PROJECT DESIGN DOCUMENT (PDD)

Compilation of Evidence for Validation

Version 1.1, March 2017

Project Name:	Birkdale
Registry ID:	N/A
Location:	North Pennines AONB
Grid Reference:	
Gross Area (ha):	60.91 ha
Project Developer:	North Pennines AONB Partnership
PDD Completed by:	Lee Rankin, Field Officer
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All statements made in this document are correct to the best of my knowledge at the time of completion. ***I agree***

NOTE:

1. When completing each section of this document please refer to the requirements set out in the relevant section of the Peatland Code. Boxes for text can be expanded if not large enough.
2. Your Project Design Document will be made available on the publically available Peatland Code Registry upon achievement of validation.

3. Additional evidence to support the statements made within this document will be required by the certification body.

Contents

1. Eligibility and Governance

1.1 Eligible Activities

1) Please provide a short summary of the project including as a minimum reference to peatland type, peatland condition and restoration and management activities which shall be implemented.

The restoration site is composed of actively eroding gullies and hags with flat bare peat and dendritically eroded areas. The project will utilise well-established peatland restoration techniques including reprofiling and revegetating of gullies and hags; blocking eroding gullies using stone dams, coir rolls to slow the flow in shallower gullies and on bare peat; revegetating all bare peat areas (including reprofiled gully and hag sides) using heather brash, a moorland seed mix, lime, phosphate based fertiliser and cotton grass plugs. There will be a comprehensive management and maintenance plan to ensure the restoration is effective.

2) Is a minimum peat depth of 50cm present within the project area? ***Yes***

2) Please provide details of any current land management agreements, including any statutory designations, in existence within the project area .

Entry and Higher Level Stewardship (not including capital works on peatland restoration)
SPA, SAC and SSSI
Natura 2000 site
Within area of North Pennines AONB

3) Please state any identified conflicts between planned restoration and management activities and existing land management agreements and how these shall be mitigated.

none

1.2 Project Duration

1) Please state the project duration (years).

30

2) If the project duration exceeds 55 years please state the peat depth within the project area.

N/A

1.3 Eligible Land

1a) Please state the owner(s) and if applicable, the tenant(s), of the land within the project area

Owner: Nicholas Oughtred

1b) Please state the land registry number, if known

2) Has any new activity to drain and/or remove vegetation taken place on the peatland within the project area since November 2015? *No*

1.4 Consultation

1) Please state all identified stakeholders (or their representatives), the consultation method and the consultation period.

Stakeholder	Consultation Method	Consultation Period

3) Please state all negative impacts of the project identified by stakeholder(s) and the action taken to mitigate, where feasible and/or relevant

Negative Impact Identified	Action taken to mitigate? (Yes/No - *If No, provide details)*
No negative impacts identified from any stakeholders	

1.5 Additionality

1) Is there a legal requirement specifying that peatland within the project area must be restored? *No*

2) Please state the proportion of the project restoration and management costs that Carbon Finance will be required to fund.

N/A

3) Please describe the economic alternatives for the peatland within the project area and describe the influence of Carbon Finance on the project's economic viability over its duration (Internal Rate of Return (IRR) or Net Present Value (NPV) should be used to demonstrate comparison).

As most of this restoration site is actively draining and eroding, there are no possible economic alternatives for the land other than the small benefits currently obtained from grouse shooting and occasional sheep grazing. However, post peatland restoration, the site would perform significant ecosystem services over the 30-year duration of the project. In addition to the carbon saved from the current intense erosion, restoration will reduce the amount of sediment and help slow the flow of water into the area's catchments. Biodiversity will also benefit as will the protection of the site's archaeological records.

The site is dominated by actively eroding and degraded peat soils which support a reduced vegetation structure. In the present condition there are no economic alternatives other than grouse shooting and some sheep grazing. However, these activities are severely limited on this area due to the poor condition of the soils and vegetation.

Post-restoration the site's peat soils and vegetation will be in recovering condition and will begin to perform significant ecosystem services that will last for the 30-year duration of the project. The carbon benefits of this project are relatively simple to quantify and monetise yet there are further benefits from this project. These include a reduction in particulate organic carbon and sediment delivery to watercourses, a reduction in water colour (Dissolved Organic Carbon), enhanced water storage reducing flood risk, and improvements in plant biodiversity with a subsequent enhancement to animal bio-diversity.

4) If applicable, please describe how barriers that prevent the implementation of the project (legal, practical, social, economic or environmental) have been overcome.

There are no known barriers.

1.6 Avoidance of Double Counting

1) Please state all parties with a legal right to make statements about the emissions reduction benefits of the project (the 'owner(s)') and the amount/proportion of units (tCO_2e) for which they have a right.

Owner	Contact Email	Units (tCO_2e or %)
Nicholas Oughtred		100%

1.7 GHG Statements

1) If applicable, please state where any statements about the predicted emission reduction benefits of the project have been made to date.

