Land South of Darton Lane, Darton, Staincross
Ecology Addendum – Biodiversity Impact Assessment
edp3487_r005a

1. Introduction

1.1 This Ecology Addendum has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of the Church Commissioners for England (hereafter referred to as 'the Client'), to accompany the Ecology Appraisal produced for Land South of Darton Lane, Darton, Staincross (edp3487_r003). It sets out the Biodiversity Impact Assessment and details of the biodiversity offsetting required for the Application Site to achieve a biodiversity net gain.

2. Biodiversity Impact Assessment

2.1 To assess whether the proposals are capable of delivering a biodiversity net gain, the Department for Environment, Food and Rural Affairs (Defra) Biodiversity Impact Assessment (BIA) Calculator v2.0 was used. This is a transparent way to calculate the biodiversity value of the habitats and hedgerows on an application site, before and after development. It is a proxy measure to determine if the development will result in an on-site habitat biodiversity net loss or gain. The Defra Metric is downloadable from the Natural England website[1] and the specific user guide to this metric was consulted[2] throughout the process.

2.2 Each habitat on the Site currently (before development) and after development requires an assessment of current condition or target condition. The condition assessments are set out in the Technical Supplement, which accompanies the metric[3]. The Defra Metric Calculation is appended to the rear of this report (**Appendix EDP 1**).

Current Site Habitat Value

2.3 As shown on **Plan EDP 1** and discussed in the Ecological Appraisal (edp3487_r003), the Site is predominantly semi-improved grassland, with 1.91 hectares (ha) being semi improved neutral grassland of local value and in moderate condition and 1.51ha being poor semi-improved grassland in poor condition, and 0.17ha of marshy grassland in fairly poor condition. There are three ponds making 0.05ha of standing water also in poor condition. Whilst there is scattered scrub present on-site, this is essentially an additional layer over the grassland and so cannot be calculated. Instead, the presence of scrub within the grassland is noted in the condition assessment.

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1 http://publications.naturalengland.org.uk/publication/5850908674228224

2 Natural England Joint Publication JP029, The Biodiversity Metric 2.0 auditing and accounting for biodiversity USER GUIDE Beta Edition First published 29th July 2019

3 Natural England Joint Publication JP029, The Biodiversity Metric 2.0 auditing and accounting for biodiversity TECHNICAL SUPPLEMENT Beta Edition First published 29th July 2019

2.4 The 1.91ha of semi improved neutral grassland is considered to be in moderate condition. Moderate condition is described in the Technical Suppliment[3] as the following:

- Semi-improved grassland occurs on a wide range of soils and may be derived from higher quality Priority Habitat grassland habitats in poor condition. Often as they deteriorate following nutrient inputs. Typical grasses include: cock's-foot, common bent, creeping bent, crested dog's-tail, false oat-grass, meadow fescue, meadow foxtail, red fescue, sweet vernal grass, Timothy, tufted hair-grass and Yorkshire-fog.

- Total cover of wildflowers and sedges less than 30%, excluding white clover, creeping buttercup and injurious weeds.

- Rye-grass cover is less than 25% including amenity grasslands.

- Or clearly fails at least 1 of the condition criteria.

- Or the grassland type has some differences between what is described in the relevant habitat classifications and what is visible on site. It is a Lower Quality Priority Habitat, but clearly recognisable as such.

- Potentially restorable to grassland Priority Habitat with improved management.

- Cover of undesirable species at 5- 15%.

2.5 This area failed the condition criteria "Undesirable species and physical damage is below 5% cover" and is potentially restorable to Priority habitat with improved management and is therefore in 'moderate' condition.

2.6 The remaining grasslands are considered to be in poor condition. Poor condition is described in the Technical Suppliment[3] as the following:

- Agricultural grasslands is characterised by vegetation dominated by a few fast-growing grasses on fertile, neutral soils. It is frequently characterised by an abundance of rye-grass Lolium spp. (above 25% cover) and white clover Trifolium repens. These grasslands are typically either managed as pasture or mown regularly for silage production or in non-agricultural contexts for recreation and amenity purposes; they are often periodically re-sown and are maintained by fertiliser treatment and weed control. They may also be temporary and sown as part of the rotation of arable crops but they are only included in this broad habitat type if they are more than one year old.

