Proposed Track Improvements North of Cold Law
Drainage & Flood Risk Statement

April 2015

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CONTROL SHEET

CLIENT: **Lilburn Estates**

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Notes:

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1.0 Introduction

Fairhurst have carried out a high level review of existing flood risk information for proposed track improvements north of Cold Law, Wooler, Northumberland, in order to provide an overview of the potential risks to adjacent Northumberland National Park land. As the proposed development site is within an area of low flood risk and is classified as 'Less Vulnerable' in Flood Risk and Coastal Change Planning Practice Guidance, i.e. 'land and buildings used for agriculture and forestry', a full Flood Risk Assessment is not required, in accordance with the National Planning Policy Framework.

No site specific enquiries or flood modelling has so far been conducted and thus the flood risk data is primarily sourced from online datasets and reports.

2.0 Data sources

For the purposes of this Flood Risk Statement, the following reports and datasets have been used:

- Environment Agency online flood risk datasets and maps.
- Northumberland County Council Level 1 Strategic Flood Risk Assessment, September 2010

3.0 Site Location

The track is located approximately 4.5km south west of Wooler, in the, Northumberland National Park (see Figure 1). The track is situated off a minor track approximately 1.5km north-west of the public road in Harthope Valley.

The approximate grid references for the track are NT96022507 to NT95402404 from the track to the north side of Cold Law. The track is approximately 1335m long.

4.0 Proposed Works

Lilburn Estates propose to upgrade the existing moorland access track to give better access for moorland and livestock management and general public access using the footpath to the Cheviot Hills.

The proposed upgrading works will be undertaken using a 'soil reversal' technique used previously in Northumberland National Park on Salter's Road. The existing turf, vegetation, topsoil and subsoil will be removed to a sound base and suitable hard material will be excavated from the adjacent area to form the base of the new track. The previously removed material will be deposited in the trench/ditch where hard material has been excavated.

Sub-surface lateral drainage will be incorporated into the track formation. 225mm diameter pvcU pipes will be laid at 50m intervals to convey surface water from the

ditch to the existing downstream land. Surface water runoff will then infiltrate into the surrounding land in accordance with the principles of sustainable drainage systems (SuDS).

A Soil Reversal Method Statement is included in Appendix A.

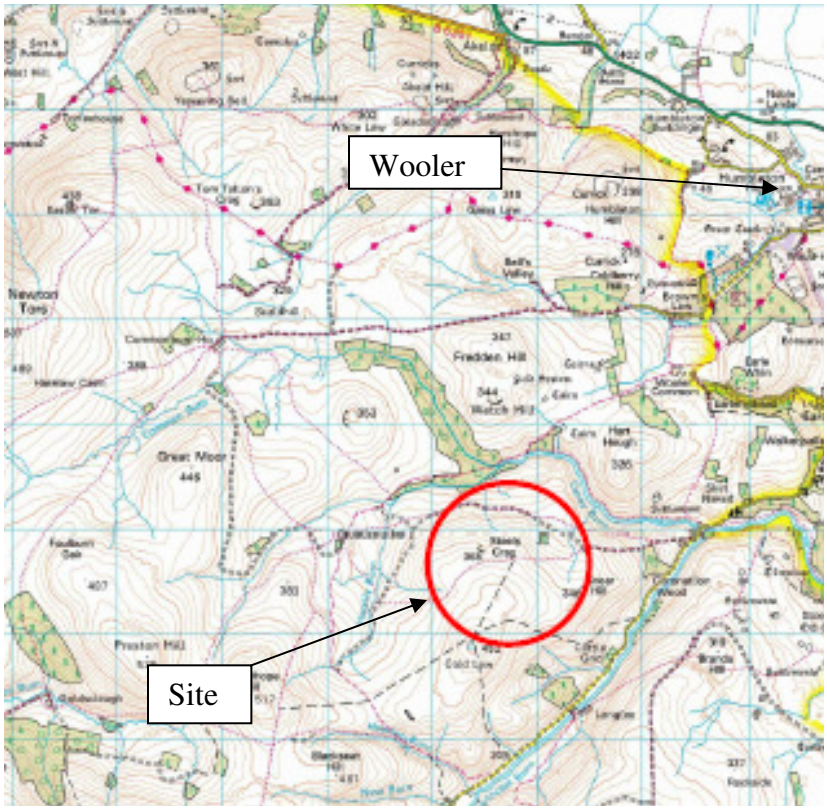

Figure 1: Extract from EA Flood Map

5.0 Flood Risk

5.1 Fluvial and Coastal Flood Risk

The Environment Agency Flood Map shows the site to be within Flood Zone 1 (see Figure 2). Flood Zone 1 (low probability) is outside of the area which is at risk from extreme fluvial or tidal flooding and the site is therefore not at risk from inundation in a 1 in 1000 year event or 0.1% Annual Exceedance Probability event (AEP). For example, events with a 1% AEP have a 1% chance of occurring in a year.