Signage onsite	No
Websites	No
Publicity leaflets etc.	No
Other media (*provide details*)	No

2) Please state how buyers were/will be informed of Peatland Code requirements regarding GHG statements

Buyers will be made aware of Peatland Code requirement 1.7 (V1.1) at the time of sale with a clause within the sales contract committing the buyer to compliance.

2. Project Design

2.1 Management Plan

1) Does the project have a restoration management plan for the duration of the project? *Yes*

2) Please provide a short overview of the project objectives and activities to be implemented.

The restoration objectives for Birkdale Fell are:

1. To improve the **4.9ha** of Actively Eroding Flat Bare peat (AU1) to a Drained Revegetated status by:

    - Brashing, reseeding and planting of cotton grass plugs as well as installation of coir rolls.

    2. To improve the **19.27ha** of Actively Eroding Hagg/Gully (AU2) to a Drained Revegetated status by:

    - Reprofiling & revegetating (as above) the eroding sides of gullies and using heather brash to revegetate reprofiled edges
    - Blocking **3327m** of gullies using **154** stone sediment traps and **310** coir rolls on feeder channels slowing flow and trapping sediment
    - Planting **18,150** Common cotton grass plug plants on suitably wet bare peat, in the base of gullies and dendritic areas
    - Brashing **5ha** of bare peat with **1500** bags of heather brash (300 bags per hectare), stabilising eroding bare peat and acting as a mulch layer and seed source to stimulate revegetation

3. To ensure the elevated status in each category is achieved, and to ensure the potential for the whole site to realise a Modified/Near Natural is maximised, a follow-up management programme will supplement seed, cotton grass and sphagnum to areas that remain vulnerable to erosion; add coir rolls to areas still vulnerable to erosion; continue to work on the site's hydrology to optimise water retention and sediment capture enabling eroded gullies to refill to the level of the surrounding landscape by raising stone dams as they become back-filled with peat sediment deposition. This programme of monitoring and post-restoration effort, which will include raising stone dams, replacing coir rolls and re-brashing specific areas, is essential to the success of the restoration effort.

3) Were legal compliance and best practice guidance considered in the preparation of the restoration management plan? ***Yes***

4) Please provide a short overview of the expected environmental and social impact of the project.

Environmental:

1. There will be significant environmental benefits through erosion prevention encouraged by revegetation, stone gully dams and coir rolls. This decrease the amount of carbon being released from the site, and its subsequent contribution to global warming, as well as acting to decrease the amount of sediment reaching watercourses further down the catchment.
2. Runoff from the site feeds into Maize Beck before flowing down to the River Tees. The Tees is one of the rivers identified in the as having a contributory effect to environmental damage and flooding downstream. As it has been demonstrated that the revegetation of bare peat areas reduces the flood peak, it is expected that revegetation of the site, in addition to the strategic positioning of stone dams and coir rolls, will further serve to slow the flow of water into the wider catchment and be of benefit to the habitats within and surrounding the catchment, as well as to communities vulnerable to flooding. This project will complement and support the work being done on the River Ure by the National Park in their Wensleydale Project Tees by the North Pennines AONB staff, Natural England and the Tees Rivers Trust to aid water retention in the uplands.
3. Maize Beck and the River Tees are key spawning streams for salmonid species and will receive some benefit from the reduced quantity of sediment and flood water. Other riverine habitats along these watercourses are also expected to receive some benefit as water quality improves and human-exacerbated sediment loads decrease. This will further support future work exploring Natural Flood Management methods being carried out in the catchment by the North Pennines AONB Partnership through the Tees-Swale Project.
4. Biodiversity on Birkdale Fell is expected to benefit from the restoration as currently degraded and eroded land will become revegetated with native species including cotton grasses, dwarf shrubs, sphagnums which in turn offer the correct conditions for natural regeneration of other native plant species. Similarly, as erosion declines, and the restoration techniques initiate the process of rewetting the moor by raising the water table, the water retaining capabilities of the peat will improve in tandem with the stabilising effect of the vegetative growth. These positive impacts will also enhance insect life and many other species that depend on these invertebrates.
5. As a result of the above, the land will become much more valuable as a feeding and resting place for migrant birds, including plovers, curlews, wheatears, skylarks and pipits. This will help establish a wildlife corridor across the area to support these migratory species thus contributing to the overall aims of the North Pennines AONB Partnership, helping to retain and enrich all the unique and biodiverse qualities of the area.
6. Rewetting the site, and raising the water table, will also help to make the site more resistant to climate change, enabling the preservation of the unique environmental characteristics of the area and the survival of all biodiversity dependent on this ecosystem.

