

WALSHAW MOOR ESTATE

Catchment Restoration Plan

2017-2042

Prepared by Davis & Bowring on Behalf of
Walshaw Moor Estate Limited with Natural England

13th December 2017



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PARTIES

(1) **Natural England** of 4th Floor, Foss House, Kings Pool, 1-2 Peasholme Green, York YO1 7PX ('Natural England'); and

(2) **Walshaw Moor Estate Ltd** of Vivary Way, Colne, Lancashire, BB8 9NW

Introduction

Walshaw Moor Estate Ltd. covers approximately 16,000 acres of mixed habitat including blanket bog, wet and dry heath, acid grassland, flushes, rocky outcrops, bracken and woodland. The Estate is managed as a private grouse moor, employing seven full time game keepers and supporting a number of farming enterprises. A significant part of the Estate is designated as open access land. The Estate is within water catchments which service several urban conurbations.

Natural England is the government's adviser for the natural environment in England, helping to protect England's nature and landscapes for people to enjoy and for the services they provide.

The Catchment Restoration Plan is an integrated programme of mutually dependent measures which together are intended to restore the moor and reduce the risk of damage to habitats and livelihoods by wildfire. It forms the basis of the Agreement between the parties.

Site designations and objectives

The Walshaw Moor Estate lies within the South Pennine Moors Site of Special Scientific Interest (SSSI), the South Pennine Moors Special Area of Conservation (SAC) and the South Pennine Moors Phase 2 Special Protection Area (SPA). The designations reflect the nationally and regionally important moorland breeding bird assemblage and nationally important breeding population of curlew, internationally important breeding populations of merlin, golden plover and twite; and nationally and internationally important habitats such as blanket bog, wet and dry heath, species rich acid flushes and mires and acid grassland. More information about the designations and their objectives can be viewed here: <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1007196>.

The Site Improvement Plan (SIP) for the European sites of the South Pennine Moors includes the Walshaw Moor Estate; and lists a variety of key threats and pressures on European features some of which are relevant to this plan.

The full SIP can be viewed here: [**Site Improvement Plan: South Pennine Moors - SIP225**](#)

This Agreement sets out the shared vision agreed between Walshaw Moor Limited and Natural England. It includes a programme of agreed infrastructure and moorland restoration works as well as a set of agreed principles for key land management practices. This Agreement is entered into under section 7 and section 13 of the Natural Environment and Rural Communities Act 2006.

As the Agreement covers a 25 year period, annual progress reviews are built in so that both parties can respond by mutual agreement to changing environmental and socio-economic needs. The annual review should consider progress on delivery of the plan over the last year (what has gone well, challenges, the outcomes of monitoring); and planned work for the forthcoming year.

The Agreement covers the land included in Higher Level Stewardship Agreement AG00410821 (which expires on 31 May 2022), which apart from sections 4.2 and 4.3 of the Moorland Management Plan (which are superseded by section 2.4 of this Agreement) will continue to be delivered alongside this Agreement.

This agreement is split into four main sections:

- 1) **The Vision** sets out what we aim to achieve through shared outcomes.
- 2) **Infrastructure and Habitat Management Specifications** provides upfront detailed specifications for a number of operations which may be carried out in accordance with the terms of this Agreement.
- 3) **Research and Monitoring** sets out how progress and effects on sensitive features will be recorded for the duration of the Agreement.
- 4) **Management Parameters** describes the infrastructure and habitat management specifications; and research and monitoring methods.

1. The Vision

To agree the management of the Walshaw Moor Estate as a beacon of best practice, through the restoration of the moor towards favourable condition to achieve a healthy and resilient ecosystem that supports sustainable land use, internationally, nationally and locally important biodiversity assets, natural flood management and improved water quality; and provides a range of cultural services.

1.1 Objectives

Rural economy; To maintain a sustainable, high quality grouse shoot and livestock production and in association supporting a wide range of rural businesses and boosting local employment.

Water; To enhance water quality and alleviate flood risk to the local community by promoting improved function of peatland habitat, including raising water tables by blocking grips and increasing Sphagnum cover.

Carbon; To sequester more carbon than is lost through natural processes of the carbon cycle by creating conditions that promote the growth of peat forming species including Sphagnum.

Biodiversity; To achieve favourable condition of South Pennine Moors SSSI features and in accordance with the conservation objectives of the South Pennine Moors SAC and SPA.

Climate change and future safeguarding against wildfire; To mitigate against wildfire by re-wetting the moor, restoring areas of grass-dominated vegetation that generate high fuel load to more resilient and diverse types, cutting of fire breaks and carefully targeting infrastructure to allow access for firefighting equipment to tackle wild fire incidents as quickly and as effectively as possible.

Access & recreation; To maintain the levels of access and recreation and promote understanding of the restoration plan and its wider benefits.

Landscape; To maintain and enhance the unique landscape of the South Pennine Moors.

Adaptive management; To take opportunities to trial new management techniques in response to new evidence where appropriate; in the first instance conduct a trial of cutting vegetation instead of burning on unit 41 for the next 25 years.

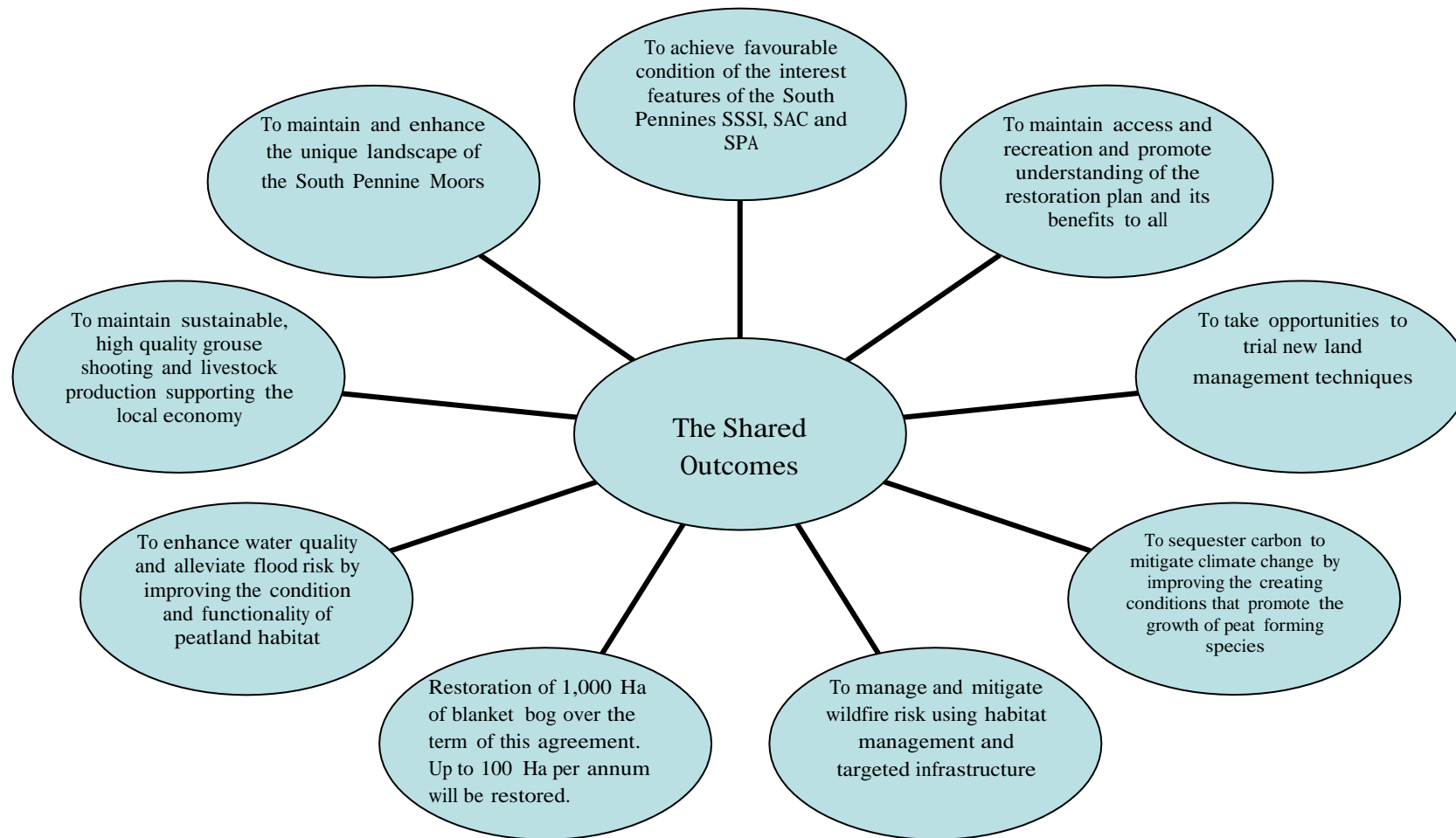
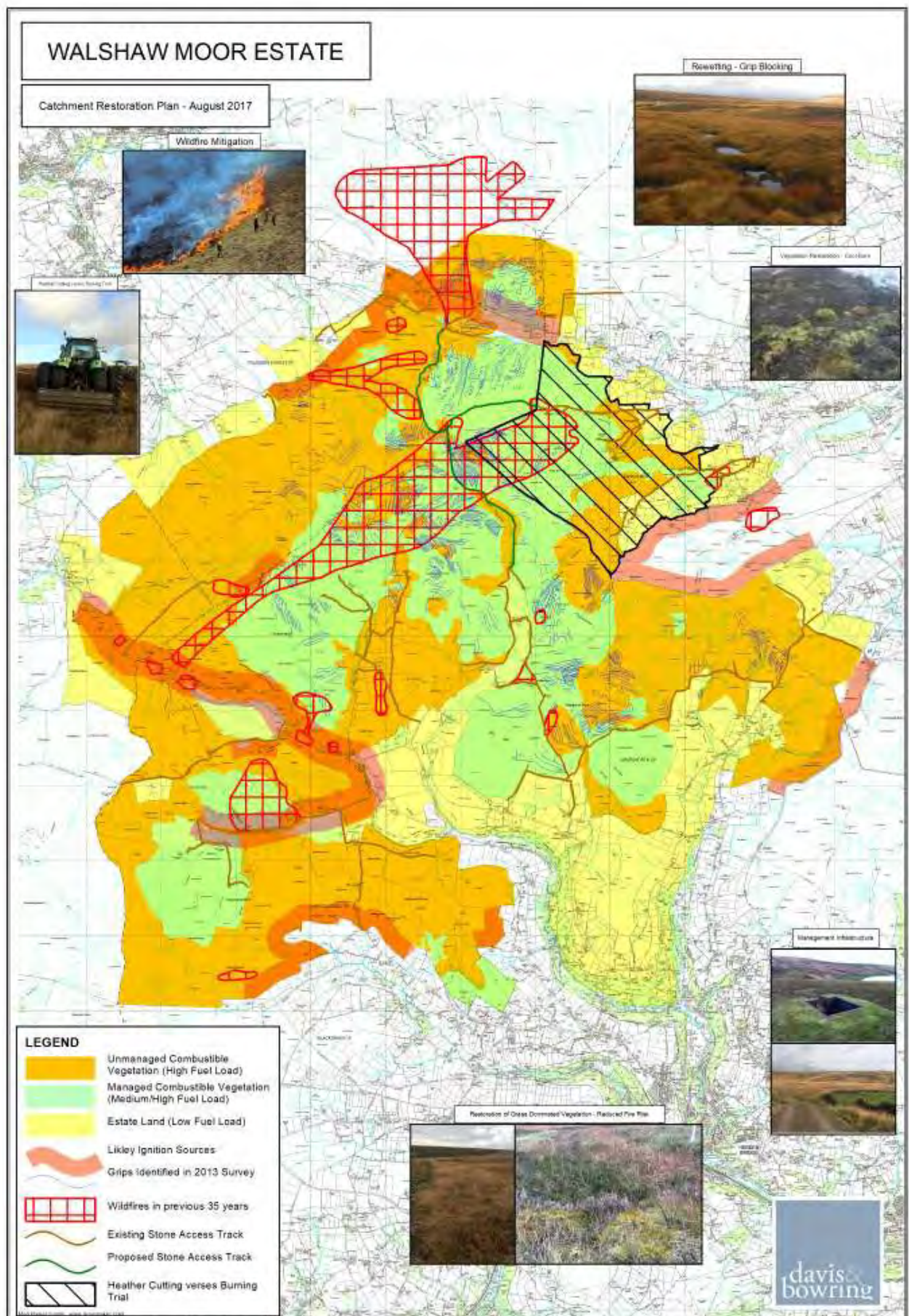


Figure 1: Estate Plan Map



2. Infrastructure and Habitat Management Specifications

A suite of habitat restoration and management activities and infrastructure installations will be delivered to achieve the Shared Outcomes. These include: Habitat restoration through grip blocking, gully re-profiling, restoration of areas dominated by *Molinia*; management of habitats through a variety of interventions; management of damage to habitats and economic interests through control of heather beetle, invasive vegetation management and installation of a track; plus installation of infrastructure for the purposes of the business.

