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Wroxton Motocross Circuit – Ecological Enhancement Measures

Introduction

The document sets out the ecological enhancements both on-site and off-site at Wroxton Motocross circuit which will ensure there is a net biodiversity gain compared to before the circuit was created. Details on habitat improvements for great crested newts including pond creation and hibernaculum created are given in a separate document.

On-site Habitat creation/enhancement

Flower-rich areas and margins

It is proposed to establish a total area of 0.52 ha of flower-rich areas and margins mainly alongside the planted hedge lines.

Establishment

Preparatory works and broadcasting of seed should be carried out either in the spring (March/April) or in the autumn (August/September).

A fine seed bed should be created to allow seed to have good contact with the soil and so promote germination. The floristically enhanced seed mixture should be broadcast at a minimum rate of 20kg/ha and rolled in using a Cambridge roller.

A list of recommended wildflower species in the seed mixture is shown in Table 1 below.

Table 1: *Recommended seed mixture for flower rich areas and margins*

Species	Latin	Quantity
Common bent	*Agrostis capillaris*	5%
Crested dogs-tail	*Cynosurus cristatus*	10%
Smaller cats-tail	*Phleum bertolonii*	5%
Sheep's fescue	*Festuca ovina*	21%
Chewings fescue	*Festuca rubra*	25%
Smooth stalked meadow grass	*Poa pratensis*	25%
Field scabious	*Knautia arvensis*	1%
Meadow buttercup	*Ranunculus acris*	1%

Species	Latin	Quantity
Black knapweed	*Centaurea nigra*	1%
Ladies bedstraw	*Galium verum*	1%
Musk mallow	*Malva moschata*	1%
Ox-eye daisy	*Leucanthermum vulgare*	1%
Selfheal	*Prunella vulgaris*	1%
Wild carrot	*Daucus carota*	1%
Yarrow	*Achillea millefolium*	1%

Sow at 20kg/ha (8 kg/acre)

To aid establishment and control annual weeds, the sward should be topped several times the following year.

On-going management

- The sward will be maintained by mowing and cut after 31st July, so that the sward has chance to flower and be available to pollinators. All cuttings should be removed to prevent the build- up of nutrients.

- No fertilisers or manures should be applied to the sward. In addition, no pesticides or herbicides should be applied except to spot treat or weed wipe to control nettles, injurious weeds or non-invasive plant species.

Hedgerow planting

It is proposed to plant a total of 810m of new native hedgerow around the perimeter of the site which will link to the existing hedgerow that runs alongside the access track.

Planting of the hedgerows should be carried out in autumn/winter. Shrubs should be planted in two staggered rows 0.5m apart and with plants 30 cm apart in the rows (approximately 6 plants per metre). Shrubs should be protected by canes and spiral guards. Weed control should to be carried out for the first three years after establishment so as to maintain a 1.5m wide weed free strip with the hedge in the centre.

The species mixture for the hedgerows is based on locally native trees and shrub species present in surrounding hedgerows and is shown in the Table 2 below.

Table 2: *Planting mixture for new hedgerows*

Species	%	Size
Hawthorn- *Crataegus monogyna*	50	40-60cm
Hazel - *Corylus avellana*	10	40-60cm
Crab apple – *Malus sylvestris*	2.5	40-60cm
Field maple - *Acer campestre*	15	40-60cm
Dogwood - *Cornus sanguinea*	5	40-60cm
Dog rose - *Rosa canina*	2.5	40-60cm
Blackthorn - *Prunus spinosa*	15	40-60cm
Hedgerow trees	**Number**	**Size**
Pedunculate oak – Quercus robur	15	120-150cm
Field maple -	10	120-150cm

The hedgerows will include 25 irregularly spaced hedgerow trees comprising a mixture of pedunculate oak (*Quercus robur*) and field maple (*Acer campestre*).

