facility is best for your situation. He also regularly helps with trail design and management for use in competitions, and prides himself on producing designs that will be inclusive, progressive, and above all safe and fun to ride.

As well as producing design and specification documents, he also acts as Site Trail Designer during the construction phase. Ensuring that his designs are brought to life and give the best possible experience for the end users and the client.

Tom is a founder member and former chairperson of the Scottish Mountain Bike Consortium (SMBC). He also regularly participates in industry lead committees, was recently involved in the creation of the sportscotland guide to developing mountain bike facilities, and is undertaking an ongoing innovative study into mountain bike trail erosion alongside the Geotechnical Department at Napier University.

For contracts where it is required, other consultants with particular specialisms, such as environmental or forestry expertise, tourism business management or health and safety, are brought in to support the work that Tom carries out. These existing collaborations can greatly add to the value delivered at each stage of a project's life cycle.

1. Background

Duncan Zuill of Levenmouth Academy requested an initial consultation in January of 2018, to assess the potential for creating a mountain bike (MTB) facility on land immediately adjacent to the newly built Levenmouth Academy, that the Academy manages. The Initial Consultation Report was submitted in February of 2018 and should be referred to, to provide the context for this updated V2 version.

Duncan contacted us again in December 2018 to advise that the project had evolved and that he now wished to turn it into a 'Community Build' project, whereby members of the School and local communities would undertake the construction of the facility, under Duncan's guidance, and with professional input from ourselves.

This V2 report aims to give advice on carrying out the project in this manner and therefore much of the information within has been updated to reflect this.

For clarity, newly added sections in this report are in italic font.

The new Academy is one of the largest schools in Scotland and a range of mainstream sports facilities exist within the grounds. As a community use school, members of the public are encouraged into the grounds to use the facilities, which are easily accessible by road, public transport, and a network of cycle paths that link the nearby communities of Methil, Methilhill, and Buckhaven.

The Levenmouth area is classed as having high levels of deprivation, and the desire to build a mountain biking facility is aimed at reaching more disengaged members of the school community through diversionary activity, which cycling and specifically mountain biking are well documented as having a high level of success in this regard.

There is already much work being done by Clear Buckhaven, (Community-Led Environmental Action for Regeneration) who organise Dr Bike sessions, and bike recycling projects within the community and at the Academy. Clear were approached as part of this consultation but at the time of writing had not replied.

The Levenmouth area currently has no active MTB club, or purpose-built facilities, with residents having to travel to access any formal off-road cycling activity. The nearest of these are in Kirkcaldy (20 minutes by car), and at Lochore Meadows Country Park (40 minutes by car).

There is a nationally identified shortage of cycling facilities in the eastern end, as detailed in the Scottish Cycling Facilities Strategy. West Fife is becoming increasingly well catered for, with MTB trails as mentioned above, the new closed road circuit at Lochgelly, and a cycle speedway track in Dunfermline. However, given the size of

the various towns in east and north Fife, adding specific facilities that are designed for local people to use would bring benefits to a large population that is otherwise un-catered for.

It is key that any development at Levenmouth Academy must encourage participation of new and inexperienced mountain bikers as well as providing a fun challenge for those with more experience. The development should offer potential for skills coaching using the Go Mountain Bike scheme or similar, therefore it should include various 'Technical Trail Features' (TTFs) with progressive difficulty, as well as creating a fun facility that users want to return to repeatedly.

The facility should also be of a sustainable and low maintenance design and construction. There is potential for a fairly high volume of users on any track and so it must be able to stand up to the demands of this in all weathers.

2. Identified Area for Mountain Bike Trail Development

The area identified by Duncan for locating a mountain bike facility is a triangular area of land at the back of the Academy playing fields, to the west of the Academy buildings. The site covers an area of approximately 1.9Ha, of made up ground that has recently been planted with several thousand tree saplings. It is gently sloping away from the centre in each direction although is low lying and was wet underfoot at the time of visiting with standing water in evidence.

Duncan is trying to develop a biodiversity area on the site and has plans for a garden area and potentially a pond. There is a sealed single track road directly to the Academy boundary from the main entrance, which then provides access to the site via a vehicle gate. There is also a new sealed path running externally along the Academy boundary fence, providing direct traffic free access to Methilhill and Buckhaven.

2.1. Visualisation of site location within the Levenmouth area.

Note: The site is indicated by the orange polygon.