2.1 Grip Blocking

The purpose of the grip blocking is to restore blanket bog and wet heath which as well as contributing to favourable condition of the features of the SSSI and European sites, will provide natural capital benefits such as improving water quality, sequestration of carbon and contributing to natural flood management. The rewetted area should also have reduced risk of wildfires occurring and help to minimise their damaging effects if they do occur.

The grips identified within the grip blocking survey undertaken in 2013 will be blocked within year one of the start of this plan (subject to weather) (planned grip blocking is shown in blue on *Figure 2*).

The method of general dam construction, half blocks is as follows;

All gullies are blocked starting from the top of the gully and working down-slope.

Where there are confluences, dams are placed in the individual gulleys before they join together.

The dam should be 0.5 – 1 m wider either side of the gully to reduce the risk of erosion at the gully edges.

Variation in the positioning of the dams is required in order to take advantage of the natural topography.

Where possible placement of the dams must be such that when the water backs up from the dam the grip is filled with water to a level above the base of the next dam up slope

The peat to be used must be well humified so that it is sufficiently impermeable.

The location of all dams will be recorded using Global Positioning System.

Average spacing of the dams should be 7.5m but adjusted to take account of the gradient and vegetation conditions of the individual grip. On level ground the dams should be no more than 10m apart. On steeper slopes the dams should be no more than 5m apart and may be much less on the steepest slopes.

All peat dams must be constructed by experienced operatives using a very low ground pressure 360 degree excavator with wide (“bog”) tracks.

Figure 2: Grip blocking plan

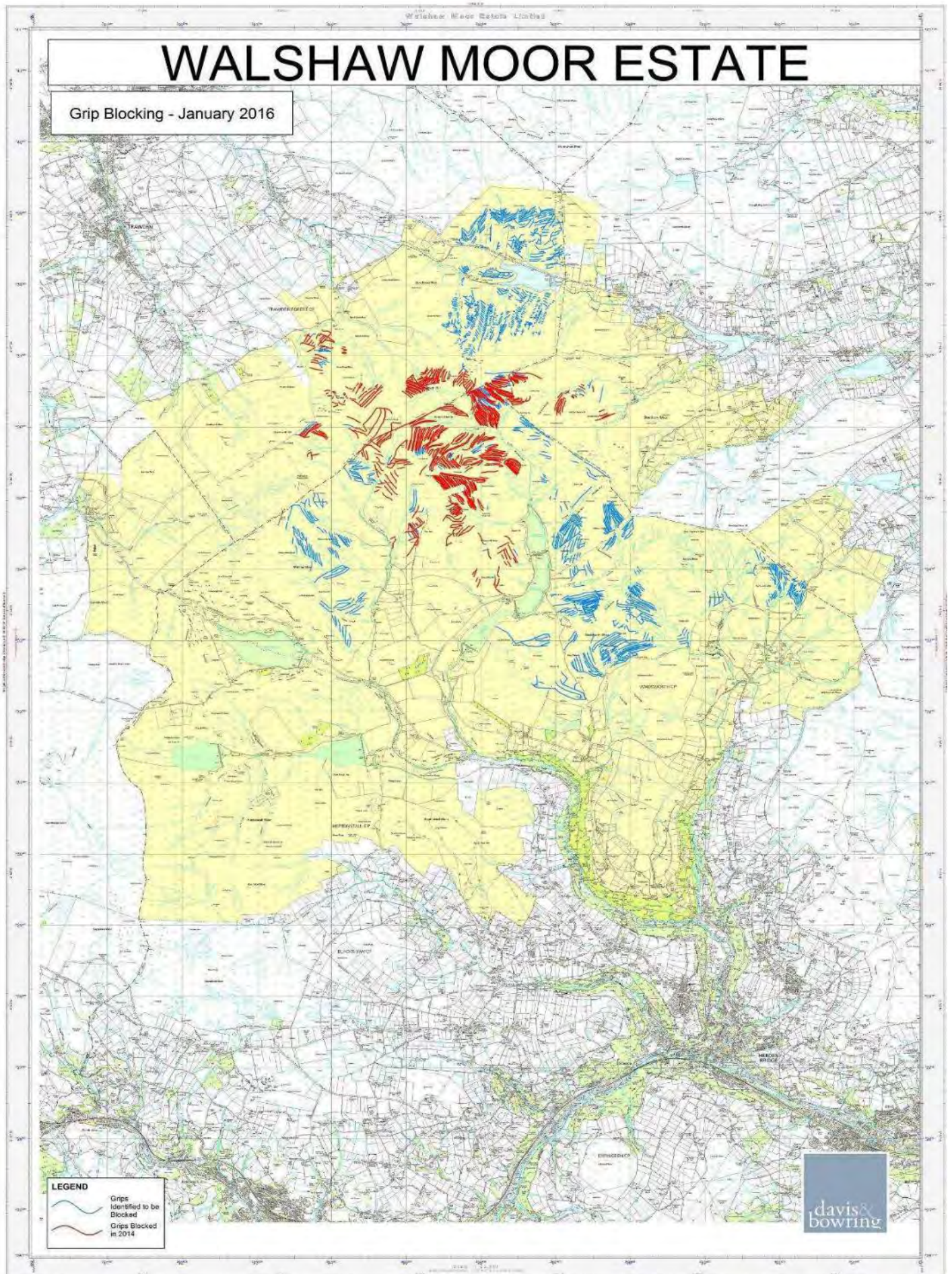


Figure 3: Grip blocking plan view

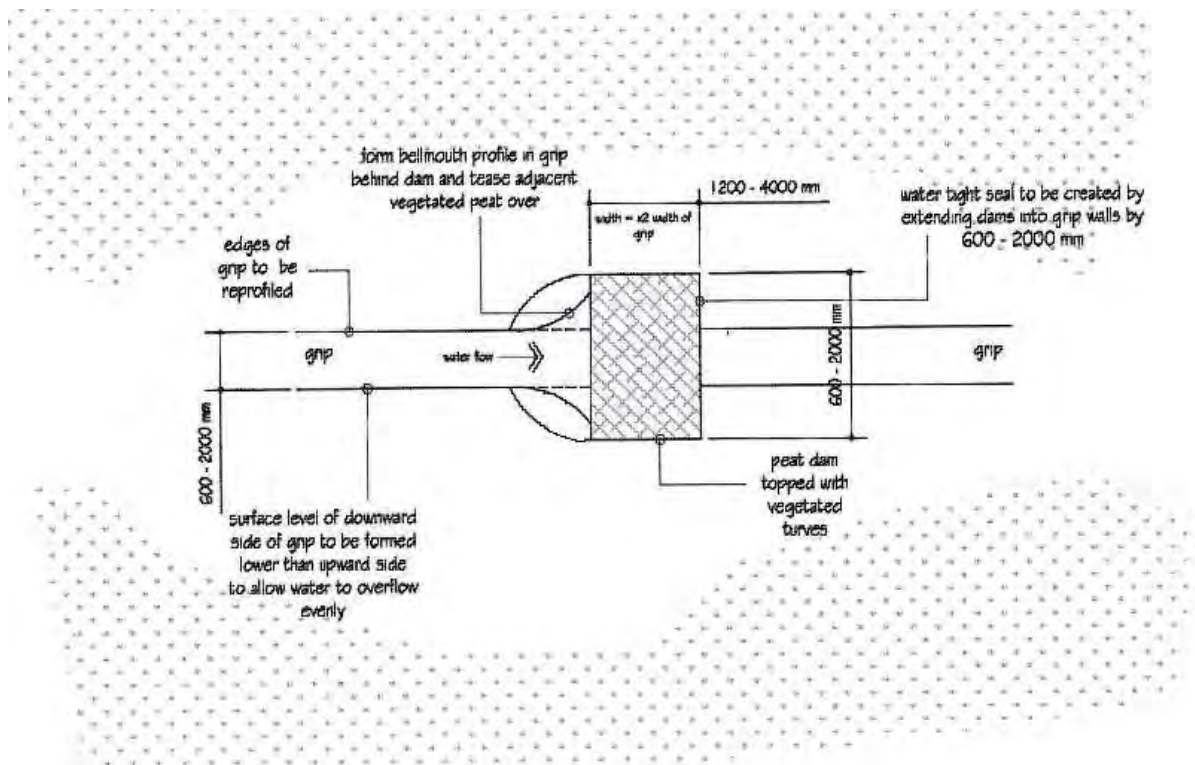
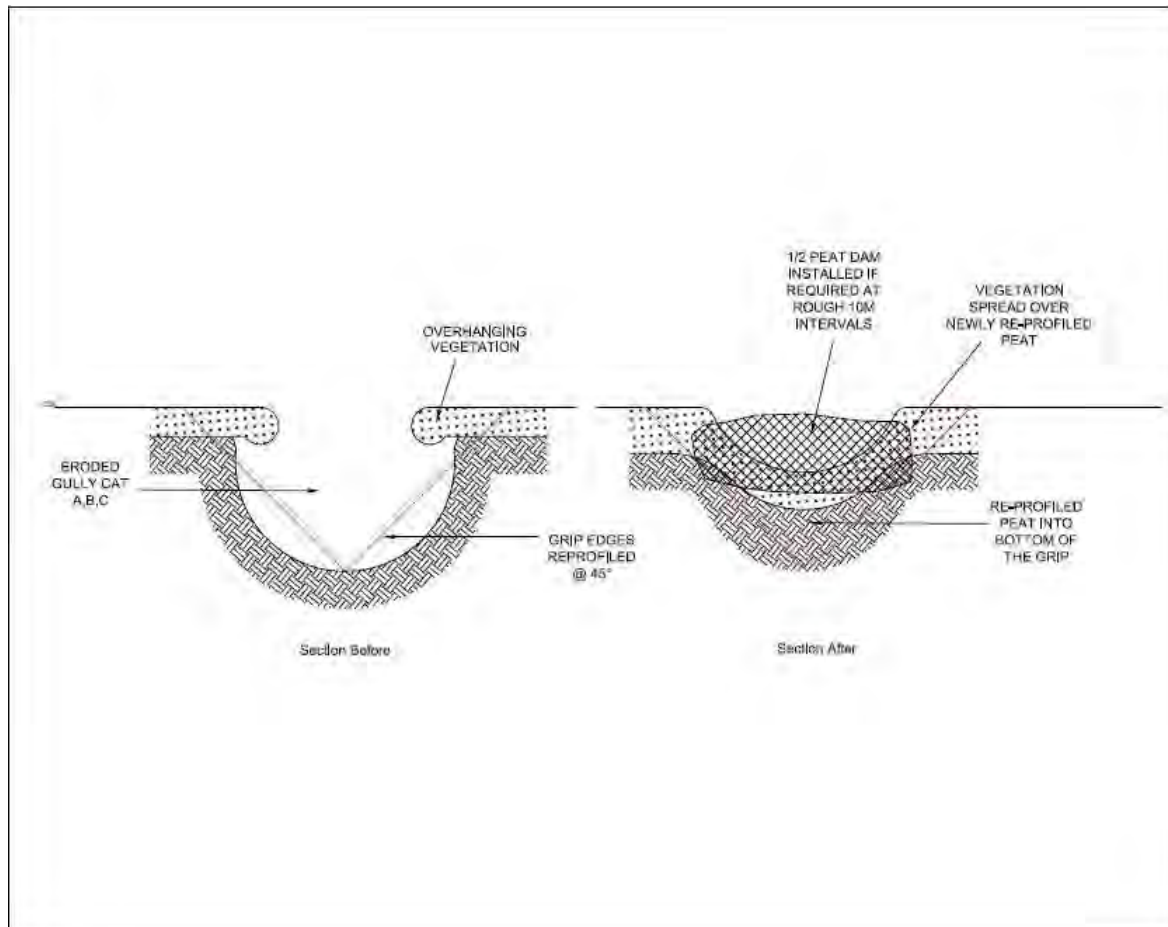


Figure 4: Example gully blocks



Figure 5: Grip blocking cross section



2.2 Gulley re-profiling

Gulley re-profiling will reduce weathering of slopes via frost heave and desiccation and the subsequent erosion of the cut peat face. The following method will be used (see *Figure 7*):

The vegetation will first be stripped from the top surface and placed to one side.