Social:

1. The landowner is expected to benefit from an increased capacity of the land to support healthy grouse populations. His clientele will also benefit from the improved topography, aesthetics and biodiversity of the land.
2. The Pennine Way passes adjacent to the site and so walkers will benefit from the enhanced biodiversity and overall aesthetics of the area arising from this restoration project.
3. As the land lies within the North Pennines AONB this restoration project will be contributing to the overall appeal of this designated Protected Area, helping to maintain its status and be of financial benefit to the wider community through tourism.
4. The project will also contribute to the lowering of DOC and POC content of the water which will influence the colour and quality of watercourses including Maize Beck down to the River Tees. This will ultimately be of benefit to the water companies (namely Northumbria Water Ltd.) that extract from this catchment, and to a variety of recreational users including anglers, canoeists and wildlife watchers.
5. The site restoration will contribute to the increased lag time of runoff during storm conditions due to surface and shallow sub-surface water travelling slower over well-vegetated, rougher ground. The dams will also work to hold more water up on the moors. This smooths out downstream hydrographs and lowers peak flows. Ultimately this will benefit communities living within the catchment who are subject to flooding under sub-optimal conditions. This project will allow them greater preparation time to prevent damage to their properties and to evacuate the area, as well as smoothing out the hydrograph with a reduced peak discharge resulting in a lower risk of floods in general, especially when viewed synergistically with other on-going projects that aim to put in place Natural Flood Management measures such as the Tees-Swale project.
6. The higher water table and lower fuel load will also increase the site's ability to resist wildfire, avoiding the terrible social and environmental costs that fire across the site could bring.

2.2 Monitoring Plan

1) Does the project have a monitoring plan for the duration of the project? *Yes*

2.3 Management of risks and permanence

1) Has a Risk Assessment been undertaken to identify potential risks to the maintenance of improved condition category and appropriate mitigation strategies? *Yes*

3. GHG emission reduction

3.1 Establishment of Baseline Emissions

1) Please insert a completed *Table 2* from the *Peatland Code Emissions Calculator*.

Assessment Unit	Area (ha)	Pre-Restoration (Baseline) Condition Category	Post-Restoration Condition Category
AU1	4.9	Actively Eroding: Flat Bare	Drained: Re-Vegetated AE
AU2	19.27	Actively Eroding: Hagg/Gully	Drained: Re-Vegetated AE
AU3		Drained: Hagg/Gully	Modified
AU4	36.74	Modified	Modified
AU5		Non-Peatland	Non-Peatland
AU6			
AU7			
AU8			
AU9			
AU10			
Total	**60.91**		

3.2 Leakage

1a) Please state the current land use or management and describe how it will be affected by the project.

There is year-round sheep grazing and limited grouse shooting on this site. This will not be affected by restoration which will take place through the winter months due to the low stocking densities and work commencing post-shooting season. During the summer growing it has been shown that sheep have not favoured these restoration areas and so any grazing damage will be limited. As such, this is not considered a problem by the landowner or grazier.
In the long term it is desirable that the restored land should be free from any management which involves burning as this will be detrimental to the restoration and to the health of the peat. This is in accordance with recent Natural England policies which is presently being negotiated for this site with the landowner. The Land management plan will take these issues into account.

1b) Will the project lead to change of land use or management elsewhere within the same agricultural/land holding (e.g. peatland degradation or intensification of land use in another area)? ***No***

1c*) If Yes*, Is the change in land use or management significant (i.e. will GHG emissions ≥ 5% of project emissions reductions over the duration)? ***N/A***

2) *If significant*, please state the emissions (tCO_2e) of the displaced activity for the duration of the project. *(If no leakage or not significant*, leakage =0).

0

3.3 Net Project GHG emission reduction

2) Please insert a completed *Table 5* from the *Peatland Code Emissions Calculator*.

Cumulative Emissions Reduction over project duration (tCo2e)					
Period (Year)	Gross Emissions Reduction (tCO2e)	Emissions Reduction less 10% model precision (tCO2e)	Net Emissions Reduction adjusted for Leakage (tCO2e)	Cumulative Risk Buffer Contribution (tCO2e)	Cumulative Claimable Emissions Reduction (tCO2e)
0-5	666	599	599	90	**509**
5-10	1331	1198	1198	180	**1018**
10-15	1997	1797	1797	270	**1527**
15-20	2662	2396	2396	359	**2037**
20-25	3328	2995	2995	449	**2546**
25-30	3993	3594	3594	539	**3055**
30-35	0	0	0	0	**0**
35-40	0	0	0	0	**0**
40-45	0	0	0	0	**0**
45-50	0	0	0	0	**0**
50-55	0	0	0	0	**0**
55-60	0	0	0	0	**0**

60-65	0	0	0	0	**0**
65-70	0	0	0	0	**0**
70-75	0	0	0	0	**0**
75-80	0	0	0	0	**0**
80-85	0	0	0	0	**0**
85-90	0	0	0	0	**0**
90-95	0	0	0	0	**0**
95-100	0	0	0	0	**0**

3) If necessary, use this space to clarify any details of your calculation