2.2. Site location detail. The site is indicated by the orange polygon.

Note: This satellite image shows the previous school buildings prior to the recent re-build.

2.3. Example site image. Looking south from the central point, showing small height gain and newly planted tree saplings.

3. Facility Concept

Given the requirement for a progressive facility to attract beginners and provide a satisfying experience for the more competent rider, a looped flow trail making the most of the available space will deliver the best value for the likely investment.

The looped flow trail itself should be split into distinct sections, with changing feature sets along its length, and include short cut links, allowing easy repetition of a particular section for coaching or personal skill practice. Using these links, a shorter loop for novice riders would also be possible, as well as aiding variety in the case of a rider doing multiple laps.

The trail would fall into the cross-country mountain biking trail grading system, using the Green, Blue, Red, Black progression; indicating the difficulty of features likely to be encountered, much like the grading system employed on ski pistes.

The main trail should be graded Blue, meaning it will be a fun and involving experience to ride. It should feature berms, rollers and possibly rock features simulating natural terrain as well as providing steps and drops in each of the different sections. More challenging Red graded features should be built as options where appropriate, either using bus stops or track divisions; meaning that riders can dictate how challenging they want their experience to be by choosing optional features if desired, ensuring that a different experience each time is possible. Additional red grade features may include: roller doubles, rock steps and causeways, etc.

It is important to stress that a track such as this would not be suitable for severe or 'Black grade' features – every feature should be roll-able, so would not include high drops or large jumps.

It is important however that the different sections of trail are of consistent riding experience and join together coherently as a full loop. This will ensure that the trail is an entertaining and engaging experience for more competent riders and those looking to ride several laps; to take some exercise after work for example. Access to the trail should be created at 3 points, allowing direct access from each end of the site close to the local housing, as well as centrally from the Academy.

A total track length of approximately a kilometre should be possible, although further design work will be required to accurately estimate this and produce a detailed layout.

In most facilities of this type and scale, it is advisable to include a large 'featureless' area on which complete beginners can practice basic skills, prior to trying a purpose-built trail. These areas also serve as a central area for hosting events and can be a useful multipurpose space. However, in the context of the site at Levenmouth

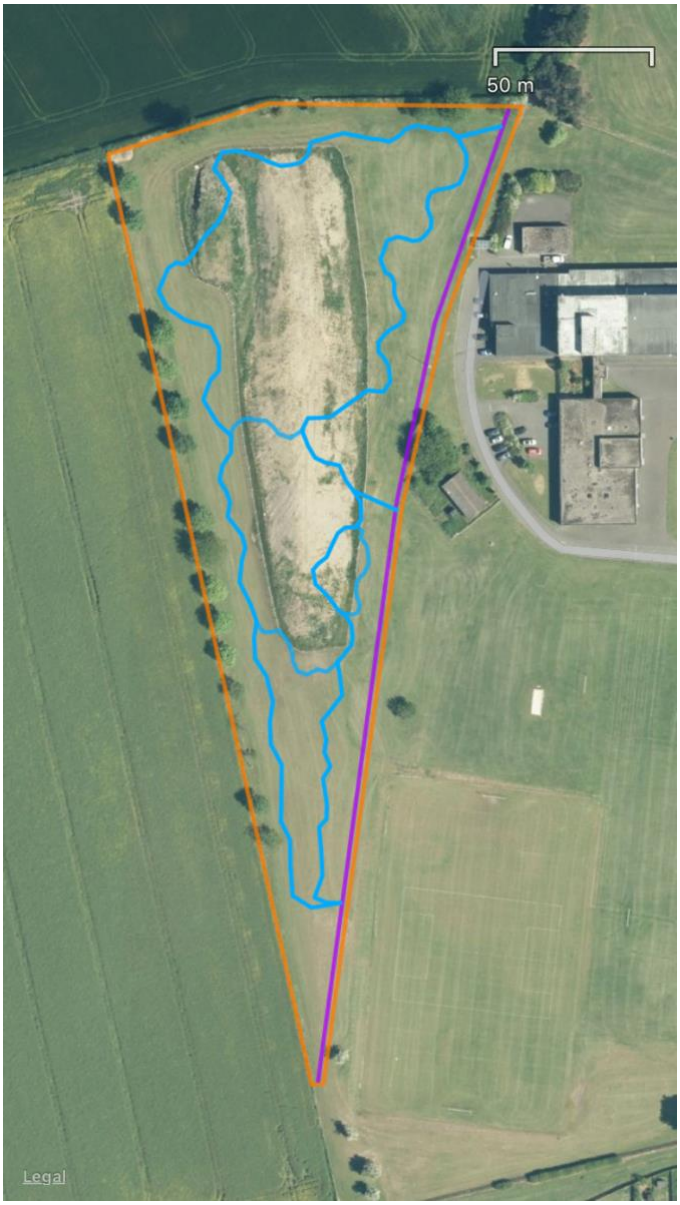
Academy, it was agreed that an area such as this wouldn't be necessary as there is such a large area of level grass playing field immediately adjacent.

