CBC/012

CRAWLEY BOROUGH LOCAL PLAN EXAMINATION

Crawley Borough Council Response to Inspector's Matters, Issues and Questions

Matter 5: Character and Environment
Issue 2: Environmental Protection, Open Space and Sustainable Construction
Appendices

February 2015

Crawley Borough Council

MATTER 5: CHARACTER AND ENVIRONMENT; ISSUE 2: ENVIRONMENTAL PROTECTION, OPEN SPACE AND SUSTAINABLE CONSTRUCTION APPENDICES

CONTENTS:

APPENDIX A: PROPOSED POLICY ENV2: BIODIVERSITY MAIN MODIFICATION

LOCAL PLAN MARKED-UP MODIFICATIONS EXTRACT:

Biodiversity

7.14 Crawley Borough Council is committed to halting the overall decline in biodiversity by ensuring that development minimises impacts on biodiversity and provides net gains where possible including establishing coherent ecological networks that are more resilient to current and future pressures.

Policy ENV2: Biodiversity

To ensure a net gain in biodiversity, the following areas will be conserved and enhanced where possible and the council will support their designation and management:

a. Nationally designated sites:

- Sites of Special Scientific Interest (SSSI)

SSSI will receive the highest level of protection for habitat conservation value due to their national importance.

b. National Planning Policy Framework sites:

- Ancient woodland, aged or veteran trees

Planning permission will not be granted for development that results in the loss or deterioration of ancient woodland and aged or veteran trees unless the need for, and benefits of, the development in that location clearly outweigh the loss. A buffer zone between ~~new~~ development and ancient woodland will be required in line with Natural England Standing Advice.

c. Locally designated sites and habitats and species outside designated sites:

- Local Nature Reserves
- Sites of Nature Conservation Importance
- Nature Improvement Areas.
- ~~Other sites, including~~ Priority Habitat areas identified in Biodiversity Action Plans and mapped as Biodiversity Opportunity Areas.
- ~~*sites*~~ Where Protected Species are present
- ~~*sites*~~ Where Species of Principal Importance are present

Proposals which would result in significant harm to biodiversity will be refused unless:

i) this can be avoided by locating on an alternative site with less harmful impact; or

ii) the harm can be adequately mitigated, or, as a last resort, compensated for.

~~Major~~ All development proposals will be expected to incorporate features to encourage biodiversity where appropriate, and where possible enhance existing features of nature conservation value within and around the development.

Habitat and species surveys and associated reports will be required to accompany planning applications which may affect the areas listed above or sites showing likely ecological value based on past ecological surveys.

Reasoned Justification

7.15 *As a public body, Crawley Borough Council has a duty to have regard to the conservation of biodiversity through the proper exercising of all its functions. This is a statutory function set out in section 40 of the Natural Environment and Rural Communities Act, 2006.*

7.16 *This means that the consideration of biodiversity must be embedded in planning policy which should be making a contribution to the commitments set out in Biodiversity 2020: A Strategy for England's Wildlife and Ecosystems Services. The ambition is to halt overall loss of England's biodiversity by 2020 and in the longer term, move from a position of net biodiversity loss to net gain.*

7.17 *To support this ambition the Local Plan Map identifies the components of Crawley's ecological network. This ensures that biodiversity is considered, from protection of habitats and species to identifying opportunities to enhance biodiversity.*

7.18 *The council will continue to work collaboratively with partners including Local Nature Partnerships to protect and improve the natural environment based on locally identified priorities and evidence. The Sussex Biodiversity Partnership works together towards achieving biodiversity targets. Biodiversity Opportunity Areas have been identified throughout the south east and are the regional priority areas of opportunity for restoration and creation of Biodiversity Action Plan (BAP) habitats. ~~Biodiversity Action Plans (BAPs) and Biodiversity Opportunity Areas have been produced which identify habitats of importance within the borough.~~ T Within the borough, this includes the Urban Habitat Action Plan (HAP) ~~BAP~~ which highlights the rich biodiversity in Sussex's urban areas as well as the Deciduous Woodland, Lowland Heathland, and Lowland Meadows ~~and Undetermined Grassland B~~HAPs.*