- Amenity and Road verge grasslands with similar species to description for agriculture grasslands.

- Or most of the condition criteria are being failed.

- Cover of undesirable species above 15%, usually resulting in a dense scrub or tree cover, or high cover of exotic species.

2.7 These grasslands fail a majority of the condition criteria for grassland as they do not represent a good example of priority grassland habitat types, bramble cover is high and physical damage is high.

2.8 The ponds are considered to be in poor condition as they have poor water quality with evidence of pollution, fluctuating water levels and no plants. This matches the poor condition criteria in the technical suppliment[3].

2.9 Based on the metric used and the condition assessments for each habitat, the Site currently has a biodiversity value of 19.36 units before development.

Proposed Site Habitat Value

2.10 The Indicative Site Layout for the Site (**Appendix EDP 2**) shows that the Site will comprise residential areas with areas of retained grassland, attenuation and public open space (POS).

2.11 The outline EMP (**edp3487_r004**) discusses the management principles for the retained grassland and attenuation area. Condition assessments of the retained grassland and the new grassland and pond within the attenuation will have no public access and bespoke management. Their condition is therefore set to good following this enhancement as the relevant criteria should all be met.

2.12 To classify as in 'good' condition[3] grassland should meet all of the following criteria:

1. The area is clearly and easily recognisable as a good example of this type of habitat and there is little difference between what is described in the relevant habitat classifications and what is visible on site.

2. The appearance and composition of the vegetation on site should very closely match the characteristics for the specific Priority Habitat [i.e as described by either the Phase 1 Habitat Classification or the UK Habitat Classification], with species typical of the habitat representing a significant majority of the vegetation.

3. Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency. See relevant Habitat Classification for details of indicator species for specific habitat.

4. Undesirable species and physical damage is below 5% cover.

5. Cover of bare ground greater than 10% (including localised areas, for example, rabbit warrens).

6. Cover of bracken less than 20% and cover of scrub and bramble less than 5%.

2.13 For the pond, to classify as 'good' condition, it should meet a majority of the following criteria:

1. Are of good water quality, with clear water (substrate can be seen) and no obvious sign of pollution in the water body.

2. The water body should have semi natural riparian land for at least 10m from the pond edge.

3. Non-woodland ponds should be dominated by plants, be they submerged or floating (note dominance of duckweed is a sign of eutrophication).

4. Non-woodland ponds [i.e. that have always been open] should not be shaded more than 50%.

5. Many ponds will be fishless, those which naturally contain fish should not be stocked and should contain a native fish assemblage.

6. Ponds should not be artificially connected to other water bodies, e.g. ditches.

7. Pond water levels should be able to fluctuate naturally throughout the year.

8. Non-native species should be absent.

9. Less than 10% of the pond should be covered with duckweed or filamentous algae.

2.14 The newly created scrub habitat is considered likely to get to 'moderate' condition as, due to its small extent and new creation, it will not meet the criteria[3] of:

- There is a good age range – a mixture of seedlings, saplings, young shrubs and mature shrubs; or

- There are many clearings and glades within the scrub.

2.15 The condition of the public open space is set to fairly poor as condition cannot be guaranteed with access. Gardens and sealed surfaces are set to poor as default as there is no control as to what these areas will become.

2.16 Based on the metric used and the condition assessments for each habitat, despite the improved management of the valuable grassland communities, the Site will have a biodiversity value of 19.87 units after development.

2.17 The bespoke compensation required for the loss of lowland meadows, the 'biodiversity offsetting' on the Application Site is discussed below.

3. Selection of Offsetting Areas

3.1 Yorkshire Wildlife Trust (YWT) were contacted about areas of grassland habitat (similar to that which is being lost on the Application Site) that are in need of work to improve their condition and two areas were identified:

- A 1 ha area of lowland meadow habitat on the Wilthorpe (Barnsley) Canal Nature Reserve; and
- A 2.5ha area of wetter neutral grassland habitat on Smithies Marsh.