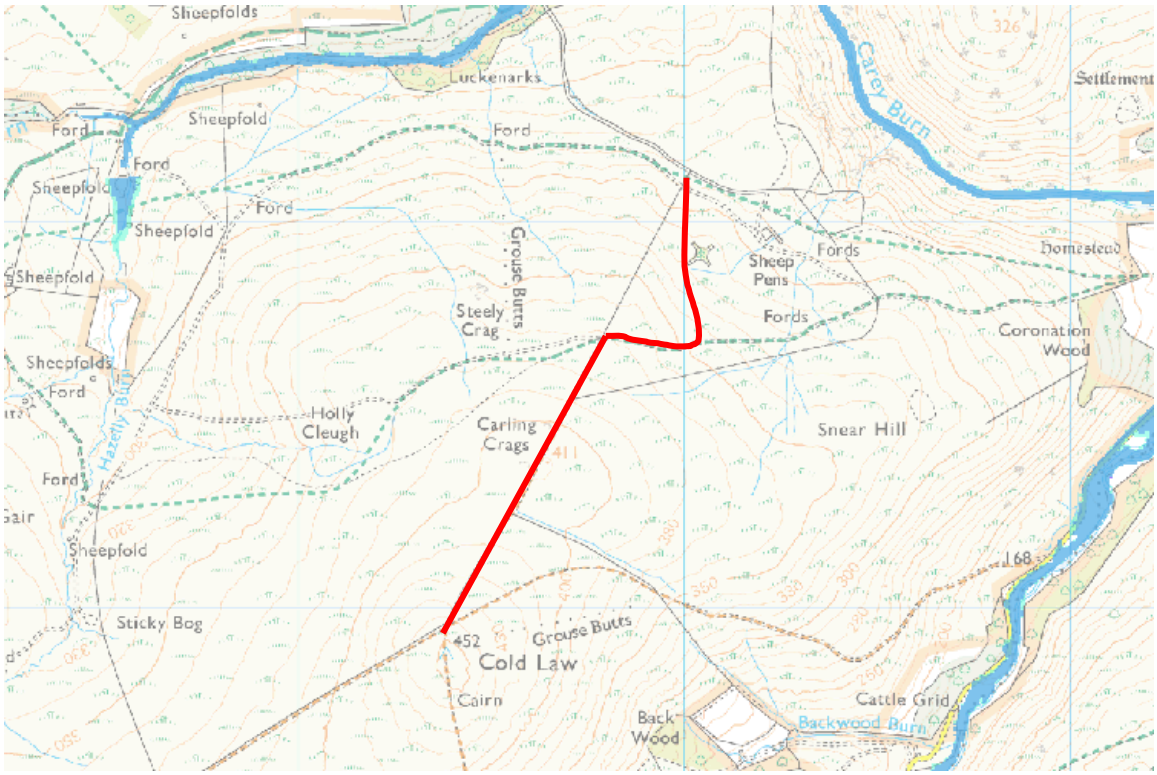

Figure 2: Extract from EA Flood Map

= Flooding from river or sea without defences during 1% AEP event
= Additional flooding during an extreme event (0.1% AEP event)
= Location of track

The Strategic Flood Risk Assessment (SFRA) also confirms the extent of these flood zones.

5.2 Sewer Flooding

There are no sewers in the vicinity of the site.

5.3 Historic Flood Events

The SFRA does not include any specific historic flood events in the vicinity of the track. This is not to say that the area has not flooded, only that it has not been recorded within the SFRA.

5.4 Groundwater Flooding

The SFRA does not specifically consider risk from groundwater in the local vicinity of the site and no record of historic events exist. However, analysis of the Soilscapes[1] website indicates that the area is primarily overlain by peat and drains to 'local stream networks'.