The slope will then be re-profiled to a suitable angle.

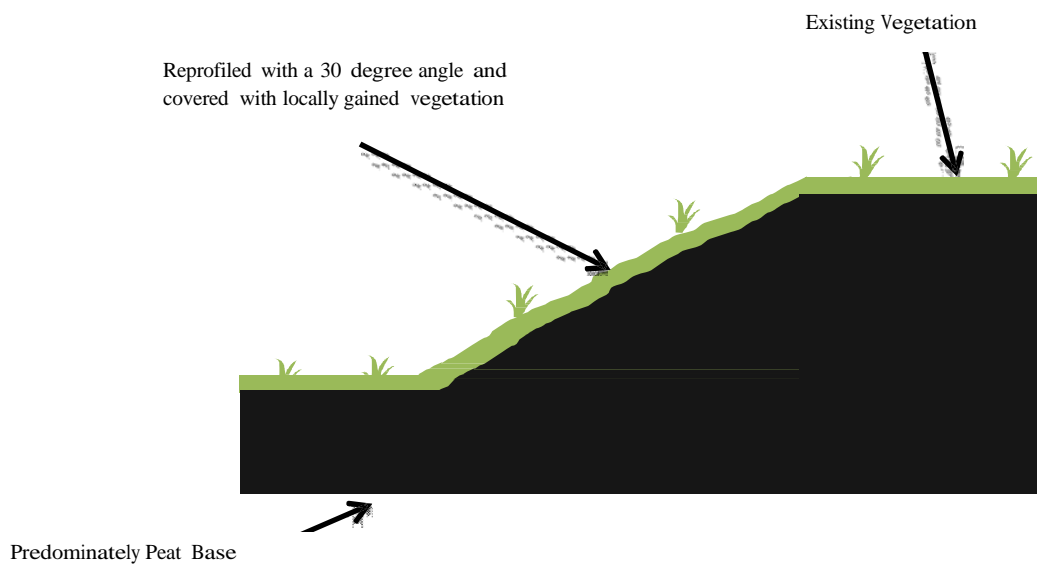
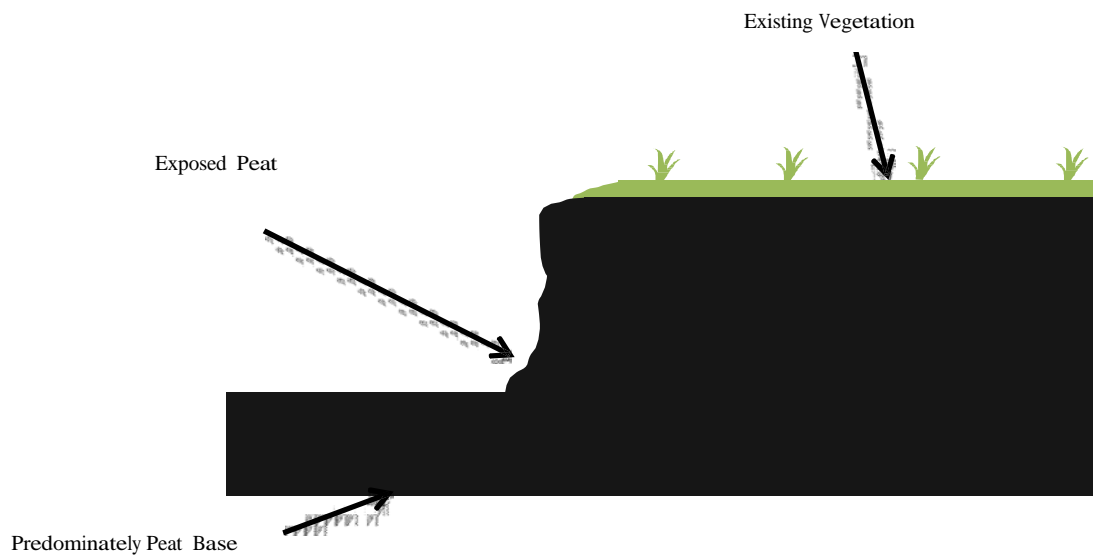
Once re-profiled, the vegetation that was placed to one side will be replaced to cover any areas of bare peat.

The process will be repeated along the length of the gulley

Figure 6: Typical reprofiled gulley edge



Figure 7: Re-profiling Diagrams



2.3 Restoration of *Molinia* dominated areas

Large areas of grass dominated ground are present on the site, which does not support the environmental or economic objectives for the area. This habitat type also presents a significant fire risk as it is highly combustible. These areas will be restored to a mixed heather, cotton grass and *Sphagnum* habitat. This will reduce the wildfire fuel load and promote the restoration of blanket bog and other habitats, whilst increasing the availability of suitable habitat for ground nesting birds. Once fully functioning, the blanket bog areas will maximise carbon storage whilst improving water quality and providing natural flood management.

Fire breaks will also be cut around likely ignition sources in order to attempt to contain the spread of fire in the event of wildfire starting. These will be targeted around the ignition sources identified in the overall Catchment Restoration Plan. These will need re-cutting depending on growth rate which will require monitoring in the early years of this plan and will be considered at Annual Reviews. These fire breaks will not exceed six metres in width and will be cut in irregular patterns to reduce visual impact.

Works to treat grass dominated areas, cut firebreaks, treat or cut rush or bracken or install infrastructure will not be carried out during the bird breeding season 15th April to 1st July, and will avoid known raptor and twite nesting and roosting areas.

Figure 8: A favourable outcome



To undertake the restoration, grass dominated ground will be sprayed with glyphosate by boom and lance, followed by a combination of burning, flailing and scarifying as appropriate to create opportunities for colonization by heath and bog species or to prepare a seedbed. The ground will then be seeded with heather, cotton grass and *Sphagnum* by air seeding, clay pellet, capsule or a suitable alternative method. Seed will be sourced through William Eyre and Sons, who are currently the sole supplier of such seeds or other suppliers as they come available. Where possible seed will be harvested on site. If necessary, *Sphagnum* will

be propagated using plants from suitable donor sites on the Estate. Timing of application will be decided by estate staff based on the environmental conditions required for success.

The Estate is well equipped with the relevant resources to undertake the required works. This will result in staff with local knowledge of the land being able to ensure that timing of application is undertaken when conditions are right. The aim is to restore in the region of 1,000 ha of ground to a fully functioning bog over the term of this agreement. Up to 100 ha per annum will be restored subject to weather conditions and availability of seed. In some areas temporary fencing will be required to restrict access for livestock to allow adequate establishment. The Plan includes agreement that temporary fencing is maintained around these areas for a period of up to ten years.

Figure 9 shows the location of *Molinia* dominated areas previously sprayed with glyphosate but not subsequently seeded. As there is little or no sign of natural regeneration of mixed heather, cotton grass and *Sphagnum* species in these areas and *Molinia* has begun to re-establish. Follow up treatment and seeding is now required. This will be the first phase of the restoration, with other areas being targeted thereafter.

Figure 9: *Molinia* control map

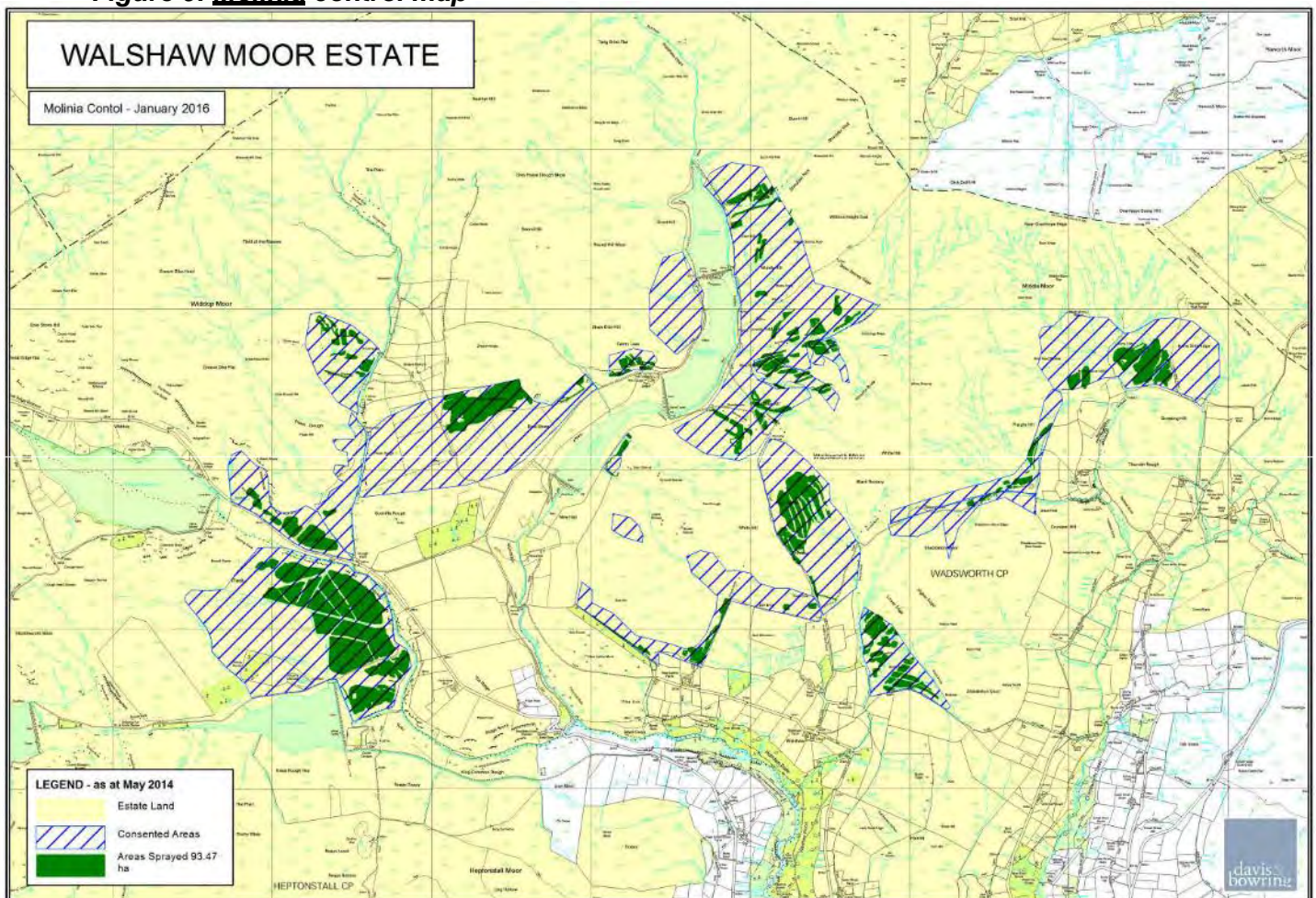


Figure 10: Dense Molinia



Figure 10.1: Three years post spraying – not seeded



2.4 Habitat management of blanket bog, wet and dry heath









The 'traffic light' approach as described in *Figure 12* below and the Uplands Management Group Land Management Guidance for Blanket Bog will be used as a guide to decision making when vegetation management is being planned.