3.2 The 1ha area is part of the Wilthorpe (Barnsley) Canal reserve managed by YWT. It contains many meadow species such as common knapweed (*Centaurea nigra*), Common Bird's-foot-trefoil (*Lotus corniculatus*), meadow buttercup (*Ranunculus acris*) red clover (*Trifolium pratense*) and lesser trefoil (*Trifolium dubium*). However, the area is overgrazed and shows evidence of poaching and nutrient enrichment (from grazing animal manure) which is causing some more injurious and faster growing plants to become dominant.

3.3 There is no recent survey data for this habitat however, due to the presence of the above indicator species, this area is considered to be a lowland meadow habitat but in poor condition. These conditions assessment have been based on a confirmation by YWT.

3.4 The 2.5ha area of wetter grassland is part of the Smithies Marsh managed by YWT but grazed by a tenant grazier. There is not enough data (and none from before the current grazing level was established) to determine if there are enough indicator species present to be classed as a lowland meadow however, as a precautionary measure, it has been set to this habitat. This has also been set to 'poor' condition after consultation with YWT.

3.5 The location of both areas identified for work in relation to the wider reserves they are part of and to the Application Site boundary can be found on **Plan EDP 2**.

4. Works Required

Wilthorpe (Barnsley) Canal

4.1. This area of lowland meadow is in poor condition due to overgrazing. It requires 500m of stock proof fencing to surround it so that grazing levels on it can be managed appropriately. With grazing vastly reduced it will also require an annual cut with arisings removed as per traditional meadow management. This will also help to control potential scrub encroachment.

4.2. With the plant community base already present, once appropriate management is in place, YWT have confirmed that the condition of this lowland meadow will improve quickly from 'fairly poor' to 'fairly good'. It should meet all of the habitat criteria (listed in paragraph 2.12) and therefore be considered 'good'.

Smithies Marsh

4.3. This larger area of grassland is also in poor condition due to overgrazing. Grazing on this land is under the control of a tenant grazier. It requires 600m of stock proof fencing to surround it so that grazing levels can be appropriately managed.

4.4. As this area is not grazed directly by YWT, they will produce an appropriate grazing plan for the area to be followed by the tenant grazier. Once appropriate management is in place, YWT have confirmed that, due to the likely seed bank present within the soil, this grassland will improve quickly from 'fairly poor' condition to 'moderate' condition. Condition could potentially become 'fairly good' or 'good', but a precautionary approach has been taken as YWT are not in direct control of grazing levels.

4.5. In addition, without current survey data, there is the possibility that the following will become relevant: *"The grassland type has some differences between what is described in the relevant habitat classifications and what is visible on site. It is a Lower Quality Priority Habitat, but clearly recognisable as such."* and thus the habitat can only be considered likely to get to moderate condition despite the improved management.

4.6. The off-site habitat enhancements described above will result in an overall biodiversity gain of 28.39%. The BIA is appended to the rear of this document.

Appendix EDP 1
Biodiversity Impact Assessment

A-1 Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows

Main Menu | Instructions

	Habitats and areas			Habitat distinctiveness		Habitat condition		Ecological connectivity			Strategic significance			Suggested action to address habitat losses	Ecological baseline
Ref	Broad Habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier		Total habitat units
1	**Grassland**	Grassland - Lowland meadows	1.91	V.High	8	Moderate	2	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Bespoke compensation likely to be required	12.00
2	**Grassland**	Grassland - Other neutral grassland	0.17	Medium	4	Fairly Poor	1.5	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	1.02
3	**Grassland**	Grassland - Other neutral grassland	1.51	Medium	4	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	6.04
4	**Lakes**	Lakes - Ponds (Non- Priority Habitat)	0.05	High	6	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required	0.30
5															
6															
7															
8															
9															
		Total site area ha	**3.64**											**Total Site baseline**	**19.36**

	Retention category biodiversity value								Bespoke compensation agreed for unacceptable losses	Comments	
Ref	Area retained	Area enhanced	Area succession	Baseline units retained	Baseline units enhanced	Baseline units succession	Area lost	Units lost		Assessor comments	Reviewer comments
1		0.75		0.00	12.00	0.00	Unacceptable Loss	Alternative Compensation	Yes	Area mapped as semi improved neutral grassland. NVC MG5 and UV4. Has botanical interest and much better managed that other areas	
2				0.00	0.00	0.00	0.17	1.02		Area mapped as marshy grassland in phase 1. of no real botanical interest in the NVC survey. Fairly poor condition as not many species of botanical interest and some undesireable species present	
3				0.00	0.00	0.00	1.51	6.04		Area mapped as species poor semi improved grassland in phase 1. of no real botanical interest in the NVC survey. Poor condition due to presence of scrub and bare ground and excessive poaching	
4				0.00	0.00	0.00	0.05	0.30		three ephemeral ponds in very poor condition. Little or no emergent or submerged vegetation. Excessive poaching from horses	
5											
6											
7											
8											
9											
	0.00	**0.75**	**0.00**	**0.00**	**12.00**	**0.00**	**1.73**	**7.36**			