[1] http://www.landis.org.uk/soilscapes/

5.5 Surface water flooding

The Environment Agency online Flood Map set includes an assessment of surface water flood risk, an extract from which is included in Figure 3. This shows the site to be immediately remote from areas which have low, medium and high risk of surface water flooding. When taking the local topography in to consideration the track is not considered to be at significant risk nor likely to cause risk to the local catchment as a result of the proposed works. As identified in Section 4, surface water runoff will discharge via infiltration into the surrounding land, in accordance with the principles of sustainable drainage systems (SuDS).

Figure 3: Extract from EA surface water flood map.

6.0 Mitigation and Surface Water Drainage Strategies

As the site is considered to have a low risk of flooding, flood risk mitigation or protection strategies will not be required. Therefore in accordance with the National Planning Policy Framework, mitigation should focus on the management of surface water to ensure flood risk is not increased elsewhere.

The proposed improvement works to the existing track include the incorporation of sub-surface drainage to convey surface water runoff from the 'upstream' side of the track to infiltrate into the lower terrain on the opposite side. Lateral drains will be incorporated at 50m intervals and check dams included to restrict longitudinal flows.

7.0 Conclusions

The site is not within the Environment Agency's indicative flood envelopes and is therefore classed as being within Flood Zone 1. Based on the compatibility of developments within each Flood Zone, set out within the Planning Practice Guidance, the site is suitable for all types of developments.

Surface water runoff from the introduction of the upgraded track surface will be discharged via a series of 225mm diameter pipes located at 50m intervals. Surface water runoff will be discharge via infiltration to the existing surrounding land. Check dams will be incorporated into the longitudinal trench/ditch system to attenuate surface water flows and restrict the discharge through each lateral pipe. This will ensure that infiltration will not adversely impact on groundwater.

APPENDIX A

Soil Reversal Method Statement

Lilburn Estates Farming Partnership

Proposed Track Improvements at Cheviot and Cold Law

Soil Reversal Method Statement

INTRODUCTION:

The proposed works to improve existing tracks at Cheviot and Cold Law will be carried out using the "Soil Reversal" technique which has been successfully used by our preferred contractor (WRCS Ltd) on a recent project on the Salter's Road (also within the Northumberland National Park).

Subject to receiving all relevant approvals it is anticipated that works will commence on Monday 3rd June 2013 (or earlier if permitted), will be carried out during daylight hours 7 days per week and shall be complete by Friday 9th august 2013.

Plant used will comprise one 360° tracked excavator and a ride-on twin drum vibrating roller, both of which will remain on site for the duration of the works. The operator will travel to site daily using a pick-up or small van and will carry fuel for the plant so that no fuel will be left on site out-with working hours.

The works on each track will commence at the bottom of the route meaning traffic will only travel on the completed surface with the exception of the excavator carrying out the soil reversal process.

METHOD:

1) Inspect site, plant and any signage daily prior to commencing work.

2) Remove turf from line of proposed track using excavator bucket by cutting and tearing large undamaged sections of topsoil and attached flora. Turn excavator through 180° and set aside the turf clear of track. Remove the exposed organic matter or sub-soil from the tack line to provide a sound foundation. Excavate ditch (upslope of new track) to find suitable hard material to form the new track. When sufficient material has been deposited (to bring the track up to the required level) form camber to shed surface water to ditch. Replace remaining excavated sub-soil

into ditch and re-lay previously removed turfs on top. Track machine forward and repeat operation until the track is complete.

NB. At the end of each working day the ditch shall be filled leaving the site safe with no open excavations.

3) Lay 225mm diameter twin-wall pvcU drainage pipes in 6m lengths, at 50m intervals along the whole length of the track. Drainage pipes shall be laid level (to reduce the flow rate), conveying surface water from the ditch, below the newly formed track and discharging onto the surface of the existing terrain. Existing ground to be left within the ditch at 50m intervals to form “blockers”, thus preventing surface water from running freely down the ditch.

NB. Drainage materials to be delivered in two loads to each site, with the first delivery left at the bottom of the track and the second drop at the mid-point (travelling on the newly formed surface). These drainage pipes are to be the only imported materials used in the construction of the tracks.

SITE SAFETY:

As public footpaths run close to or through the line of the proposed track the machine operator will cordon off the working area on a daily basis using bunting tape and portable sign boards. The machine will cease working should any persons come within or close to the working area.

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