The Estate currently uses cool burns to manage dwarf shrub or cutting using tractors/soft track where appropriate (see p 19).


Within SSSI unit 41 a cutting versus burning trial will be undertaken throughout the term of this plan.

By exception of areas within a 50 metre radius of a grouse butt may be burnt or cut when the heather in these areas reaches a height of 10cm regardless of underlying peat depth. Cutting is the preferred management technique for managing vegetation within 50 metres of grouse butts and will be used where conditions allow.

Figure 12
Vegetation management on blanket bog (on areas of peat greater than 40cm deep)

Sphagnum mosses	Feather mosses	Presence of Cotton-grasses	Heather	Other dwarf shrub species	How active is the bog?	Direction of change as shown by monitoring?	Is management required?
					very active less active inactive (modified)	No change (sphagnum and heather cover stable) Becoming less active (heather increasing, Sphagnum decreasing) Becoming more active (heather decreasing, Sphagnum increasing)	Not Required (see heather beetle management page) Cutting Burning
Often 50% or more cover and often seen as carpets or hummocks	Often absent or of very low cover	Yes, often abundant	Less than 20% cover	May be present	 very active	No change	Not required Regeneration of heather in beetle affected areas may be managed, subject to agreement with Natural England (see heather beetle management page)
Less than 50% cover and few carpets or hummocks	Present, and can often equal cover of Sphagnum	Yes, often abundant	More than 20% cover, heather canopy usually open and over 30cm in height	May be present	 less active	Becoming more active Are hydrological measures in place to support a more active bog (all artificial drains will be blocked by the grip blocking programme within the restoration plan)	May be required Cutting or burning for restoration purposes and Sphagnum \ Cotton-grass inoculation \ seeding.
As Above	As Above	As Above	As Above	As Above	As Above	No change or Becoming less active Are hydrological measures in place to support a more active bog? (all artificial drains will be blocked by the grip blocking programme within the restoration plan)	Likely to be required Cutting or burning for restoration purposes and Sphagnum \ Cotton-grass inoculation \ seeding.
Less than 10% cover, and usually absent	Often extensive cover, usually more than Sphagnum mosses	Usually present, but sometimes just a few strands	75% cover or more, usually with a dense, closed heather canopy and over 30cm in height	May be present	 inactive (modified)	Inactive Are hydrological measures in place to support a more active bog? (all artificial drains will be blocked by the grip blocking programme within the restoration plan)	Required Cutting or burning for restoration purposes and Sphagnum \ Cotton-grass inoculation \ seeding

Vegetation management on heath (growing on shallow peat less than 40cm deep or other soils and rocky areas)

Sphagnum mosses (red, brown or green)	Feather mosses	Presence of Cotton-grasses	Heather	Other dwarf shrub species	Habitat	Management
					Sensitive Damp Heath ('Rocky Bog') Sensitive Dry Heath Dry Heath	Not Required Not Required Rotational Burning
Usually present or variable	Usually present	No	Present, often dominant	Often present	  Sensitive Damp Heath ('Rocky Bog') on steep slopes of heath and bog. Watercourses are often deep.	Not Required
Usually absent	Usually present	No	Present, often dominant	Often present	  Sensitive Dry Heath on steep slopes, exposed rock and soils.	Not Required
Usually absent	Usually present	No	50% cover or more and 30cm height or more	May be present	 Dry Heath areas in mature or degenerate growth phase of heather	Burning on 10 year rotation

Mechanical cutting for restoration purposes on less active and modified blanket bog dominated by cotton grass, grasses or heather

Generally cutting is the preferred restoration technique, but will not be possible in a large number of locations at Walshaw. It is acknowledged that cutting is not possible where;

it is too wet to cut the plot with machinery and rutting or disturbance to the peat is likely in the plot, or access to the site would cause rutting elsewhere

structural diversity of the vegetation (e.g. Sphagnum hummocks, cotton grass tussocks) would be reduced

If any one or more of these circumstances exist then restoration burning (and not cutting) will be appropriate. It is the responsibility of the land manager to use the vegetation management principles as a guide and to make a professional judgement whether to use cutting or restoration burning on a case by case basis.

Cutting of heather should take place between 1 July and 15 April, providing that operators have carried out checks before work starts and determined there are no nesting birds in the location of the works.

All cutting will be carried out by low ground pressure vehicles, preferably during the autumn months when ground conditions are likely to be firmer.

Where required, follow up treatments (e.g. the spreading or inoculation of each cut area of blanket bog with Sphagnum mosses and cotton-grass seed or pellets) will occur within one year of the initial cut.

There should be patches of degenerate heather left uncut in traditional merlin nest zones and across the site to achieve a mosaic of heather structure.

Use of cutting machinery must not result in rutting or exposure of the peat.

Burning for restoration purposes on less active and modified blanket bog

If cutting has been ruled out then burning for restoration purposes can be carried out following the vegetation management principles above and guidance in the Uplands Management Group Land Management Guidance for blanket bog on less active and modified blanket bog.

Following the burn the moss layer will remain intact.

Where required, follow up treatments (e.g. the spreading or inoculation on each burnt area of blanket bog with Sphagnum mosses and cotton-grass seed or pellets) will occur within one year of the initial burn.

There should be patches of degenerate heather left unburnt in traditional merlin nest sites and also to achieve a mosaic of heather structure across the site.

2.5 Heather beetle management

Heather beetle can cause damage to heather which is an important food source for grouse, which in turn could impact the grouse shooting business.

Where heather affected by heather beetle shows no sign of recovery it may be managed by cutting or burning. Any burning must be undertaken in line with the dates specified in Heather and Grass Burning Regulations. Out of season burning will be considered by Natural England where an outbreak is deemed extensive and it is decided this is the best course of action. Heather beetle management should not take place until 1 year from any outbreak has passed, as recommended in Gillingham *et al.*, 2016. Cutting will be permitted from 1st July to 15th April where heather has been affected by beetle. It is agreed that there may be follow up with heather seed to assist the recovery of these areas. It is possible that heather beetle may be an issue in some of the areas where the heather cover is currently less than 50% of the sward, it is agreed that these areas can be cut or burnt in order to aid recovery.

Consultation and advice may be sought from the Heather Trust as and when required. As new best practice techniques to manage heather beetle outbreaks are identified, these can be discussed at annual review meetings and incorporated into the plan by mutual agreement.

Figure 13 Heather beetle damage



2.6 Invasive vegetation management

Invasive vegetation such as bracken and soft rush can affect the habitats which make up the special interest of the site, as well as those which are important to the grouse shooting and agricultural business. Areas where invasive species such as these dominate offer very little biodiversity benefit and pose a high fire risk and high fuel load.

Areas requiring invasive vegetation management will be agreed between Walshaw Moor Estate limited and Natural England, statutory consultees will be contacted where required before works are undertaken, with exception of spot spraying. The Estate has the equipment and necessary experience to undertake the spraying and cutting of invasive vegetation such as bracken and soft rush. This is done utilizing a soft track which plots all of the works undertaken on GPS to ensure accurate spraying of target areas is undertaken. Post spraying, these areas will be seeded as appropriate to restore the area to an appropriate habitat to support the favorable condition of the SSSI, SAC and SPA features, with blanket bog being the chosen habitat wherever the conditions of that area allow.

2.7 Access infrastructure and habitat manipulation for wildfire management

Wildfire incidents occur frequently throughout the summer months on this part of the South Pennine moorland chain. Wildfire can impact on moorland habitats through damage to vegetation and potentially the underlying peat body. Large, uncontrolled fires can also have wider impacts such as pollution of watercourses which often feed local drinking water reservoirs, damage to peat reducing flood storage and carbon sequestration capability as well as consequences for the Estate business. Wildfire can also be a significant pressure on local fire and rescue services, Lancashire and West Yorkshire Fire and Rescue Services have attended in excess of 430 wildfires within the last five years. The Ovenden Case Study below illustrates the issues.

Previous consultation has been held with Natural England over concerns the Estate has over the impacts that a wildfire could have in this area, on the Estate business and the underlying peat and the features of designated sites. An independent wildfire risk assessment has been completed by a qualified wildfire expert (*Wildfire Risk Assessment Study Walshaw Estate*, Gibson, S. 2017). The study set out the mechanics of wildfire, risks to the Walshaw Estate and gave recommendations as to how wildfire could be managed. The study found that whilst the mitigation measures within this restoration plan are supported by the manpower and equipment, the current conditions on the central plateau present a significant risk of future wildfire.

West Yorkshire Fire and Rescue – Case Study, Ovenden Moor 2010

In April 2010 after a long dry period, a wildfire at Ovenden Moor caused severe damage.

The fire started on 30th April, raged through Ovenden Moors and was finally extinguished on 9th May. The wind conditions and humidity resulted in this furious burn, severely damaging rank heather, white grass, some forestry and peat. Numerous fire engines and specialist appliances were used to tackle this blaze, alongside the resources of South Pennines Fire Operations Group.

The social and environmental impacts of this fire were vast; leaving behind much long-term damage as detailed below and the financial costs in excess of £3.5 million;

Helicopter use cost

Tractor use to access areas and transport water cost

Grouse loss

Lost shooting for 10 years

Lost production of electricity due to wind farm being shut down

Ogden reservoir off line for water production, the costs cannot be identified

Damaged peat will never recover

Damaged forestry at Ogden water will take years to re – establish

It was estimated that the land would require a 20 years recovery time

An estimated 30 grouse nest were lost and there were approximately 10 eggs per nest

The fire fighting resources committed meant sufficient cover had to be maintained to attend other major incidents, which can often result in fire fighter fatigue.

Source: <http://www.westyorkfire.gov.uk/your-safety/community/wildfires/>

The Catchment Restoration Plan Map (Figure 1) shows the wildfire incidents which have occurred over the past few decades. Figure 14 shows where a previous wildfire burnt through the peat body exposing the underlying mineral. The history and continuing threat of wildfire has forced the Estate to improve capacity to deal with it. The Estate has had a number of tracked dumpers fitted with firefighting equipment and 1,000 litre water tanks. In addition to this the Estate endeavours to reduce ignition sources around the local roads and perimeter of the Estate where fires have previously started. This will be enhanced further by manipulating the vegetation where appropriate (for example the *Molinia* dominated areas see 2.3) in order to achieve a less combustible material, to include a number of mosses to increase the moisture content. In addition an increased number of firebreak strips will be cut in the vegetation near known ignition sources to enable fire to be controlled more efficiently.

The Estate is well resourced with moorland firefighting equipment ready to be deployed during high fire risk periods. Estate staff are stationed on high points around the moor to watch for indications of early fire ignition during prolonged dry spells and large local events, such as the “Tour of Britain”. The Estate staff are all highly skilled in the control of moorland fires and have assisted in a number of wildfires in the local vicinity, such as at Emmott Moor and Howarth Moor.

Figure 14 Damage caused where fire has burnt into the peat and nearby woodland



Estate Fire Fighting Equipment

3 x tracked dumpers fitted with fogging units and 1,000 litre tanks and lift pumps.

1 x Argocat fitted with fogging unit.

1 x Deutz 4wd tractor and 24 ft. low loader trailer to move firefighting equipment and water to wildfire via stoned access tracks.

1 x Softrack and cutter to cut fire breaks and hold a wildfire on its sides.

5 x quad bikes to transport staff to a fire and use flappers to help control a fire.

10 x 1,000 litre tanks to get water as near as possible from water supply to nearest possible area using tractor and trailer on stoned access tracks.