A-2 Site Habitat Creation

Condense / Show Columns | Condense / Show Rows

Main Menu | Instructions

Post development/ post intervention habitats																		
						Ecological connectivity			Strategic significance			Temporal multiplier		Difficulty multipliers			Comments	
Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier	Time to target condition/years	Time to target multiplier	Difficulty of creation category	Difficulty of creation multiplier	Habitat units delivered	Assessor comments	Reviewer comments
Grassland - Lowland meadows	0.03	V.High	8	Good	3	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0.586	High	0.33	0.14	Area around SUDs pond to be sown with bespoke seed mix to match the MG5 communities of the retained grassland. No public access and will be managed as a meadow.	
Lakes - Ponds (Priority Habitat)	0.1	High	6	Good	3	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10	0.700	Medium	0.67	0.84	areas of SUDS to be permanent open water. Planted with pond edge mix and managed in perpetuity for wildlife as in EMP.	
Heathland and shrub - Mixed scrub	0.02	Medium	4	Moderate	2	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0.899	Low	1	0.14	Some scrub planting in attenuation area - connected to that on the dismantled railway line. No public access and managed prescribed in EMP	
Urban - Vegetated garden	1.57	Low	2	Poor	1	N/A	Assessment not appropriate	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0.965	Low	1	3.03	always set to poor condition as there is no control over these areas but must be included to avoid a discrepancy in numbers	
Urban - Developed land; sealed surface	1.1	V.Low	0	N/A - Other	0	N/A	Assessment not appropriate	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	1.000	Low	1	0.00	All non vegetated areas of development - buildings, paths and roads. We do not have detailed landscaping to breakdown further	
Grassland - Other neutral grassland	0.07	Medium	4	Fairly Poor	1.5	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0.837	Low	1	0.35	public open space - sown with same bespoke mix as for the attenuation area but with public access so will not attain good condition.	
Totals	2.89														Total Units	4.51		

Check Areas- Area of development and habitat creation must match the area of habitats lost

A-3 Site Habitat Enhancement

Condense / Show Columns | Condense / Show Rows

Main Menu | Instructions

	Baseline habitats	Post development/ post intervention habitats											Comments	
		Change in distinctiveness and condition						Ecological connectivity	Strategic significance	Temporal multiplier	Difficulty multipliers			
Baseline ref	Baseline habitat	Proposed habitat (Pre-populated but can be overridden)	Distinctiveness change	Condition change	Area (hectares)	Distinctiveness	Condition	Ecological connectivity score	Strategic significance	Time to target condition/years	Difficulty of enhancement category	Habitat units delivered	Assessor comments	Reviewer comments
1	Grassland - Lowland meadows	Grassland - Lowland meadows	V.High - V.High	Moderate - Good	0.75	V.High	Good	Low	Area/compensation not in local strategy/ no local strategy	5	Medium	15.36	previously mapped as semi improved neutral grassland - MG5. In moderate condition. Will be enhanced through management prescriptions in the EMP in perpetuity to become in good condition. No public access and management as a meadow	
				Total site area	0.75						Enhancement total	15.36		

