
Q6.6 - APPENDIX 1 - MITIGATION GAINS AND LOSSES HABITAT CALCULATIONS

To Sara Robin (Yorkshire Wildlife Trust)
Sam Kipling (Environment Agency)

Copied to Catherine Jones (ERM),
Rod Ellison (ERM),
Jim Doyle (Drax)

From Les Hatton (ERM)

Ref/Project number 0284005 - Drax

Subject Mitigation Gains and Losses Habitat Calculations

Date 14th April 2015



The note originally produced on 25th April 2015 is updated below. The primary reason for the update is that the habitat category A2.2 Scrub-scattered had been entered within the GIS system as point data. Consequently during the preparation of the phase 1 calculations this was not captured as area data. The total area of scattered scrub is 4.27ha and the tables and statements in the original briefing note below have updated to reflect this material change. These changes have been identified with yellow highlighter.

The purpose of this briefing note is to provide Yorkshire Wildlife Trust (YWT) and the Environment Agency (EA) with information on the habitat losses arising from the raising of the platform for the site, where habitat losses will be permanent and for construction laydown areas (where habitat losses are temporary). The laydown areas required for construction will be re-instated once the project is completed. For some areas this will be a period of up to five years.

A significant proportion (44%) of the habitat to be lost is either arable crop area or improved grassland and is acknowledged as having a low biodiversity value.

Of the remainder some is amenity grassland or bare ground associated with Drax's current operations), or are peripheral habitats such as introduced shrubs or ruderal plant growth. Again these will be of limited biodiversity value.

There is 11.13ha of Woodland and scrub on the site, with most of the woodland confined to shelter belts of plantation origins. There is an area of dense shrub in the laydown areas to the south and 4.27ha of scattered scrub within the site raising area. Hedgerows are largely absent from the landscape. Permanent loss of woodland and scrub within the site raising area is 5.7ha, and the area of replacement planting of 2.19ha represents a permanent loss of 3.41ha in woodland and scrub provision.

The total of permanently lost grassland (7.93ha) includes 0.17ha of improved grassland and 3.97ha of poor semi-improved grassland. The replacement grassland will be a minimum of 4.39ha. Some areas shown on the mitigation figure around Carr dyke and infrastructure will be grassland not hard standing, and this is likely to add 0.35ha of additional planting. This would give a total grassland planting of 4.74ha. All replacement grassland will be species rich grassland and, taking into account the low biodiversity value of the majority of grassland to be lost, represents an improvement in quality. **The overall area of grassland permanently lost will be 3.19ha greater than the area replaced.**

Wetlands on the area are difficult to map as those within the platform raising area are the product of recent industrial activity and subject to working and re-working. They first appeared in 2007, and appear to be the result of excavation works on previously well drained arable land. The pond in the temporary laydown area is currently choked with reed (reedbeds are a S41 habitat) and overshadowed by young trees and is in the process of succession to scrub habitat. **The area of pond (an LBAP habitat) to be permanently lost is 0.94ha, and currently mitigation for this is through the provision of a 0.22ha flood attenuation pond.** Careful design of the flood attenuation pond can allow it to contribute to biodiversity however the overall quantum of pond provision is 0.72ha less than that permanently lost without any significant increase in quality as a “trade off” against the loss of area. **In addition 0.54ha of swamp will also be permanently lost and therefore the overall loss of wetland habitat is 1.26ha.**

Figure 1 below indicates the area lost to site raising (permanent loss) and laydown and infrastructure corridor (temporary loss) based on phase 1 habitat codes.

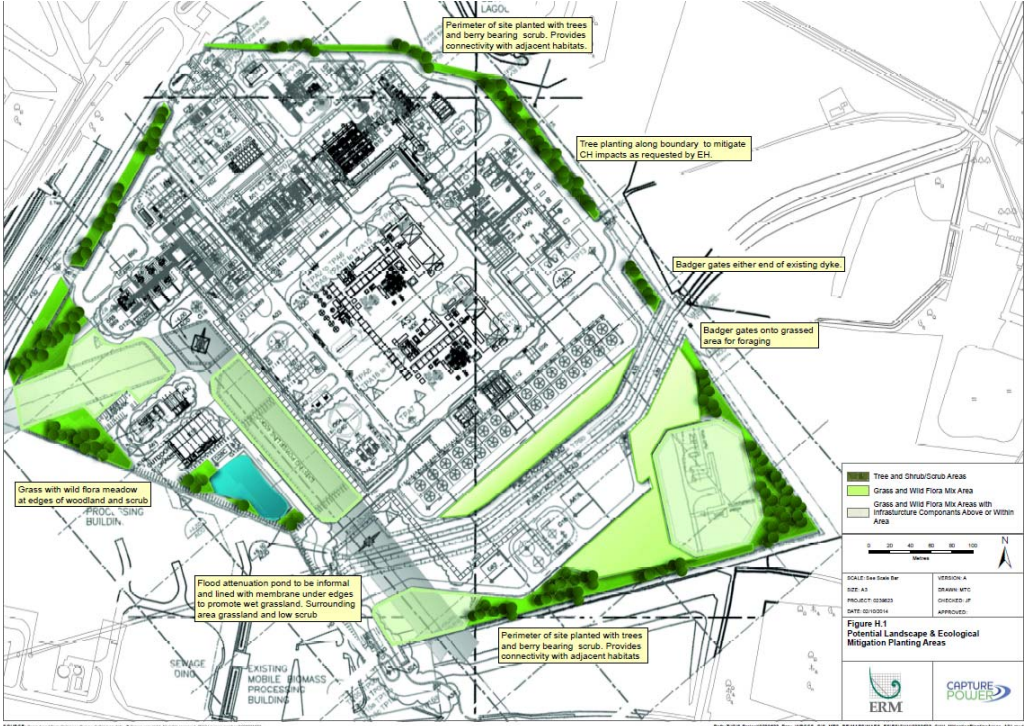
Table 1 Areas of permanent and temporary habitat loss by Phase 1 code (all areas in hectares)