Scrub establishment

Gorse scrub is naturally regenerating in several places in between the race track. Scrub will be encouraged to establish by ensuring that disturbance such as mowing operations are not carried out in the areas shown in Figure 1. Where necessary planting of shrubs will be carried out in areas where natural regeneration is not occurring.

Bat boxes

Bat boxes will be erected on the mature ash trees along the north-west boundary of the site

To provide a range of habitats with varying temperatures for roosting, three bat boxes should be attached to the tree trunk and arranged in a south east to south west aspect. Ideally the boxes should be placed at least 3m off the ground.

The boxes should be of woodcrete construction as these are more durable than wooden boxes. Suitable boxes include Schwegler 2F and 2FN models.

Bird boxes

To provide nesting habitat for birds, three bird boxes should be erected on trees on the north western boundary. The nest boxes should be weatherproof and constructed of either woodcrete or wood at least 15mm thick. Woodcrete boxes have the advantage of being longer lasting than those constructed of wood and can be expected to have a life in excess of 25 years. To attract nesting starlings, three boxes with an entrance hole of 45mm should be provided. The boxes should be erected during the autumn at least 2m off the ground and positioned out of the midday sun and the wettest winds (ideally north or east facing).

Nest boxes should be cleaned out annually during October/November to prevent the build-up of parasites.

To enhance breeding opportunities for birds, a total of five nest boxes will be mounted on mature trees;

- 1x Schwegler 2H – open fronted nest boxes for robins, pied wagtails and wrens
- 2x Schwegler 3S - 45mm hole nest boxes for starlings.

Off-site Habitat Enhancement

Modified grassland enhancement

The field lying directly to the east of the motocross circuit currently comprising species-poor grassland will be enhanced by the introduction of a greater range of herb species either by green hay strewing from a suitable donor site or by over sowing with an appropriate seed mixture.

To prepare the site for sward enhancement, the aim is to create bare ground on at least 50% of the field area to ensure the spread seed has good contact with the soil. This should be achieved by disc/ tine harrowing the sward during late summer (August/ September). It is important that the site is not deeply cultivated to protect any existing floral interest or encourage weed seed to the surface to germinate.

Nectar mixture arable margin

A six metre wide nectar mixture arable margin will be established around the edge of the arable field at the eastern end of the adjoining grassland field as shown in Figure 2.

Establishment

Preparatory works and sowing of seed should be ideally sown in the spring (mid March-end of May).

A fine seed bed should be created to allow seed to have good contact with the soil and so promote germination. The floristically enhanced seed mixture should be broadcast at a minimum rate of 20kg/ha and rolled in using a Cambridge roller.

Emerging flowers and weeds should be cut at least twice in year 1 to prevent weeds smothering the slow-growing flowers so all sown species can establish successfully.

A list of recommended legume and wildflower species in the seed mixture is shown in Table 3 below:

Table 3: *Recommended seed mixture for the nectar mixture*

Species	Quantity
Alsike clover	10%
Bird's foot trefoil	10%
Black medick	5%
Common vetch	40%
Red clover	20%
Lucerne	5%
Sweet clover	5%
Common knapweed	1.5%
Musk mallow	1%
Ox-eye daisy	1%
Wild carrot	1%
Yarrow	0.5%
TOTAL	**100%**

Sow at 15kg/ha (6 kg/acre)

On-going management

- To stimulate late flowering, half of the margin should be cut to 20cm in June and to 10cm between mid September and October. All cuttings should be removed to prevent the build- up of nutrients.

- No fertilisers or manures should be applied to the sward. In addition, no pesticides or herbicides should be applied except to spot treat or weed wipe to control nettles, injurious weeds or non-invasive plant species.