APPENDIX B: SUSSEX BIODIVERSITY TARGET AREA IDENTIFICATION (2008)

Sussex Biodiversity Target Area Identification

Consultation conducted by Sussex Biodiversity Record Centre
August – November 2008

Contents

1.Background

Thames Valley Environmental Record Centre were commissioned by the South East England Biodiversity Forum in mid-2008 to work with all the Local Record Centres in the South East England Region to pull together a 'Biodiversity Target Area (BTA)' map for the region, following a methodology used by Oxfordshire Conservation Forum in 2005 and then in Berkshire in 2007. Sussex Biodiversity Record Centre (SxBRC) were thus commissioned to undertake this work for the Counties of East and West Sussex and the Unitary of Brighton and Hove.

2.Sussex methodology

2.1 Interpretation of methodology

The methodology provided by TVERC had some basic rules that are as follows:

1. A written Methodology must be provided (this document) which outlines all stages of the consultation, so that the work carried out is clear, accountable and reproducible.
2. Every existing Biodiversity Target Area should contain some existing UK BAP habitat (An issue that was contested during the process by some consultees)
3. The boundary of each Biodiversity Target Area should follow an identifiable feature (a land form, floodplain, or geology)
4. The upper limit for land coverage in Sussex by BTAs is 30%

However the methodology was left suitably 'loose' in order to ensure local interpretation and ownership whilst providing regional consistency.

With the above guidance in mind the project was undertaken in Sussex with eight stages

2.2 Initial drafting of biodiversity Target areas

The initial draft of the biodiversity Target area maps was undertaken by Henri Brocklebank, Manager of the Sussex Biodiversity Record Centre using maps created by Andrew Lawson.

The following datasets were used:

Dataset Catagory	Dataset Description	Source	Last Updated	WSx	Esx
Designations	Special Area of Conservation (SAC)	Natural England	19.08.2008	y	y
	Special Protection Area (SPA)	Natural England	18.07.2008	y	y
	RAMSAR	Natural England	18.07.2008	y	y
	National Nature Reserve (NNR)	Natural England	18.07.2008	y	y
	Site of Special Scientific Interest (SSSI)	Natural England	19.08.2008	y	y
	Local Nature Reserve (LNR)	Natural England	19.08.2008	y	y
	WSx Site of Nature Conservation Importance (SNCI)	West Sussex County Council	23.01.2006	y	n
	Esx Site of Nature Conservation Importance (SNCI)	East Sussex County Council	10.11.2005	n	y
	B&H Site of Nature Conservation Importance (SNCI)	Brighton & Hove City Council	05.02.2008	n	y
Land	National Trust Properties	The National	31.08.2007	y	y

Ownership	Woodland Trust Sites	Trust The Woodland Trust	01.05.2008	y	y
	Sussex Wildlife Trust Reserves	Sussex Wildlife Trust	01.08.2008	y	y
	RSPB Reserves	RSPB	04.09.2008	y	y
	Forestry Commission Land	Forestry Commission	07.12.2005	y	y
Habitats	AncientWoodland	Natural England	27.04.2007	y	y
	Ancient Woodland (Stage 2c)	SxBRC	2008	y	y
	GhyllWoodland	SxBRC /Dr Francis Rose	1.2001	y	y
	Modern Wood Pasture	SxBRC	14.03.2008	y	y
	Medieval - C18 Parks	SxBRC	16.03.2008	y	y
	Low Weald Historic Heathland (Epoch 1)	SxBRC	05.11.2007	y	n
	Chalk Grassland	South Downs Joint Committee	13.10.2005	y	y
	Grassland Inventory	SxBRC /Natural England	12.2007	y	y
	Arable Weed Areas	SxBRC	8.2007	y	y
	Grazing Marsh	EA	22.05.2008	y	y
	Reedbed	RSPB/EA	12.06.2008	y	y
	Potential Reedbed	RSPB/EA	06.02.2008	y	y
	Vegetated Shingle	Natural England	21.04.2004	y	y
	Saline Lagoons	Natural England	29.08.2008	y	y
	Sand Dunes	SxBRC	06.08.2007	y	y
	North Solent LiDAR 2005 0mm accretion	Channel Coastal Observatory	02.01.2008	y	n
	Black Poplars	Sussex Otters & Rivers Project	01.06.2005	y	y
	BAP Chalk Rivers WSx	EA	13.10.2005	y	n
	BAP Chalk Rivers ESx	EA	19.10.2005	n	y
	Ponds	SxBRC	08.01.2007	y	y
Hydrology	Rivers & Tributaries	EA	16.01.2007	y	y
	Flood Zone 2	EA	14.07.2004	y	y
	CFMP Policy 6 Units	EA	10.09.2008	y	y
Miscellaneous	Barbastelle Bat Flightlines	Natural England/Sussex Wildlife Trust/Frank Greenaway	13.07.2007	y	n
	Scheduled Monuments	English Heritage	30.05.2005	y	y
Administrative	West Sussex County Boundary	WSCC (Ordnance Survey data)	11.10.2007	y	n
	East Sussex County Boundary	ESCC (Ordnance Survey data)	08.11.2007	n	y
	District Boundaries	WSCC/ESCC (Ordnance Survey data)	01.06.2007	y	y
Geology	BGS Bedrock Geology UK 625k	British Geological Survey	28.03.2006	y	y
Topography	Digital Terrain Model Hillshade	Derived from Digital Terrain Model supplied by Natural	30.11.2006	y	y