7 x full time keepers experienced in controlling moorland fires.

Reducing the fuel load and mitigating the effects of wildfire occurrences are at the heart of this plan, through habitat restoration, but access to parts of the moor to control wildfire remains challenging. The wildfire at Ovenden referred to by West Yorkshire Fire and Rescue Service was only controlled when the fire reached a stone road where tractors and vacuum tankers were able to increase the moisture content enough to control it.

The formation of a stoned link access track is required to the central plateau to improve the access for the fire services and the Estate staff in the event of a wildfire. A proposed road intersecting the area of recent large wildfire occurrences is shown in green on the overall plan (Figure 1). Furthermore the proposed route has been strategically selected to avoid sensitive habitats and run North/South to enable secondary use as a fire break on the prevailing wind. The route links Lancashire and West Yorkshire Fire and Rescue Services and would enable the swift deployment of appliances to reduce the impacts of a wildfire occurrence. The Estate has given careful consideration to the previous concerns raised by Natural England and has devised an access route to traverse around areas of deep peat and interest feature vegetation as far as is possible. The construction will be undertaken using the latest available methods, outside of the bird nesting season. Vehicle usage along the route will be restricted throughout the bird nesting season, to reduce disturbance, other than in case of emergency. Gated access at either end will prevent illegal vehicle access and dissuade increased usage by visiting members of the public (although the Estate employees undertake a rigorous watch over the moor during high fire risk times and to date no fires have started from the Pennine Way which sees the greatest access by the visiting public). The route will also be used to provide vehicular access for vegetation management purposes. This is particularly key for the cutting versus burning trial on SSSI unit 41.



Osneyd Hall, Bradford Road, Shipshaw,
West Yorkshire, BD3 1 2DT
Tel: 01274 682311 Fax: 01274 651915

Dear Ref: WME01/13

Your Ref

Lane House,
Kendal Road,
Kirkby Lonsdale,
Carnforth,
Lancashire
LA6 2HH

01 August 2016

Dear Sirs

Walshaw Moor Estate – Proposed Moorland Track

As a Wildfire Officer I am writing in support of your application to provide a moorland access track from Walshaw Dean Upper to the Peat House and North Drive. This will provide access for firefighting equipment where the terrain is extremely difficult and increase the potential of controlling a wildfire. This greater access would enable our appliances to reach the scene of operations quicker for speedier knock down of the fire.

There is, as I am sure you are aware, an increase in moorland wildfires with access often being the limiting factor to control. These access roads not only assist in tactical planning and reducing time of arrival at developed fires but also provide a manmade fire break which could assist in tactic suppression.

The track will also allow the link with the adjoining Lancashire Fire & Rescue which is currently a great weakness of tackling a fire on the county boundary in this remote location.

Yours faithfully

Nicholas Watson

Station Manager, Lead Wildfire Officer
07822 441851
nic.nicholas.watson@westyorkshire.gov.uk

Richard Howson

From: SHQ - Walton, Shaun <ShaunWalton@lancsfire.org.uk>
Sent: 15 July 2016 12:24
To: Richard Howson
Cc: EAHQ - Wilson, Liam
Subject: Walshaw Moor Estate – Proposed Moorland Track

Dear Sirs

Walshaw Moor Estate – Proposed Moorland Track

I am writing in support of your application to provide a moorland access track from Walshaw Dean Upper to the Peat House and North Drive. This will provide access for firefighting equipment where the terrain is extremely difficult and increase the potential of controlling a wildfire. This greater access would enable our appliances to reach the scene of operations quicker for speedier knock down of the fire.

Whilst we attend smaller fires on moorland frequently during periods when burning conditions are right during the year, the significant wildfires historically occur every few years and can be extremely resource intensive resulting in the removal of a significant amount of firefighters and fire engines from urban areas to deal incidents on moorland, often for a significant periods of time. This displacement of fire and rescue resources can impact on fire cover within urban areas. More timely access to the fire front by vehicles via a moorland track carrying dedicated firefighting equipment and personnel can significantly reduce the time taken to initially attack the fire thereby preventing it spreading with a subsequent quicker extinguishment of the fire front and flanks. These access roads not only assist in tactical planning and reducing time of arrival at developed fires but also provide a manmade fire break which could assist in tactical suppression.

Yours faithfully

Shaun Walton

Group Manager
Response & Emergency Planning
Lancashire Fire & Rescue Service

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It may be confidential and may be the subject of legal and/or

professional privilege.

If you are not the addressee you are not authorised to disseminate, distribute, copy or use this e-mail or any attachment to it

The content may be personal or contain personal opinions and unless specifically stated or followed up in writing, the content cannot be taken to form a contract or to be an expression of Lancashire Fire and Rescue Service's position. Lancashire Fire and Rescue Service reserves the right to monitor all incoming and outgoing email

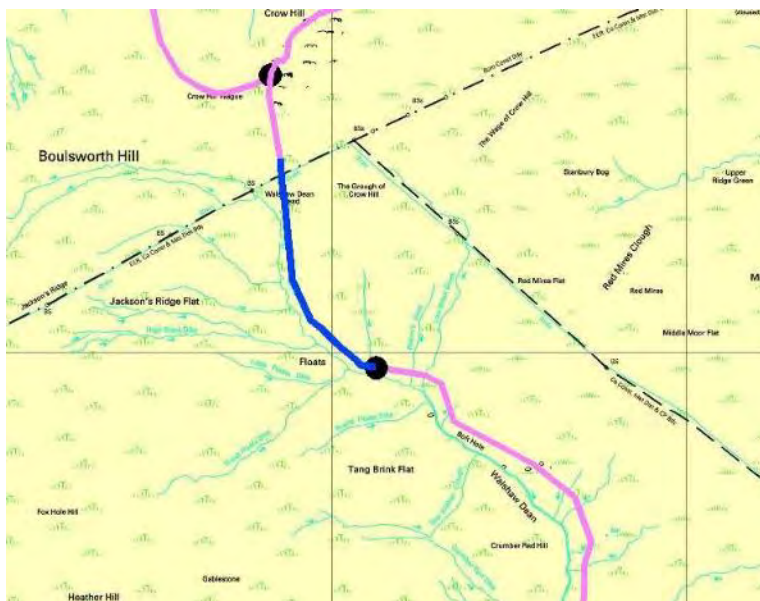
Lancashire Fire and Rescue Service has taken reasonable steps to ensure that outgoing communications do not contain malicious software and it is your responsibility to carry out any checks on this email before accepting the email and opening attachments.

GET OUT - STAY OUT - CALL THE FIRE SERVICE OUT

The link track is to be formed using a variety of bench cutting and floating road formation. The bench cutting will be required through the valley section in Walshaw Dean with appropriate cross drainage, whereas the more level ground a floating formation will be utilised. This will be done using the latest geotextile and geo-grid technology available. Over the level sections a permeable geotextile will be laid onto the vegetation followed by a geogrid. A layer of crushed stone will then be added to an appropriate depth to provide the wearing surface of 3.5 metres width. It will be necessary to add appropriately sized pipes to existing grips and watercourses as they are encountered. There will be the need for two turning circles (16 metres in diameter) shown black, these will be used to accommodate temporary reservoirs and water bowsers during wildfire incidents and prolonged dry spells. Also passing places (3 metres x 15 metres) will be required at intervals not exceeding 500 metres to allow appliances to pass when carting water to site during wildfire control. The passing places and the turning circles will not be constructed on the section of deep peat, shown blue in Figure 15.

The section of deep peat that is intersected by the route will be constructed using a floating Wooden rail road as subjected to a PhD study at Moorhouse NNR. This section can be seen identified blue on Figure 15 and extends to approximately 680 metres.

Figure 15 Deep Peat Section of Access Track



For the section highlighted blue it is proposed to adopt a floating timber rail road construction methodology, constructed along the following lines.

- The railroad provides a load bearing structure, but is also permeable to incoming precipitation. In addition, vegetation is able to grow up through the structure.
- The railroad will be built of wooden bearers that are a minimum of 150mm wide and 75mm thick, with 150mm gap between each bearer. The bearers are held together with steel links, which provide the running surface. Beneath the wooden bearers, an inert plastic mesh will be laid to provide additional load bearing capacity.
- The structure will be anchored at either end and intermittently as required by securing to treated wooden posts hammered into the ground or by burying under

aggregate where the structure adjoins the stone surfaced section of track, whichever is appropriate.

- No new open drains or culverts will be installed parallel or under the timber rail road section.

To install an aggregate track floating road will require the laying of a terram and geogrid over the vegetation and tipping aggregates on top of this and levelling out to the required depth. Through the valley section it may require a ditch installing on the high side with balance pipes installed at various locations to suit the topography of the land. These drains will only be installed as required and advised by the selected contractor in the necessary sections between points SD9666 3491 and SD9612 3595 or at any points on the length of the road where the peat depth is less than 40cm.

All ditches would be turf lined to keep the visual impact to a minimum.

Figure 16 Track construction



Figure 16 shows the sub layer surface laid on to a geogrid where migration of material is not an issue; and onto a geotextile and geogrid where migration was a concern. Stone will be delivered using small tracked dumpers running along the line of the finished track on the laid aggregate; and once at the far end these will then work back tidying up the track surface ready for crushing later.

The existing road network and existing adjoining drains will be maintained as and when required to keep them in an adequate state of repair in the event of emergency access being required.

Figure 17 Peat depth readings

Reading Number	Peat Depth (cm)	Reading Number	Peat Depth (cm)	Reading Number	Peat Depth (cm)
1	12	25	30	49	35
2	38	26	25	50	40+
3	30	27	40	51	40+
4	37	28	10	52	40+
5	36	29	30	53	40+
6	32	30	35	54	40+
7	35	31	34	55	40+
8	24	32	30	56	40+
9	24	33	31	57	40+
10	26	34	40+	58	32
11	4	35	40+	59	20
12	20	36	31	60	20
13	32	37	39	61	38
14	25	38	20	62	20
15	34	39	7	63	39
16	30	40	40	64	40+
17	33	41	20	65	38
18	25	42	20	66	37
19	40	43	25	67	40+
20	40	44	7	68	38
21	34	45	10	69	36
22	20	46	40+	70	38
23	20	47	40+	71	40+
24	37	48	24	72	20