3.1.1. Small scale trail examples

Rock UK, Whithaugh Park, Newcastleton

Wallace High School, Dunblane

3.1.2. Indicative Image Showing Indicative MTB Trail Layout



Notes:

- *This indicative Trail Layout has been created without a map of the newly planted trees, or any other constraints on the ground.*
- *The main trail is indicated in blue, also showing linking trail sections.*
- *The purple line shows the approximate route of the existing asphalt path.*
- *The orange polygon indicates the approximate site boundary.*

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4. Trail Construction

The vision for all trails on the site suggested is that once bedded in, they appear to grow out of the existing ground. As the general topography of the main site is currently grass on a gradual slope, raised features would clearly be visible initially, although landscaping work to re-turf the bankings, and the growth of the newly planted trees will help to disguise and blend the trail in with the local landscape.

4.1. Images showing a newly built trail, and a trail after 1 year of bedding in.

In other similar projects we have worked on, clients have opted to plant wild flowers and allow the grass to grow long immediately surrounding their skills track, providing a biodiversity area. This not only helps to blend the track with its surroundings, it also removes the need for grass cutting on any embankments in the future, which is likely to be a concern for the Academy management. This approach is in keeping with the current use of the area and we can be confident that once bedded in the trail will have a very low impact on the surrounding environment.

To form the various trails described, investigations will have to be made into the depth of the existing subsoil, and its suitability as a base for mountain bike trails. Duncan has advised that the site is predominantly made up ground, and therefore the majority of the trail will have to be formed by building up layers of material imported from a quarry, with a high ratio of stone dust to bind the particles together. Additionally, geotextile fabric and larger base material or appropriate subsoil may be required below this in some areas to build shapes and features.

Constructing a proper surface for the trails in this way is more expensive initially but allows for proper drainage and sustainability of the whole facility, especially as made up ground will be unsuitable for use in construction. It also means that the trail could be used almost year-round, deep snow and ice being the only exceptions.

It is strongly advised that the removal of top soil to form the track 'tray' is carried out by mechanical excavator with a tilt-rotate bucket and suitably skilled operator. Investing a modest amount of the overall budget on this aspect will make the project much more likely to succeed overall as the community construction aspect is subsequently much more achievable and progress will be much quicker.

The remainder of the build should then be possible by hand, using hand tools and wheel barrows. However, some mechanical machinery will be required, specifically compaction tools such as whacker plates.

The site is easily accessible for both machinery and materials from the Academy, with a maximum width of 3m being possible via the current access. A stockpiling area would have to be formed near the access point on which materials could be tipped by lorries arriving from the quarry. In practice, this will involve fencing off an area of the Academy grounds, while construction is underway.

TTFs are mainly constructed in the same method as the trail, with extra landscaping surrounding them. Large boulders may also be used in the construction of TTFs as well as for speed control measures at specific points.

The conceptual layout of the track as described above will allow for a staged or sectioned project, where each section of the full track is created one by one. This

will help to make the entire project more achievable and less daunting for the community labourers. It will also avoid a situation where the entire track 'tray' has is excavated and then left open for a long period of time.

The exact order of construction will be worked out as part of the design process; it will be advisable to start with a small, easily achievable section to allow the community labourers to learn the techniques required.

Other Construction Considerations

4.2. Mountain Bike Trail Maintenance

A facility like this bike track proposal requires regular maintenance and this should be taken into account in the initial costing of the project. It is suggested that as a minimum, 5% of the total build cost is budgeted for maintenance annually over the first 5 years. The key to good maintenance is a 'little and often' approach, where regular checks identify potential problems early. This allows for them to be dealt with before becoming a hazard to riders and inevitably incurring more cost.