D-1 Off Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows

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	Habitats and areas			Habitat distinctiveness		Habitat condition		Ecological connectivity			Strategic significance			Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value								Bespoke compensation agreed for unacceptable losses	Comments	
Baseline ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier		Total habitat units	Area retained	Area enhanced	Area succession	Baseline units retained	Baseline units enhanced	Baseline units succession	Area lost	Units lost		Assessor comments	Reviewer comments
1	Grassland	Grassland - Lowland meadows	2.5	V.High	8	Fairly Poor	1.5	Medium	Moderately connected habitat	1.1	Within area formally identified in local strategy	High strategic significance	1.15	Bespoke compensation likely to be required	37.95		2.5		0	37.95	0.00	Unacceptable Loss	Alternative Compensation	Yes	Smithy's Marsh. Grassland in poor condition due to over grazing. Fencing required to surround are to allow appropriate management of grazing levels. A grazing plan will be produced for the tenant/grazier. YWT confirmed this grassland should be currently 'other neutral grassland'.	
2	Grassland	Grassland - Lowland meadows	1	V.High	8	Fairly Poor	1.5	Medium	Moderately connected habitat	1.1	Within area formally identified in local strategy	High strategic significance	1.15	Bespoke compensation likely to be required	15.18		1		0	15.18	0.00	Unacceptable Loss	Alternative Compensation	Yes	Wilthorpe (Barnsley) Canal. Grassland contains enough indicators to be 'lowland meadows' but in poor condition due to over grazing. Fencing required to surround are to allow appropriate management of grazing levels. An annual cut will also be required. YWT confirmed the condition and habitat assessment.	

D-3 Off Site Habitat Enhancment

Condense / Show Columns | Condense / Show Rows

Main Menu | Instructions

	Baseline habitats	Post development/ post intervention habitats												Comments	
		Change in distinctiveness and condition						Ecological connectivity	Strategic significance	Temporal multiplier	Difficulty multipliers	Spatial risk multiplier			
Baseline ref	Baseline habitat	Proposed habitat (Pre-Populated but can be overridden)	Distinctiveness change	Condition change	Area ha	Distinctiveness	Condition	Ecological connectivity score	Strategic significance	Time to target condition/years	Difficulty of enhancement category	Spatial risk category	Habitat units delivered	Assessor comments	Reviewer comments
1	Grassland - Lowland meadows	Grassland - Lowland meadows	V.High - V.High	Fairly Poor - Moderate	2.5	V.High	Moderate	Low	Within area formally identified in local strategy	8	Medium	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	40.29	Fencing required to surround are to allow appropriate management of grazing levels. A grazing plan will be produced for the tenant/grazier. Client will pay for this in	
2	Grassland - Lowland meadows	Grassland - Lowland meadows	V.High - V.High	Fairly Poor - Fairly Good	1	V.High	Fairly Good	Low	Within area formally identified in local strategy	12	Medium	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	17.82	Fencing required to surround are to allow appropriate management of grazing levels. An annual cut will also be required. Client will pay for this under agreement with YWT	

Appendix EDP 2
Indicative Site layout
(Edward Architecture, 0708-SK10-C)

Proposed Site Layout

Approximate number of proposed units- 68 (excluding 13 in the adjacent allocated site)
Total Site Area (red line only) = 3.64 Ha

Scale- 1:1250 @ A2

Project Number : 0708
Project Name : Church Commissioners Darton
Drawing Number: 0708-SK10 C
Date : 23/06/20

edward architecture

Plan EDP 1
Extended Phase 1 Habitat Plan
(edp3487_d002d 05 February 2021 CR/VN)

Site Boundary

Dense Continuous Scrub

Marshy Grassland

SI Species-poor Semi-improved Grassland

SI Species-rich Semi-improved Grassland

Pond

Fence

Wall

Scattered Scrub

1 Target Note

1 Field Number

P3 Pond Number

client
Church Commissioners for England

project title
Land South of Darton Lane, Darton, Staincross

drawing title
Plan EDP 1: Extended Phase 1 Habitat Plan

date	**05 FEBRUARY 2021**	drawn by	**CR**
drawing number	**edp3487_d002d**	checked	**VN**
scale	**Refer to scale bar @ A3**	QA	**RB**