Code	Habitat	Site Raising	Temporary laydown	Infrastructure Corridor	Total Permanent	Total temporary	Total	Notes
A1.1.2	Broadleaved woodland-plantation	1.34	1.05	1.33	1.34	2.38	3.72	
A1.3.2	Mixed woodland-plantation	0.09	1.66		0.09	1.66	1.75	
A2.1	Scrub-dense/continous		1.39		0	1.39	1.39	
A2.2	Scrub-scattered	4.27	0		4.27		4.27	
B2.2	Neutral grassland-semi-improved	3.77	2.54		3.77	2.54	6.31	
B4	Improved grassland	0.17	1.63	6.35	0.17	7.98	8.15	
B5	Marsh/marshy grassland	0.02	0.75		0.02	0.75	0.77	
B6	Poor semi-improved grassland	3.97	4.66	0.15	3.97	4.81	8.78	
C3.1	Other tall herb and fern-ruderal	1.26			1.26	0	1.26	
F1	Swamp	0.54			0.54	0	0.54	reedbeds are S41 & LBAP
G1	Standing water	0.94	0.18		0.94	0.18	1.12	LBAP
J1.1	Cultivated/disturbed land-arable	12.73	20.63	0.27	12.73	20.9	33.63	LBAP-but acknowledged as low biodiversity value
J1.2	Cultivated/disturbed land-amenity grassland		0.66	2.08	0	2.74	2.74	
J1.3	Cultivated/disturbed land-ephemeral/short perennial	0.2		0.57	0.2	0.57	0.77	
J1.4	Introduced scrub			0.03	0	0.03	0.03	
J4	Bare ground	0.23		11.47	0.23	11.47	11.7	
	Total	29.53	35.15	22.25	29.53	57.4	86.93	

As indicated in Figure 1 the total area of habitat affected is 86.93ha of which permanent habitat loss is 29.53ha and temporary loss is 57.4ha.

In order to mitigate for the biodiversity impacts associated with the WRCCS project a landscape and ecology plan has been prepared based on providing three key habitats-woodland and scrub, wetland, and species rich grassland. Much of the mitigation habitat establishment is influenced by the need to provide enhanced foraging areas for badgers. Mitigation focuses on restoring areas of higher biodiversity value rather than the large areas of low biodiversity value represented in the current landscape. The mitigation areas are shown in Figure 1.

Figure 1 Landscape and ecology mitigation plan



The temporary laydown areas will be restored to former use, most of which will be agricultural.

Details of the losses and gains associated with the landscape and ecology mitigation plan are given in Table 2. The three broad categories used in the landscape and ecology plan are equivalent to the following Phase 1 habitat categories;

- Trees, shrubs and scrub (A1.1.2, A1.3.2, A2.1, A2.2);
- Grass and wild flora mix (B2.2, B4, B5, B6); and
- Pond (F1, G1)

Table 2 Mitigation provided and permanent and temporary habitat loss

All figures in Hectares	Mitigation provided	Permanent loss	Temporary loss	Notes
Trees & Scrubs/ scrub	2.19	5.7	5.43	Mitigation represents overall permanent loss of 3.51ha
Grass & wild flora mix (for grassland losses)	4.39	7.93	16.08	This is based on the area shown on the landscape and ecological mitigation areas figure H.1. However this figure shows the area along the carr dyke as a public road and areas adjacent to the infrastructure as unplanted. In reality the southern side of the carr dyke will have a 7m grass strip along it's edge (adding approximately 0.35ha of species rich grassland) and areas around the southern infrastructure currently shown as unvegetated will also be managed as species rich grassland (approximately 0.3ha). NB 8.15ha of grassland losses are improved grasslands with low biodiversity value.
Pond	0.22	1.48	0.18	Open water loss 1.12 & swamp 0.54
Other tall herb and fern-ruderal	0	1.26	0	
Cultivated/disturbed land-arable	0	12.73	20.9	low biodiversity value
Cultivated/disturbed land-amenity grassland	0	0	2.74	low biodiversity value
Cultivated/disturbed land-ephemeral/short perennial	0	0.2	0.57	low biodiversity value
Introduced scrub	0	0	0.03	low biodiversity value
Bare ground	0	0.23	11.47	low biodiversity value
Total	6.8	29.53	57.4	
Additional grassland not shown on Figure 1	0.65			
Total including planting not shown on Figure 1	7.45	29.53	57.4	

Numbers in red in the 'Mitigation Provided' column indicate the area provided is less than the total of permanent habitat loss.

The 57.4 hectares of temporary loss will be restored to former use, most of which is agricultural. Within this temporary loss 13.71ha is of biodiversity value. These habitats are 0.18ha of pond (currently reed and bulrush choked), 4.81ha of poor semi-improved grassland, 2.54ha of neutral semi-improved grassland, 0.75ha of marshy grassland and 5.43ha of woodland and scrub. An equivalent area of higher biodiversity habitat will need to be re-instated.

Overall there is a shortfall of 22.08 hectares of replacement habitat for permanent losses that cannot be accommodated within the existing landscape and ecological mitigation area. This does not take into account any additional habitat creation required to offset the time and difficulty of restoring such habitat, although all the habitats are relatively easy to establish and are well represented in the broader landscape.