Figure 1: Map of On-site Habitat Enhancement Proposals

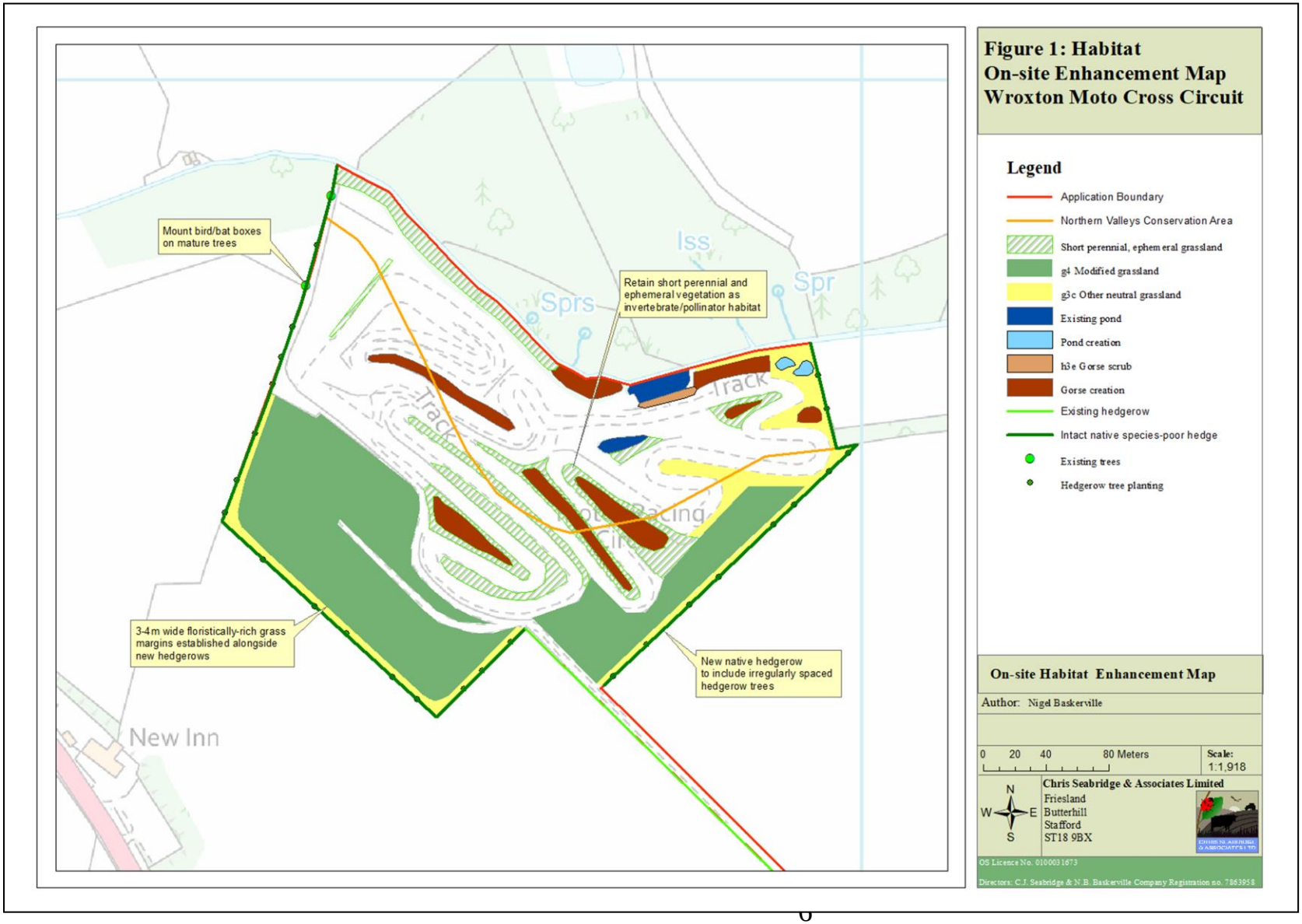
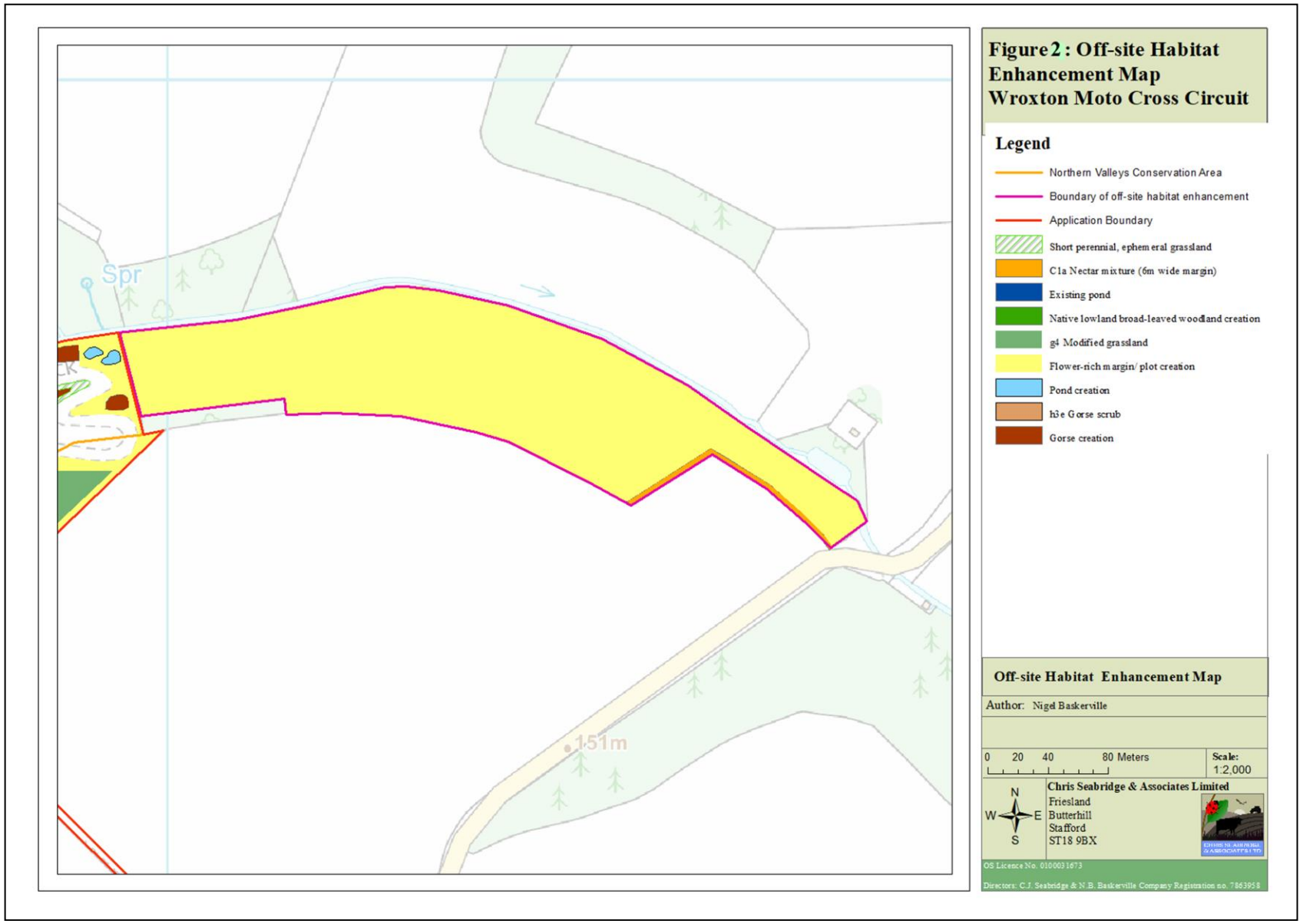