the environmental dimension partnership

Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk

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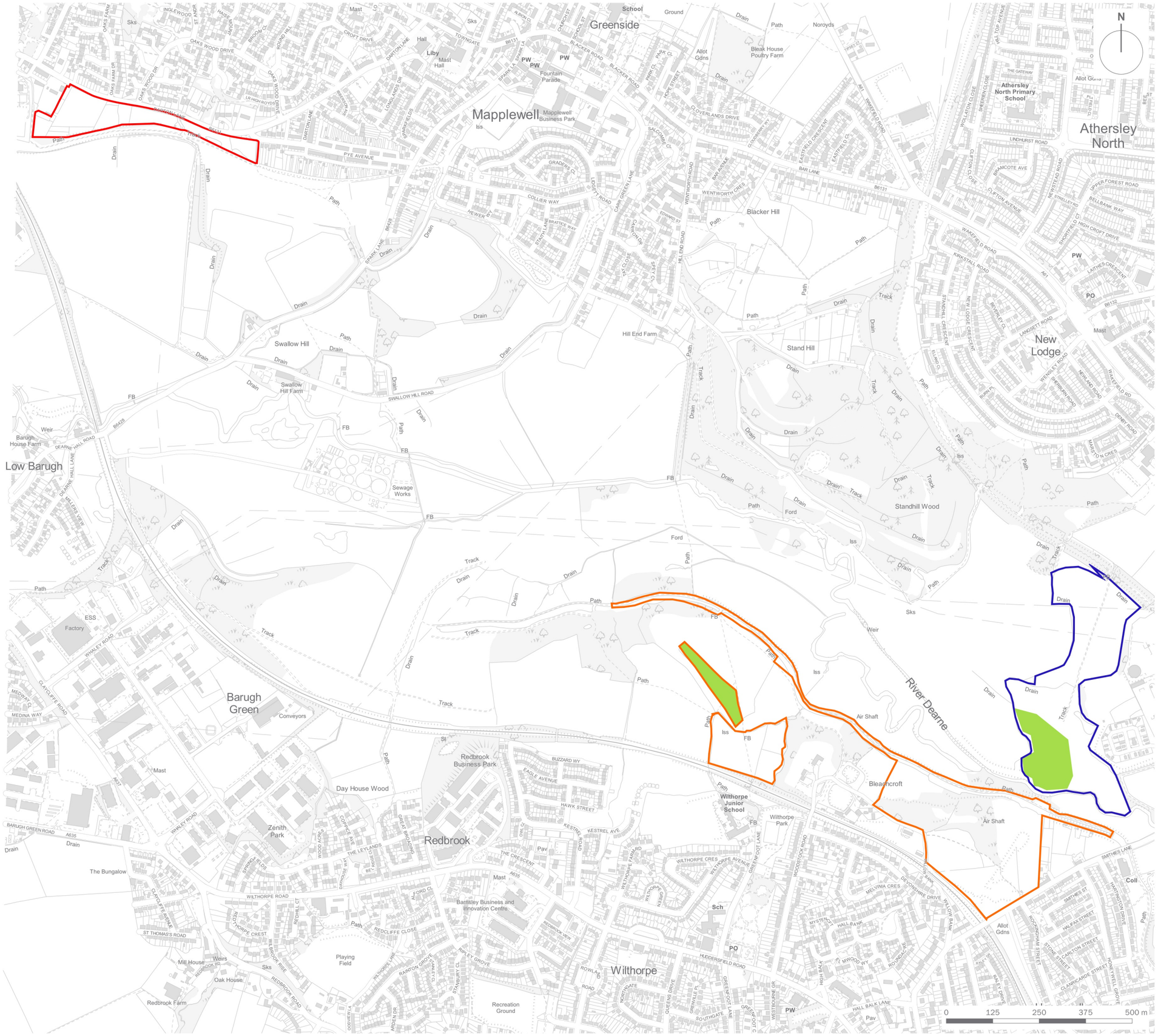
Plan EDP 2
Biodiversity Offsetting Areas
(edp3487_d005a 05 February 2021 MH/VF)



Site Boundary

Barnsley Canal

Smithies Marsh

Areas for Target Work

client

Church Commissioners for England

project title

Land South of Darton Lane, Darton, Staincross

drawing title

Plan EDP 2: Biodiversity Offsetting Areas

date	**05 FEBRUARY 2021**	drawn by	**MH**
drawing number	**edp3487_d005a**	checked	**VF**
scale	**1:10,000 @ A3**	QA	**RB**

the environmental dimension partnership

Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk

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the environmental dimension partnership

CARDIFF
02921 671900

CHELTENHAM
01242 903110

CIRENCESTER
01285 740427

info@edp-uk.co.uk
www.edp-uk.co.uk

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