HCC Rights of Way Good Practice Guide

Surfacing Specifications

Surfacing materials shall consist of;

1. Crushed concrete/brick that is free from timber, glass, metal or any sharp material and organic matter;
2. Natural techniques incorporating ground stabilization (harrowing and rolling) and re-seeding with trample resistant seed mixes (this may not be appropriate on vehicular highways).
3. Any inert, durable, well graded crushed stone (MoT Type 1)or clean as dug natural sands and gravel's free from silt, clay and/or other deleterious matter.
4. Maximum size of formation layer material shall be 125mm.
5. Maximum size of sub-base course material shall be 75mm.
6. Demolition dust, or fines used as a surface dressing consisting of 20mm to dust.

(NB. Following problems with crushed concrete fines, option 3 may need to be implemented as a surface dressing material)

Crushed stone can be bought to DoT specifications. The Type 1 sub-base should be suitable for the base layer, and depending on the type of top surface required, can be put down as a single layer to form the surfacing as well.. The size of Type 1 stone is 75mm to dust (25% is comprised of fines).

The material shall not be used that would, either in itself or in combination with other materials or ground water, give rise to health hazards, cause damage to building structures or ground instability. All construction materials shall be free from extraneous matter, i.e. organic, perishable, combustible, deleterious or hazardous materials.

Construction

The highest specification for surfaced paths using crushed stone and recycled material is three layers; the formation layer, sub-base course and the surface dressing (see 4, 5 and 6 above). Three layers may not be necessary and will depend on natural sub-grade, drainage, expected use and the type of material used for surfacing the route. In many cases only a single layer will be necessary. A sub-base will only be required in very unstable or wet ground and on paths that are liable to flood or which have very high levels of use. In most situations, the bedrock, subsoil or topsoils will be strong enough to support the base and surface material. The base is the main load baring part of the path and in most work will comprise the bulk of the material used. The surface top dressing provides a surface that is comfortable to walk on, is non-slip and resistant to erosion.

Full length and width of the Right of Way shall be graded and thoroughly compacted to produce a sound formation layer, that is level with even regular falls, a cross-fall or camber (as most appropriate to the lie of the ground) and with the purpose of achieving best surface drainage of the finished route.

On soft ground the Contractor shall where required supply and lay a non-woven geotextile, such as Terram 1500 or similar, as a separation layer between the formation and base course.

Surfacing Depths
The list below is a guide for the depths that the RoW should be excavated.

Footpath; 100mm sub base / 40mm surface dressing
Bridleway; 150mm sub base / 40 – 60mm surface dressing
RUPP/RB/BOAT; 200mm sub base / 60mm surface dressing

NB. As a guide the depth of each layer should be at least twice the size of the diameter of the stone used (i.e. 20mm stone = 40mm depth)

Formation Layer Construction
Excavate all soft spots back to firm ground and backfill to existing ground level with hardcore which shall be thoroughly compacted prior to any further surfacing materials being laid, shaped to form a camber with good a cross-fall. This ensures an adequate load baring capacity.

Ruts or depressions deeper than 300mm will require an additional 150mm of sub-base material, this can consist of hard core material such as brick rubble.

Sub-Base Course Construction
Spread, grade, and thoroughly compact, to a dense, tight, even surface with constant falls, granular hardcore, quarry waste, crushed stone or similar to form a base course of 150mm finished depth.

Surface Dressing Construction
Spread, regulate and thoroughly compact to a dense, tight even surface, a layer of well graded crushed concrete. Finished compacted depth to be 50mm. Edges to be lost in adjoining ground and base course to be completely covered.

(Note; on archaeological sensitive sites surface disturbance should, where possible be kept a minimum. Removal of the topsoil should not exceed 80mm. The specification for the work will be given to the Archaeology Unit for consultation and advice)

Geo-textile Grids
On occasions it may be practical to lay a geogrid (for example where RUPPs, Restricted Byways and BOATs are crossed by farm / field access points or pass through gates and has resulted in the ground becoming rutted and or founderous). The table below gives an example of a Tensar ground stabilizing mesh with the amount of stone to use on top of the grid.

Traffic	**Firm** Penetrated by thumb with moderate effort	**Soft** Easily penetrated by thumb	**Very Soft** Easily penetrated by fist
Light Duty Walkers	100mm	150mm	200mm
Medium Duty Horses & light vehicles	150mm	200mm	250mm

Heavy Duty Large vehicles and or Heavy vehicular use	150mm	250mm	350mm

From the NETLON catalogue

Drainage (see drainage section for further details)

Where the path is sloping at a greater angle than 70 degrees a drain shall be provided at each side of the path if it is cambered, or on the lower side of the path if it has a cross-fall. Where a surface adjacent to a path slopes down to that path at an angle greater than 75 degrees a drain shall be provided between the slope and the path.

Path Profile

Surface improvement work on RoW should be constructed with a cross fall or camber to shed surface water. The best use of a camber is on wide routes on flat, poorly drained ground, where it is necessary to raise the level of the path and provide as much drainage as possible.

Make the cross-fall about 1 in 40, on a 2-metre wide path. Routes for cycles and wheel chairs should have a cross-fall of 1 in 50. The camber should be at least 25mm (on a 2-metre wide path). Bridleways, RUPPs and BOATs shall have a camber of at least 75mm (on 3m wide routes)