Figure 2: Map of off-site Habitat Enhancement Proposals



Biodiversity net gain

The following measures are suggested to provide biodiversity net gain. This is in accordance with the National Planning Policy Framework (February 2019) which states that:

'Opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity'. *(Chap. 15, Paragraphs 175).*

Biodiversity Metric 3.1

The Biodiversity Metric 3.1 Calculation tool (Version updated 21.04.2022) was used to assess net biodiversity gain.

Site habitat baseline

The habitat baseline for the site prior to the construction of the motocross circuit is shown in Table 4 below. It assumes that the site comprised a mixture of improved grassland on the flatter land in the southern part of the site with poor semi-improved grassland on the slopes.

Table 4: *The habitat baseline at Wroxton Motocross Circuit*

UK HAB habitat	Area/ Length	Condition	Total Habitat Units	Total hedgerow Units
g4 – modified* grassland	2.68 ha	Moderate	12.33	
g4 – modified grassland	4.77 ha	Moderate	19.08	
Native hedgerow	540 m	Good		3.56

*Within Northern Valley Conservation Area

A summary of the habitat unit values for grassland lost and retained following the construction of the motocross circuit is shown in Table 5 below.

Table 5: *Retained and loss habitat at Wroxton Motocross Circuit*

UK HAB habitat	Area Retained (ha)	Area enhanced (ha)	Habitat units retained	Habitat units enhanced	Area lost (ha)	Habitat units lost
g4 – modified grassland	0.84	0.52	3.36	2.2	6.09	25.85

Proposed habitat creation

It is planned to establish new grassland and shrub habitats within and around the margins of the motocross circuit. The location and extent of the habitat creation is shown in Figure 1.

The results of net biodiversity gain using the Biodiversity Metric 3.1 Calculation tool are shown in the following two tables.

Table 6: *Net Biodiversity gain for each created habitat type*

Habitat	Area	Habitat units delivered	Hedgerow units delivered
Ruderal ephemeral vegetation	0.65	2.49	
Ponds	0.08	0.58	
Gorse scrub	0.43	3.97	
Artificial unvegetated, unsealed surface	4.93 ha	n/a	
Native hedgerow with trees	810m		2.62
Total		**7.04**	**2.62**

Table 7: *Net Biodiversity gain for each enhanced habitat type*

Habitat	Area	Habitat units delivered
g4 modified grassland – other neutral grassland*	0.2	2.00
g4 modified grassland – other neutral grassland	0.32	2.78
Total		**4.78**

*Within Northern Valley Conservation Area

Off-site Habitat baseline

The off-site habitat baseline comprises a grassland field that lies immediately to the east of the motocross circuit and part of the arable field which lies at the eastern end of the grassland field.

Table 8: *The habitat baseline on land adjacent to Wroxton Motocross Circuit*

UK HAB habitat	Area/ Length	Condition	Total Habitat Units
g4 – modified* grassland	3.60 ha	Moderate	16.56
c1 -Cereal crop	0.10 ha	n/a	0.23
Total			**16.79**

Table 9: *Net Biodiversity gain for each enhanced habitat type*

Habitat	Area	Habitat units delivered
g4 modified grassland – Other neutral grassland*	3.60	35.97
c1a Cropland – Arable pollen and nectar	0.10	0.45
Total		**36.42**

Table 10: *Summary of net biodiversity gain*

On-site Baseline	
Habitat units	**31.41**
Hedgerow units	**3.56**
On-site Post intervention	
Habitat units	**15.6**
Hedgerow units	**8.81**
On-site % change	
Habitat units	**-51.72**
Hedgerow units	**147.12**
Off-site Baseline	
Habitat units	**16.79**
Off-site Post intervention	
Habitat units	**36.42**
Total net habitat unit change	**3.39**
Total net hedgerow unit change	**5.24**
Total net % change – habitat units	**10.79%**
Total net % change – hedgerow units	**147.12%**

It can be concluded that there will be a net biodiversity gain of 10.79% in habitat units and nearly 147% in hedgerow units.

References

The Biodiversity Metric 3.1 Calculation Tool (JP 039) April 2022
http://publications.naturalengland.org.uk/publication/6049804846366720