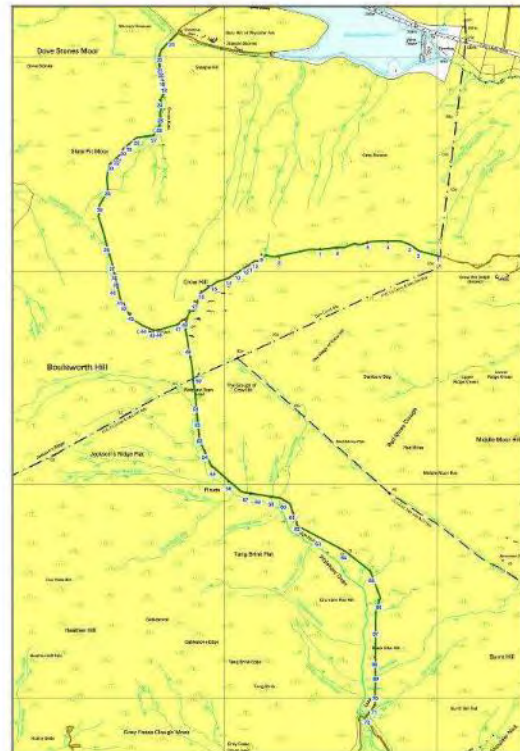


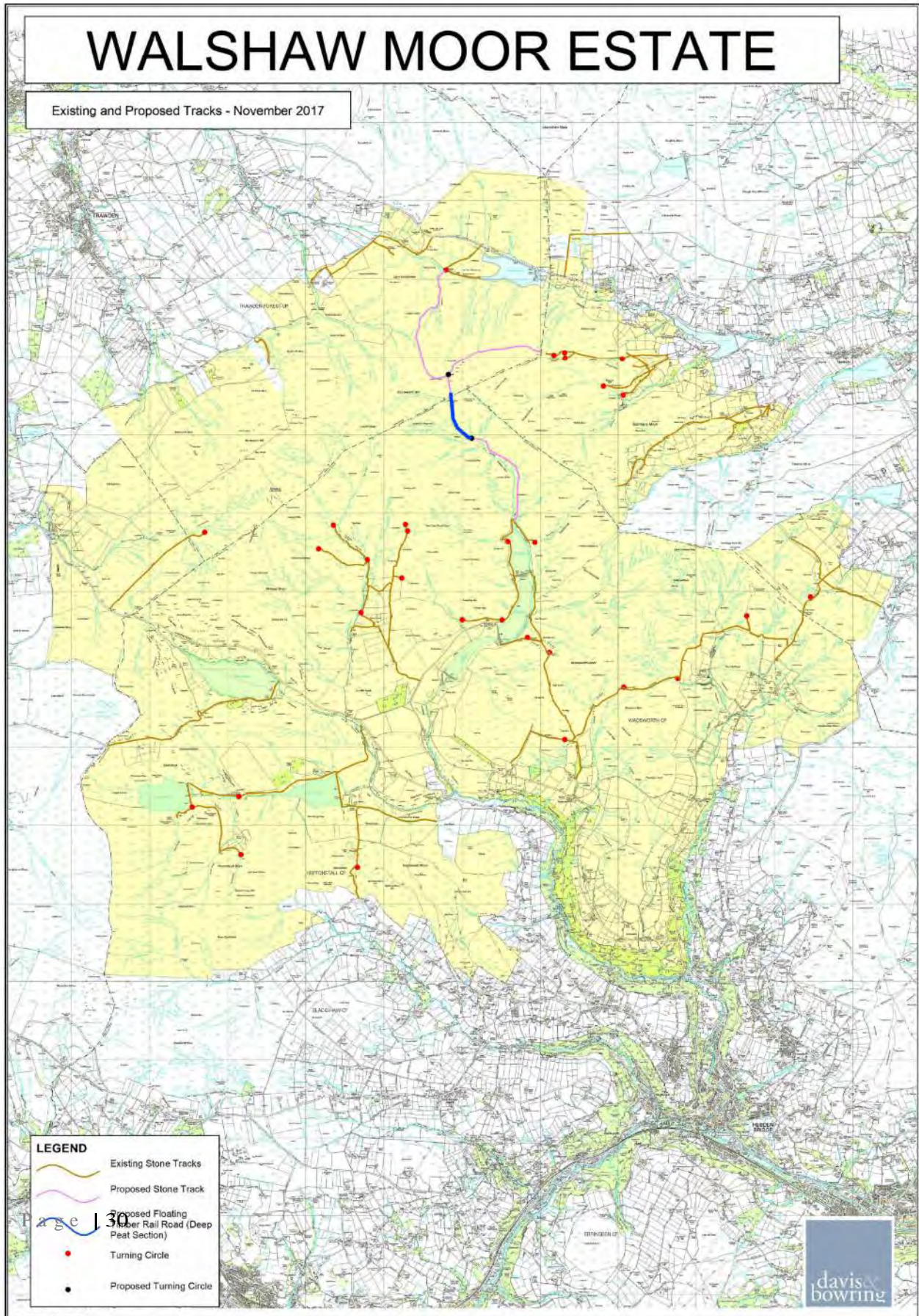
Figure 18 Example Road & Turning Circle



Figure 19 Timber Rail Road



Figure 20 Existing and Proposed Tracks



2.8 Other infrastructure

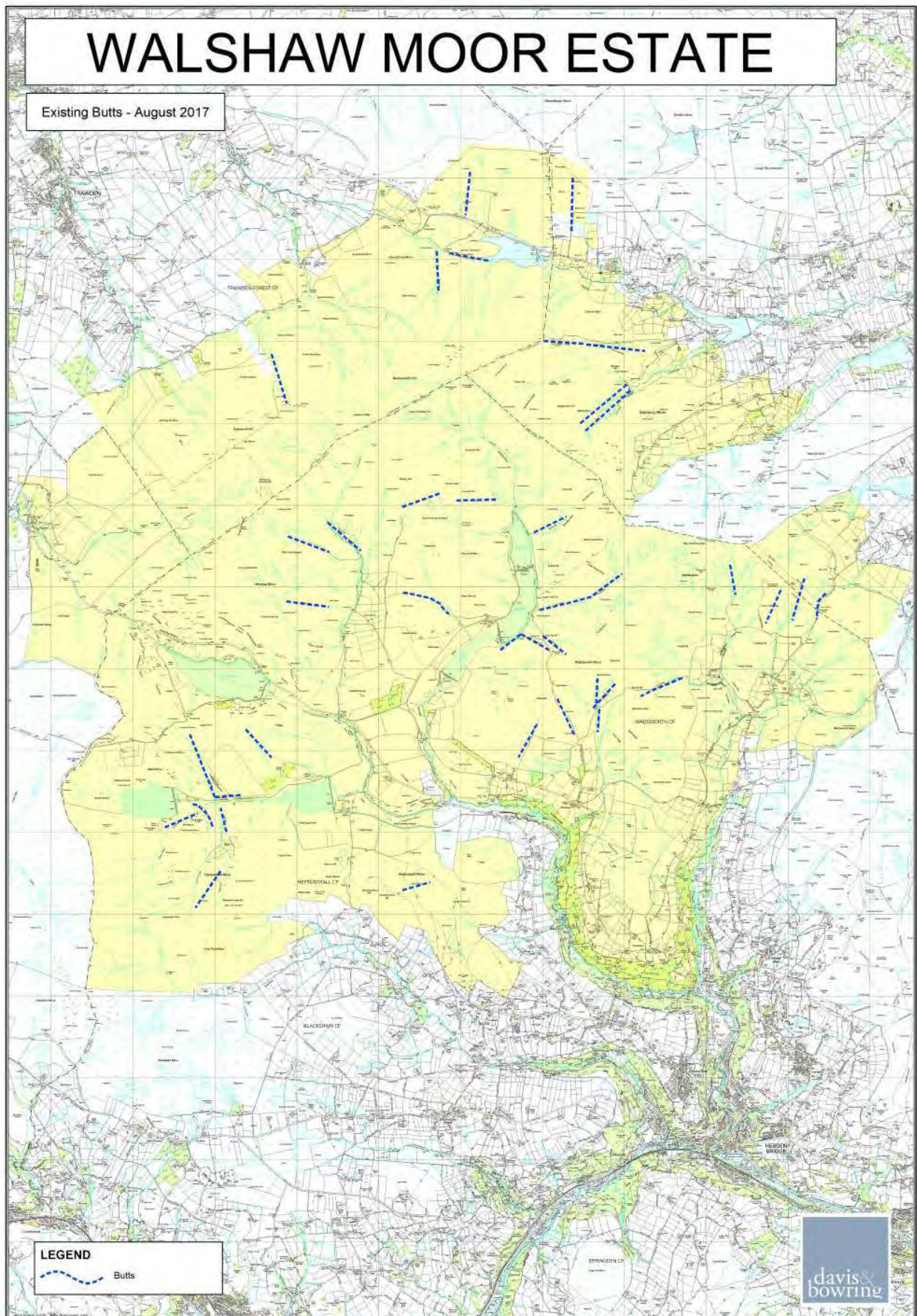
Shooting butts

Throughout the term of this plan it may be necessary for the Estate to replace existing grouse butts as shown at Figure 22 or potentially install new lines (subject to obtaining Natural England consent for new butt lines). A review of Estate infrastructure will be undertaken regularly and any requirements discussed. Repairs and replacements will be done using a variety of methods, semi-sunken using timber or stone as per the photographs below. The maintenance of existing open drains/ditches around grouse butts will continue to ensure they are free flowing.

Figure 21 Example of Existing Butts

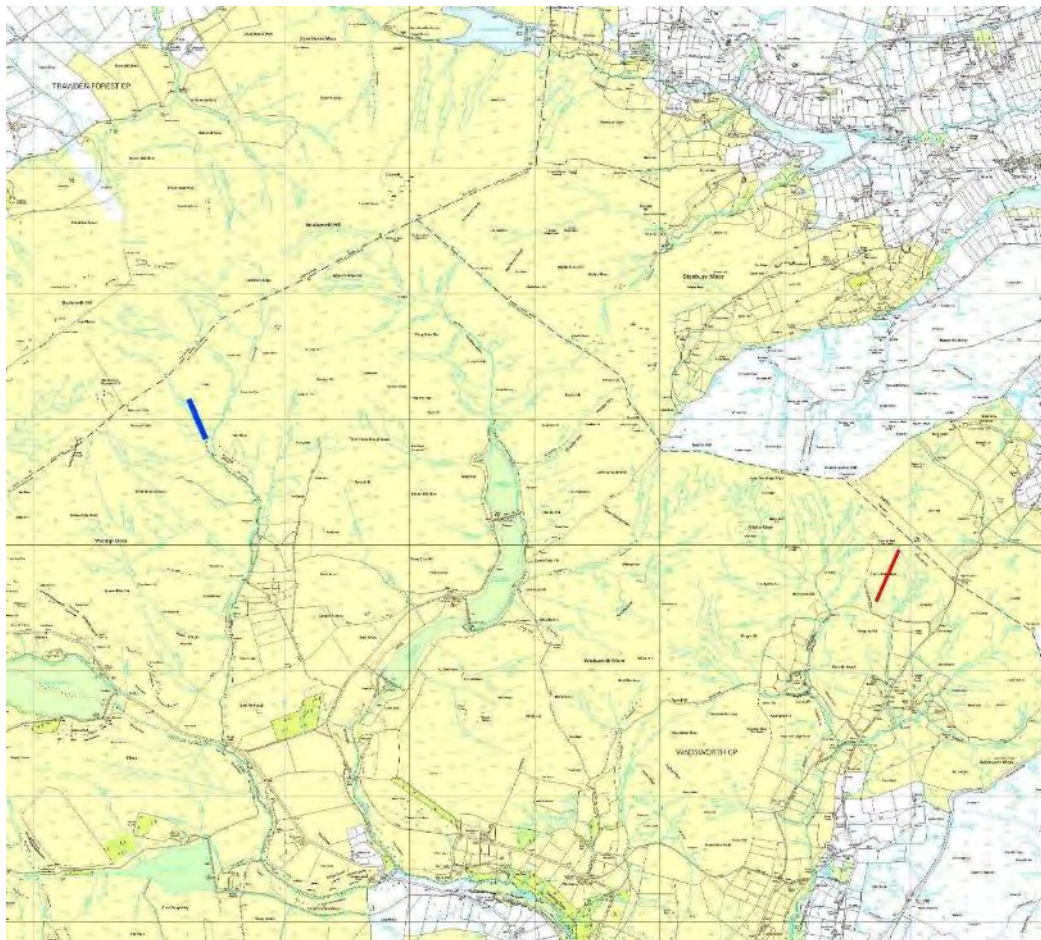


Figure 22 Plan of Existing Butt Lines



Two rows of butts have been identified for improvement at this initial stage, see figure 23. The red line is an existing line of temporary screens. It is proposed that these are replaced with a row of 10 sunken wooden butts. The row shown blue on *Figure 23* is currently used with temporary netted screens. Here a line of 10 semi-sunken butts is required. Both of these requests will also reduce the risk of accidents occurring Both lines of butts are served by existing tracks so additional vehicle access is not required and access on shoot days will be on foot from the track network.

Figure 23 Butts proposal



Semi-Sunken, Sunken butt Specification

Butt dimensions will be 6 foot x 6 foot (1.8 m x 1.8 m) x 1.0 m if fully sunk or 0.5m if partially sunk and will be of timber construction, with excavated peat banked up to timber.

