PROJECT DESIGN DOCUMENT (PDD)

Compilation of Evidence for Validation

Version 1.1, March 2017

Project Name:	Stake Moss
Registry ID:	
Location:	Thoralby, Bishopdale, N. Yorkshire, England
Grid Reference:	SD936824
Gross Area (ha):	166
Project Developer:	Yorkshire Peat Partnership
PDD Completed by:	Jenny Sharman, Project 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 site comprises actively eroding gullies and hags with flat bare peat and dendritically eroded areas. It will be restored using a combination of techniques including reprofiling and revegetating of gullies and hags; blocking eroding gullies using peat dams, timber and stone sediment traps and peat bunds; using coir logs 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, cotton grass plugs, crowberry plugs and sphagnum. 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 .

Higher Level Stewardship (not including capital works on peatland restoration)
Within area of Yorkshire Dales National Park

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.

1.3 Eligible Land

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

Owner: Robert Brown

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

NYK196527

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
Robert and Brian Fawcett	Verbal	8 weeks
Yorkshire Dales National Park	Written and Verbal	3 months Verbal (IUCN/YDNP workshop) 2 weeks (written)
Yorkshire Water	Written and Verbal	3 months Verbal (IUCN/YDNP workshop) 2 weeks (written)
Environment Agency	Written and Verbal	3 months Verbal (IUCN/YDNP workshop) 2 weeks (written)
Natural England	Written and Verbal	3 months Verbal (IUCN/YDNP workshop) 2 weeks (written)
Yorkshire Dales Rivers Trust	Written and Verbal	3 months Verbal (IUCN/YDNP workshop) 2 weeks (written)

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.

37%

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 the majority of the site is actively draining and/or 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 Net Present Value of the project excluding carbon is -£146,716, including carbon is £43,429 (please see accompanying documents relating to Scenario 4 'Hydrology and Vegetation for 10 years)

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 %)
Robert Brown	robert.Brown@metalube.co.uk	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.

For detailed breakdown of restoration work, please see the restoration plan. In summary, the restoration objectives for Stake Moss are:

1. To improve the **2.93ha** of *Actively Eroding Flat Bare peat* (AU1) to a *Drained Revegetated* status by:-

- Brashing, reseeding, planting of cotton grass and crowberry plugs, and incoculating with sphagnum clumps all bare peat and mineral areas.

2. To improve the **3.04ha** of *Actively Eroding Hagg/Gully* (AU2) to a *Drained Revegetated* status by:-

- Reprofiling & revegetating (as above) the eroding sides of **11,385m** of gully and **19,407m** of eroding peat hags

3. To improve the **133.94ha** of *Drained Hagg/Gully* (AU3) to *Modified* by:-

- Reprofiling and blocking **8291m** of eroding gully (≤2m wide) with peat dams
- Blocking **2986m** of eroding gully (>2m≤3m wide) with peat bunds
- Blocking **7613m** of vegetated gully with peat bunds or timber sediment traps
- Blocking **2579m** of eroded gully with stone sediment traps
- Using coir logs to dam **1.53ha** of dendritic gullied areas
- Revegetating **1.53ha** of dendritic gullied areas as above

4. To ensure the elevated status in each category is achieved, and potential for the whole site to realise a *Modified/Near natural* is maximised, a follow-up management programme will supplement seed, cotton grass, crowberry plugs, and sphagnum to areas still vulnerable to erosion; and continue 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.

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 substantial environmental and social benefits through the prevention of erosion through revegetation, dams and sediment traps. This will not only decrease the amount of carbon being released from the site, and its subsequent contribution to global warming, but is also expected to decrease the amount of sediment reaching watercourses further down the catchment.
2. Runoff from the site feeds into Bishopdale beck before flowing into the River Ure. The Ure is one of the rivers identified in the Yorkshire Dales National Park 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 dams, bunds and sediment traps 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 to slow the flow and encourage water retention in the uplands.
3. Bishopdale beck is a key spawning ground for the River Ure and will receive some benefit from the reduced quantity of sediment and flood water reaching its shores. Other riverine habitats along these watercourses are also expected to receive some benefit as water quality improves and sediment load decreases. This will further support the Natural Flood Management project being carried out in the Beck by the Yorkshire Dales Rivers Trust.
4. Biodiversity on Stake Moss is also expected to benefit from the restoration as currently degraded and eroded land will be revegetated with cotton grasses, dwarf shrubs and sphagnums. Similarly, as erosion declines, and the restoration techniques initiate the process of rewetting the moor, the water retaining capabilities of the peat will improve as will the vegetation, insect life and the many 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, and help in the creation of a corridor across the area to support these migrations. This will contribute to the overall aims of the Yorkshire Dales National Park, 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, helping to preserve 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 gamekeeper has a family business selling grouse meat obtained from the site, which could also benefit from increased numbers and quality of the birds.
3. There is a main footpath crossing the site and walkers will also be able to benefit from the enhanced biodiversity and aesthetics of the area.
4. As the land lies within the Yorkshire Dales National Park, it will be contributing to the park's overall allure, helping to maintain its status and be of financial benefit to the wider community through tourism.
5. The project will also contribute to the lowering of DOC and POC content of the water which will influence the colour and quality of water. This will ultimately be of benefit to the water companies (namely Yorkshire Water) extracting from this catchment, particularly in times of peak flow when particulate matter and DOC is normally high.
6. The site restoration will contribute to the increased lag time of runoff during storm conditions due to the water travelling slower over vegetated, rougher ground. The dams will also work to hold more water up on the moors. Ultimately this will benefit communities living within the catchment who are subject to flooding under these conditions, allowing them greater preparation time to prevent damage to their properties and evacuate the area.
7. 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	2.93	Actively Eroding: Flat Bare	Drained: Re-Vegetated AE
AU2	3.04	Actively Eroding: Hagg/Gully	Drained: Re-Vegetated AE
AU3	133.94	Drained: Hagg/Gully	Modified
AU4	12.13	Modified	Modified
AU5	14.08	Non-Peatland	Non-Peatland
AU6			
AU7			
AU8			
AU9			
AU10			
Total	**166.12**		

3.2 Leakage

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

There is a small amount of sheep grazing and limited grouse shooting. This will not be affected by restoration which will take place through the winter months. Through the summer, post-restoration, the sheep will be excluded from revegetated areas to protect the new growth. However, historically the sheep have not favoured these areas and alternative grazing is available. 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 and has been agreed by the landowner. The Land management plan takes these issues into account and have all been agreed by the landowner and grazier.

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*.

Period (Year)	Total Emissions Reduction (tCO2e)	Total Emissions Reduction less 10% model precision (tCO2e)	Total Emissions Reduction adjusted for Leakage (tCO2e)	Cumulative Risk Buffer Contribution (tCO2e)	Cumulative Total Claimable Emissions Reduction (tCO2e)
0-5	1916	1724	1724	259	**1465**
5-10	3831	3448	3448	517	**2931**
10-15	5747	5172	5172	776	**4396**
15-20	7662	6896	6896	1034	**5861**
20-25	9578	8620	8620	1293	**7327**
25-30	11493	10344	10344	1552	**8792**
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