A maintenance programme will have to be agreed with the Academy management before embarking on the construction of this project. Maintenance is a good project for school pupils or students to get involved in as it encourages ownership and responsible use of the facility. Collective Trax provides a maintenance checklist and sample schedule with every trail we build, and can quote for an ongoing maintenance contract if required.

It is worth noting that a hand built mountain bike trail will inevitably require more maintenance than a machine built trail. Although the overall project cost will be a lot lower, it will be worth budgeting for maintenance at a higher level than the 5% suggested above.

4.3. Trail Signage

Correct signage is an important aspect of any purpose built mountain bike facility and this should also be taken into consideration. A project of this scale will need several signs giving riders the information they need before trying each feature or section.

If contracted to produce a Design and Specification document, a full signage requirement list would be included. Signage can be designed and produced, and will be quoted for as part of an overall construction quote if desired.

4.4. Bike Trail Removal – Exit Strategy

If in the future it is decided that the facility is no longer required, the type of design and construction outlined above allows for re-landscaping and re-planting of vegetation cover to transform the area to any state required. A budget to cover this, should be taken into account in any financial planning.

4.5. Construction Design Management (CDM) Regulations, Health and Safety

Construction of these trails is likely to take longer than 30 days or 500 man hours and the HSE will therefore need to be notified prior to construction commencing. In any case, all construction projects must adhere to the CDM Regulations 2015 regardless of size. The client therefore must ensure that they are satisfied that they have all aspects of the CDM regulations, risk management procedures and health and safety plan in place before work commences.

4.6. Planning Permission

Construction of a mountain bike facility in this context is likely to be included within the planning consent for the site redevelopment project. However as this is already underway with tree planting etc, it would be prudent to consult the planning department and seek their advice.

Planning requirements are left entirely up to the client, but we can input details if required to enable applications to be made.

5. Design and Construction Process

Using the information provided here, hopefully you can get a feel for what type of mountain bike facility is possible within the site suggested.

The next stage in the development the proposed facility is to fully design and cost the trail as described. This would involve a more detailed site survey & ground conditions testing. Access to existing site drawings such as services and drainage plans would be advantageous too if possible. There is considerable work involved in this process and to produce a complete design for the facilities described, our charge would be £1980. *Please note that we don't currently charge VAT*.

A part of the Design and Specification document will be an estimated bill of quantities, and construction specification for typical features and the main track itself.

This document would be created with the 'Community Build' in mind, and provide a thorough route map for the Volunteer team to progress the project.

Collective Trax will provide on-going construction phase support to ensure that the volunteer labourers are creating a safe, sustainable, and fun facility as the design intends. It is estimated that a monthly visit by a Collective Trax representative would be an appropriate starting point. This frequency can easily be adjusted however to suit the rate of construction, or to suit a specific training need or query. Each visit will incur a charge equivalent to our day rate of £330, and can be broken down into 0.5 day increments at minimum.

The cost of building any mountain bike track varies hugely depending on various factors as outlined above. Trails such as those described, can cost upwards of £60 per linear metre – this is more expensive than the national average, but experience shows that building trails in educational establishments is often more expensive due to access restrictions etc.

Costs for this project will be significantly less than £60 per linear metre, although will vary dependant on the material cost, and the rate of construction. It may be possible however to complete the project for approximately £25-£30/linear metre, or possibly less.

Again, this rate is only for track construction, and further budget should be dedicated to maintenance, signage and design costs, as well as planning etc.

Upon completion of the construction phase, Collective Trax will again visit the site and complete a 'sign off' of the track and all features as safe to ride and open to the public. This will include a Risk Benefit Assessment, Sample Maintenance Schedule

and other documentation as appropriate to the facility. This will cost an additional £1500. Please note that should further work be required to bring the facility up to standard for sign off, this will incur further charges at the day rate described above.

Our signing off of the facility is by no means guaranteed and we will not deem the project to be safe until we are 100% happy with every aspect of the project, and that it is completed to the satisfaction of our high standards.

6. Further Information

We hope that you find this document useful and that it gives you a clear understanding of the type of facilities that we feel would most benefit the students at Levenmouth Academy and the local community. Once you have had a chance to digest the information and discussed with everyone concerned, we can discuss the best way for the Academy to progress with this exciting project!

If you have any questions regarding any of the included information or would like further information in the meantime, please don't hesitate to contact me.

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