Where butts are on deep peat the floor will be drained with a buried pipe (up to 25 m long for each butt). Drain channels will be backfilled with peat and topped with original turves. The pipes will be discharged only into a natural hollow or grip (not a water course) to avoid net export of water from the bog. Pipes will be fitted with a plastic collar to promote seepage of water into the local peat.

All butts on deep peat will be wrapped in a waterproof membrane to reduce hydraulic potential around the butt.

Excess peat and turfs from the excavated butts will be placed within grips or gullies on bare peat nearby to encourage re-vegetation of peat and ensure no net loss of peat.

All machinery to be used in the butt construction on deep peat will be low ground pressure vehicles and no exact same area of land will be passed over by any construction traffic.

If required, cotton grass and Sphagnum species will be planted on areas of bare peat to speed recovery.

All construction works will be conducted between 1 July to 15th April and providing that there are no nesting birds in the locations of the works.

Lunch huts

Existing lunch huts will be maintained or replaced as required including, access and parking provisions.

2.9 Work programme

Activity	Timeframe
Grip blocking	Begin within one year of the commencement of the Agreement – undertake phase 2 and 3 not withstanding force majeure.
<i>Molinia</i> restoration	Estimated 100 Ha per annum up to a total of 1,000 Ha throughout the term of this agreement
Cutting versus burning trial on unit 41	2018 – Establish method 2019 – Begin undertaking trial
Firebreaks	Within 1 year of the commencement of the Agreement - begin cutting strips in high fire risk vegetation with follow up as and when required
Infrastructure	Maintain and repair existing infrastructure as per existing consents. Within 1 year of the commencement of the Agreement - addition of the new link track to permit rapid access in the event of a wildfire.
Monitoring	Annual surveys undertaken by keepers from 2018 (specification to be developed).

3. Research and Monitoring

Throughout the term of this plan the Estate will undertake three monitoring programmes. Detailed monitoring specifications are in development following initial discussions with the below detailing those discussions.

3.1 Heather Cutting verses Burning Trial

Target areas within unit 41 are to be mown and burnt across two slope ranges (low and mid) with at least two of each combination, each plot will have a continuous water table logger. The continuous logger units will be supplemented by an additional manual dip well. This provides a backup in case of logger failure. Vegetation cover and growth rates will be assessed (once) annually in September (pictures and ground estimates), and nutrition value of new heather shoots may also be assessed in July.

3.2 Breeding birds

Bird assemblages will be monitored across the Estate by the keepers, once yearly when undertaking July Grouse Counts

3.3 Floating Timber Rail Road

Given the infancy of this type of road construction, the long term functionality is unknown. Adverse effect on the site is not anticipated, therefore this monitoring is designed to provide early warning of change so adaptive measures can be taken.

Annual Visual Inspection

A physical inspection of the full length of the timber rail road jointly as part of the annual review with the head keeper and/or agent and a representative from Natural England. This inspection will look at the physical properties of the timber rail road for signs of sinking, onset of rotting or splitting timbers and loosening of securing straps. The results will be recorded with photographs.

Vegetation Monitoring

A base line survey will be completed prior to the installation of the timber rail road at 14 half meter square quadrats along the footprint of the track, equating to roughly every 50 metres. Quadrats will also be placed at the same points either side of the track offset by 1m on one side and 2m on the other alternating along the route. Locations will be GPS recorded. After installation a vegetation survey will be undertaken in July at the same locations to note any changes of species composition. Recording of quadrats along the route will record growth of vegetation between the rails over the life of the plan. Collectively quadrats will show any trends that indicate a change in the hydrological status. As a control a quadrat survey will be repeated 50m either side of the rail road. Each location is to be marked with a stake and a photograph taken annually on inspection and stored for future reference. If after 10 years no warning signs of adverse are detected, vegetation monitoring can cease.

This survey will be undertaken annually for the first two years by both Natural England and Estate staff as part of an upland ecology training programme which will add considerable value in delivering the rest of the Restoration plan with a view to handing over the monitoring after two years. From year two the survey will be done once every four years for the remainder of the plan by estate staff.

An increase in key species in this case Sphagnum and Calluna may indicate an increase or decrease in the hydrological status respectively.

Dipwell monitoring

Dipwell monitoring will warn of any changes in water levels. Up to 10 of transects will be installed perpendicular to the track to 50m each side. Once installed, measurements are easy to take and should be taken at monthly intervals by estate staff following being shown how to do this. Dipwells will be installed prior to the installation of the track so that pre-treatment data can be collected with which to compare post-treatment activity.

Bulk density measurements

These measurements will warn of any changes to the peat itself. 6 samples along with 6 control measurements should be taken prior to the installation of the track. New samples should be taken from the same locations once every 2 years. Natural England will assist with these measurements.

Should any of the monitoring above suggest warning signs that changes to the habitat are happening which may lead to damage to the site, we agree to work together to make reasonable adjustments to the track or its use to prevent that damage occurring. We also agree to work together to agree any pre-emptive remedial work for the habitat.

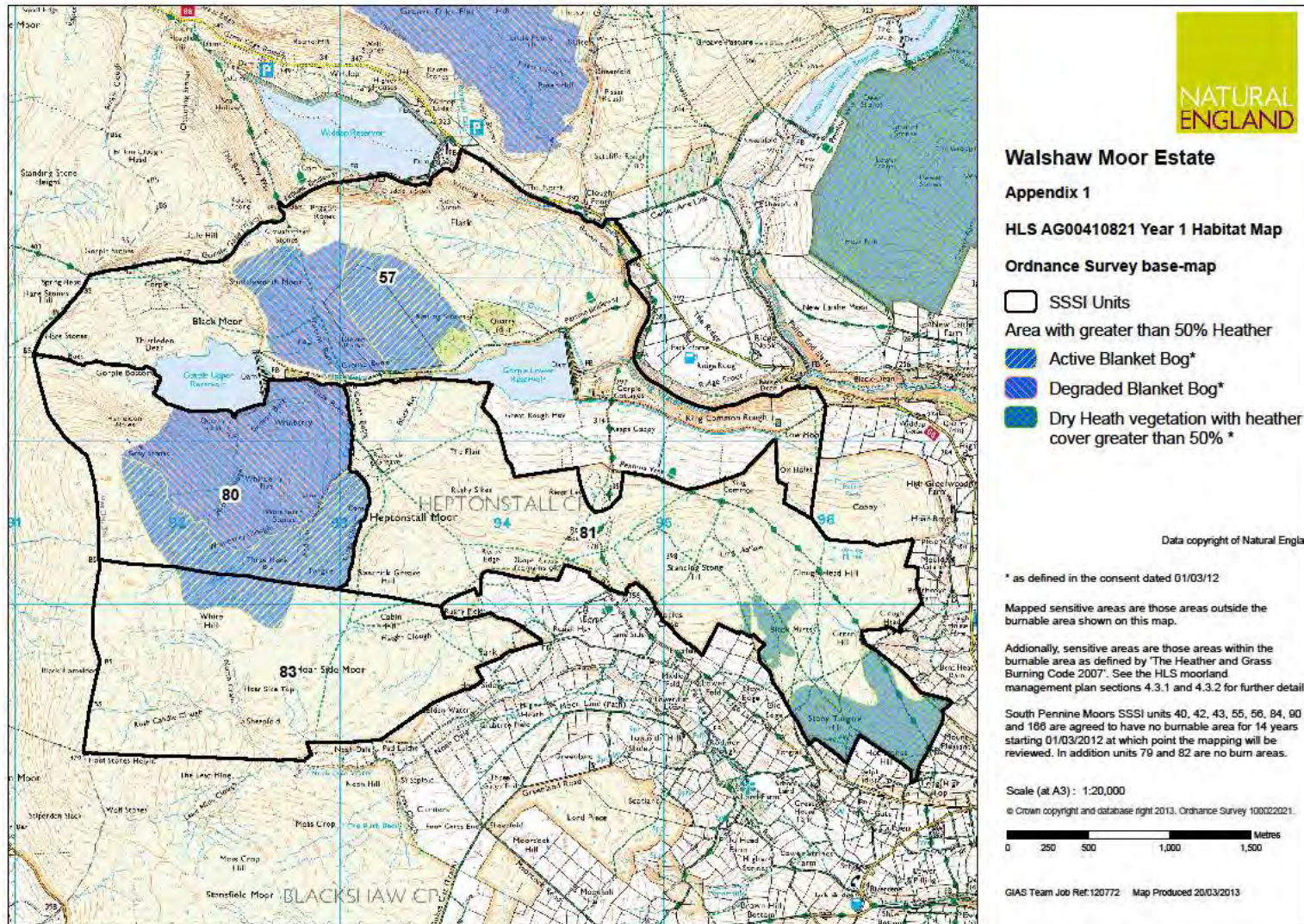
A trigger point for highlighting that the road is not functioning as intended would be if the bearers sink into the peat so they are fully submerged. Some sinking is to be expected overtime as is a natural increase in peat and vegetation matter between the bearers. Vegetation growth along the route is to be encouraged to aid in stability of the floating construction.

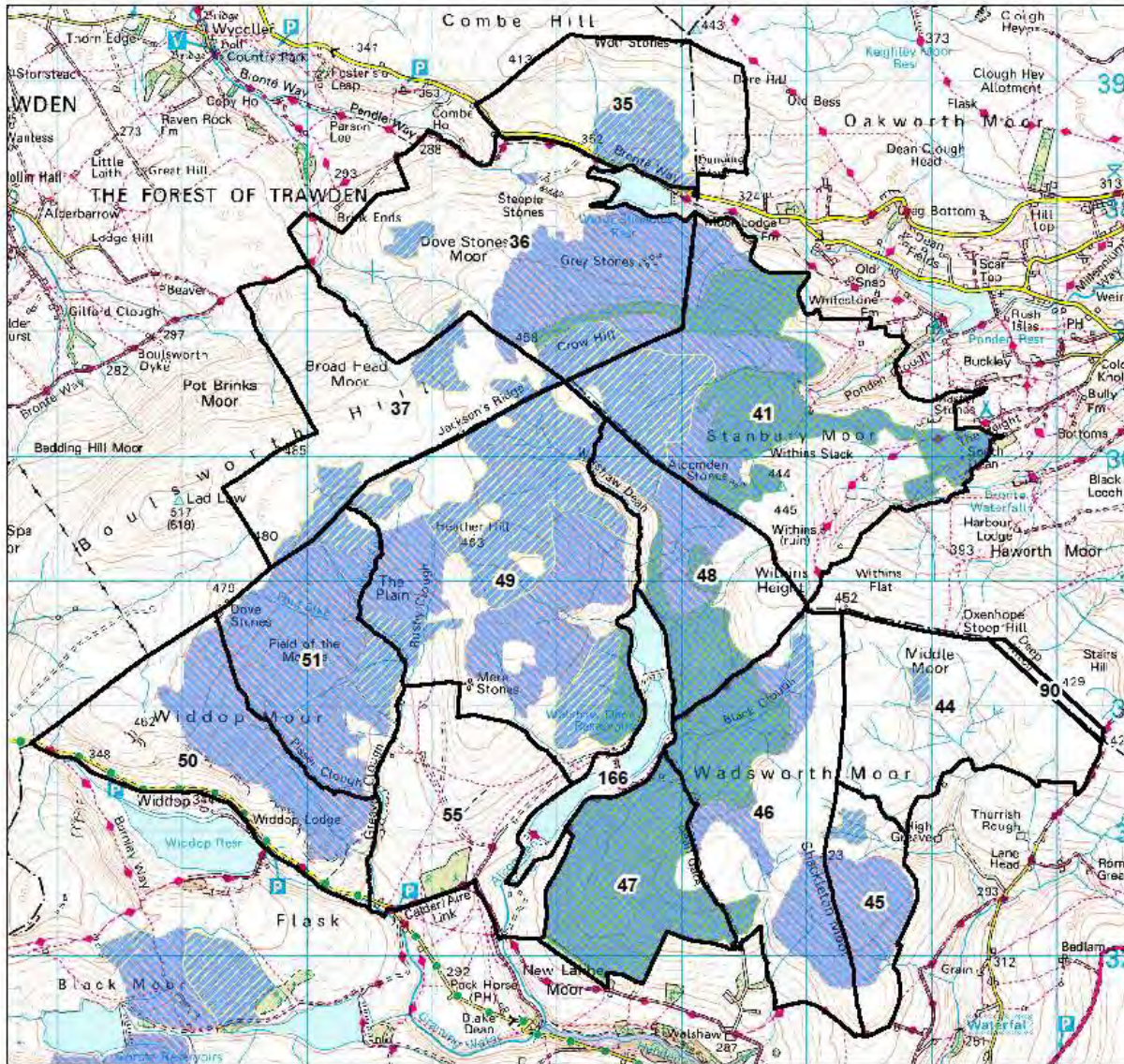
In the event of the trigger point being reached remedial action will be undertaken to prevent sinking occurring. In the event of sinking occurring, we agree to work together to find a workable solution for both the track and the site.

Record Keeping

Copies of the survey results will be held jointly and after two years be submitted to Natural England each year. Results will not be shared with third parties without authorisation from both NE and the WME. The results of the monitoring will be discussed at each annual review.

Figure 24 HLS Agreement Map





Walshaw Moor Estate

Appendix 1

HLS AG00410821 Year 1 Habitat Map

Ordnance Survey base-map

□ SSSI Units

Area with greater than 50% Heather

- Active Blanket Bog*
- Degraded Blanket Bog*
- Dry Heath vegetation with heather cover greater than 50%*

Data copyright of Natural England

* as defined in the consent dated 01/03/12

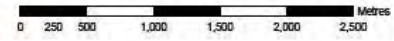
Mapped sensitive areas are those areas outside the burnable area shown on this map.

Additionally, sensitive areas are those areas within the burnable area as defined by The Heather and Grass Burning Code 2007. See the HLS moorland management plan sections 4.3.1 and 4.3.2 for further details.

South Pennine Moors SSSI units 40, 42, 43, 55, 56, 84, 90 and 166 are agreed to have no burnable area for 14 years starting 01/03/2012 at which point the mapping will be reviewed. In addition units 79 and 82 are no burn areas.

Scale (at A3) : 1:30,057

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GIAS Team Job Ref:120772 Map produced 20/03/2013

4. Terms and Conditions

1. Management of the Land

- 1.1 The Land Owner will obtain any necessary consents and/or permissions needed in order for its obligations to be carried out under the Agreement, and ensure that such permissions are maintained and complied with as necessary.
- 1.2 This Agreement will not take effect until planning permission for the access track referred to in clause 8 has been granted.
- 1.3 Natural England and the Land Owner agree to collaborate with each other for the benefit of the Land, and provide each other with regular information and communication on all aspects of the management of the Land.

2. Disposals

- 2.1 Should a disposal of all or part of the Land be proposed the Land Owner will notify Natural England in writing as soon as possible, and at least one month before the proposed Disposal is to take place, giving full details of the proposed Disposal. The significance of the Disposal will be discussed and the Agreement altered accordingly, by agreement, if necessary.

3. Management Reviews

- 3.1 The Land Owner and Natural England will consult each other regularly about the management of the Land and will have an annual review meeting in July each year (or as otherwise agreed).
- 3.2 At any meeting, the Land Owner and Natural England must:
 - 3.2.1 review this Agreement and its operation, including progress on management activities specified in the Agreement;
 - 3.2.2 consider the future management of the Land, including the work programme for the following year; and
 - 3.2.3 consider whether, in the light of the proposed future management of the Land, the Shared Outcomes as defined in section 1.1 and the flow diagram on page 6, could more appropriately and/or effectively be achieved, without them being compromised in any way, by the continuation of this Agreement and or any modification of it.
- 3.3 If either the Land Owner or Natural England considers it is no longer possible or desirable to achieve the Shared Outcomes, both parties will use their best endeavours to agree modifications of the Agreement, as appropriate whilst fulfilling the statutory obligations under the Wildlife & Countryside Act 1981.

4. Duration of Agreement

- 4.1 This Agreement shall remain in existence until the expiry of 25 years from its date.

5. Land Owner's Confirmations

- 5.1 By signing this Agreement, the Land Owner confirms to Natural England that it has full power to enter into the Agreement on the terms set out in it and without needing to obtain anyone else's consent.
- 5.2 The Land Owner further confirms that it has taken and will continue to take all necessary steps to ensure that all persons who have any right of management control in relation to the Land and/or any rights (including rights of access) to the Land and/or any interest in the Land will not breach the provisions of the Agreement over the entire period of the Agreement.

6. Information

- 6.1 The Land Owner consents to the disclosure by Natural England to the public of any information about the Agreement to the extent necessary to enable Natural England to comply with its statutory obligations under the Freedom of Information Act 2000 and/or the Environmental Information Regulations 2004. Details disclosed on request or proactively on the internet or in publications may include, but are not limited to, applications, agreements, the Land Owner's name and address, the name and address of the farm or business, grid references, the location of parcels, details of the environmental features and details of inspections and/or monitoring.

7. Disputes

- 7.1 The Land Owner and Natural England commit to resolving any disputes or differences between them in relation to the Agreement or the ending of the Agreement by amicable means. All reasonable efforts shall be made to reach agreement, but should that not be possible, then the dispute will be referred to mediation.

8. Track construction conditions

- 8.1 The track shown in pink and blue at Figure 20 will be installed subject to the conditions below. The full specification for this track is detailed from page 26 to 30 of the Catchment Restoration Plan:
- 8.1.1. The section of the track shown in blue will be constructed in the form of a wooden floating track as shown in photos / diagrams between points SD9666 3491 and SD9612 3595 where it crosses deep peat.
- 8.1.2 The track across deep peat (>40cm) will not be constructed with side drains but will rely wholly on the 'floating' track construction methodology but side drains can be installed as and when required on all sections of peat depth <40cm. These will however only be installed where absolutely necessary.
- 8.1.3 Vehicular use of the track shall be limited to Estate use, emergency use or support emergency services including mountain rescue and for emergencies only between 15th April and 1st July. Outside of this period the track may be used for any purpose in connection with the Estates business.
- 8.1.4 Gates at the ends of the tracks will be locked to reduce unauthorised vehicle use. Stiles will be installed and maintained to allow pedestrian use subject to CRoW Act 2000 provisions and notices posted to advise users to take care to avoid disturbance to ground nesting birds.

8.1.5 The wooden rail road will be subject to active monitoring as agreed by Natural England and the Land Owner and is detailed in the Catchment Restoration Plan at page 36 under the section 3.3 entitled Floating Timber Rail Road .. Remedial measures have been anticipated as far as possible and are detailed alongside the monitoring specification. Any works outside agreed remedial measures will be agreed in advance between Natural England and the land owner before remedial works commence.

8.1.6 Aggregate used on tracks will be inert materials.

8.1.7 No turning circles or passing places will be constructed on deep peat (>40cm).

9. Vegetation restoration/management

9.1 Works to treat Molinia, cut firebreaks, treat or cut rush or bracken or install infrastructure will not be carried out during the bird breeding season 15th April to 1st July.

9.2 Works to treat Molinia, cut firebreaks, treat or cut rush or bracken or install infrastructure will avoid known raptor and twite nesting and roosting areas.

9.3 All works must be conducted to avoid damage to vegetation by rutting or exposure of bare peat, where possible.

9.4 On deep peat (>40cm) vegetation restoration works should only be applied when there is a dominance of a single species (ling heather or Molinia) and the canopy is closed preventing light getting to desirable peat building species such as Sphagnum

9.5 Vegetation will not be cut or burnt unless it is more than 30cm in height. With the exception of areas within a 50 meter radius of a grouse butt, which may be cut or burnt when the vegetation reaches a height of 10cm. Cutting is the preferred management technique for managing vegetation within 50 metres of grouse butts and will be used where conditions allow.

9.6 Where Sphagnum is absent cutting / burning management will be followed by transplantation of Sphagnum material or spreading of propagules in proprietary medium or attached to clay pellets. However it is accepted that opportunity for natural regeneration should be allowed post cutting and burning, for up to three years. The exception to this condition is when cutting fire breaks.

9.7 A maximum of 100 hectares of virgin ground per annum will be reseeded; subject to suitable weather conditions and availability of appropriate seed (the agreed seed mix shall contain heather, cotton grass and sphagnum). Follow up treatment shall be unlimited in area with suitable areas targeted accordingly.

9.8 All burning management will be carried out according to the Heather and Grass Burning Code (2007) or subsequent revisions, unless otherwise consented by Natural England

10. Burning Consent

10.1 Natural England will issue a notice modifying the Consent granted to the Land Owner on 1st March 2012 ('the 2012 Consent') in so far as it relates to rotational burning.

10.2 The Land Owner hereby confirms that they waive their right of appeal and compensation in relation to the modification of the 2012 Consent.

10.3 The plan will not become active until such time as the period for appealing the revocation notice has expired or planning permission has been granted in accordance with clause 1.2, whichever is the later.

11. General

11.1 Sunken grouse butts constructed in deep peat areas will be lined with impermeable membrane to prevent water ingress from the surrounding peat. Drains to clear surface water from butts will be piped to natural fall.

11.2 All works will be completed according to the Work Programme the plan, other than where weather conditions or force majeure have prevented such.

11.3 On the termination of the existing HLS (AG00410821) it is mutually agreed that best endeavours by both parties will be made to enter into a new scheme, should one be available, to complement and aid the delivery of this agreement.

12. Meaning of certain words

12.1 'the Land' means the whole or any part of the land included in Higher Level Stewardship Agreement AG00410821 (which expires on 31 May 2022) and shown edged in black on Figure 24 (including all buildings, fixtures and fittings on the Land and all water on or covering the Land, whether now or at any time after the date of the Agreement);

12.2 'Disposal' means the disposal of the Land or any part of it by way of sale, exchange or lease, or by way of the creation of any easement, right or privilege, or by giving someone other than the Land Owner the right to use the Land, or in any other way, except by way of mortgage or charge; However, 'Disposal' excludes family transfers and any arrangement by which the Land Owner retains the possession and/or control of the Land or by which the Land remains at its disposal: for example, most contract farming agreements and seasonal grazing and mowing licences will not amount to a 'Disposal'. As per clause 2 the severity of the disposal and its implications on delivering this agreement will need to be assessed in advance by both parties;

12.3 'Map' means the map or maps attached to the Agreement

13. Interpretation

13.1 In the Agreement:

13.1.1 the headings are used for guidance only;

13.1.2 words suggesting the singular include the plural and vice versa;

13.1.3 words suggesting any gender include both other genders;

13.1.4 save where stated to the contrary, any reference to the Agreement or to any other document includes any permitted variation, amendment or supplement to such document;

13.1.5 words preceding 'include', 'includes', 'including' and 'included' shall be construed without limitation by the words which follow those words;

13.1.6 any reference to any enactment, order, regulation or other similar instrument shall be construed as a reference to the enactment, order, regulation or instrument as amended, replaced, consolidated or re-enacted; and

13.1.7 a reference to a person includes firms, partnerships and corporations and their successors and permitted assignees or transferees.

13.2 It is not intended that any third party should have the right to enforce a provision of the Agreement by virtue of the Contracts (Rights of Third Parties) Act 1999.

13.3 The Agreement shall be governed by and construed in all respects in accordance with the laws of England and Wales. Subject to clause 7 (Disputes), the English courts have exclusive jurisdiction to settle any disputes which may arise out of or in connection with the Agreement.

This agreement has been entered into on the date that it has been signed by both parties.

Signed by:

(for and on behalf of Natural England)

Date:

signed by:



(for and on behalf of Walshaw Moor Estate Limited)

Date: *16th January 2018.*

The Common Seal of)
NATURAL ENGLAND)
Was hereunto affixed in the presence of)



IN WITNESS of which this Agreement is executed as a Deed

Date: 25 January 2018