		England			
Basemaps	OS 25K Colour raster	WSCC (Ordnance Survey data)	2007	y	n
	OS 10K B&W raster	ESCC (Ordnance Survey data)	2000	n	y

2.3 Internal consultation of Biodiversity Target Areas

Internal Consultation was held with SxBRC staff and relevant Sussex Wildlife Trust (SWT) staff. This included officers representing the West Weald Landscape Partnership, the Sussex Otters and Rivers Project and the West Sussex Ancient Woodland Inventory Revision Project. Their comments are outlined within this document.

2.4 One to one consultations of Biodiversity Target Areas

In order to compliment the knowledge base of the internal consultation, representatives from various organisations across Sussex were invited to contribute to the consultation prior to the events on the 18th and 19th September. This option was available to any invited attendees who was unable to make the consultation dates. A list of those who took part in this process, and the comments tha they subsequently made are available in this document.

2.5 Compilation of information for Biodiversity Target Area Statements

Following the format outlined by TVERC Laurie Jackson, the Sussex Biodiversity Partnership Officer established the initial biodiversity statement for each BTA. This information was pulled from SSSI citation sheets and County Wildlife Site information. It was felt that this gave a good biodiversity overview of the interest of each area comments on each site. Penny Green and Henri Brocklebank then went through each site adding further site and archaeological information and local knowledge to bring the proformas to a stage appropriate for the consultation events.

2.6 Proposed Sussex Biodiversity Target Areas for consultations events

BTA 01	Chichester Coastal Plain	COASTAL
BTA 02	Chichester Harbour	COASTAL
BTA 03	Fishbourne and Chalk Streams	TRIBUTARIES
BTA 04	Westbourne Chalk Streams to Compton	TRIBUTARIES
BTA 05	Walderton to Welldown including Kingley Vale	WOODLAND & DOWNLAND
BTA 06	Lavant Watershed	DOWNLAND
BTA 07	Western Escarpment	DOWNLAND
BTA 08	Hampshire Rother Watershed	TRIBUTARIES
BTA 09	Rogate Common	HEATHLAND & WOODLAND
BTA 10	Weavers Down to Lynchmere	HEATHLAND & WOODLAND
BTA 11	Stedham, Iping Woolbeding Crescent	HEATHLAND & WOODLAND
BTA 12	Heyshott	HEATHLAND & WOODLAND
BTA 13	Snapes Copse and Verdley Wood	WOODLAND
BTA 14	Black Down	HEATHLAND & WOODLAND
BTA 15	Barlavington, Coates and Rother	RIVER CORRIDOR, HEATHLAND & WOODLAND
BTA 16	Ebernoe with Watercourse Flightlines	WOODLAND & TRIBUTARIES
BTA 17	Chiddingfold Complex	HEATHLAND & WOODLAND

BTA 18	The Mens and Buffer	RIVER CORRIDOR & WOODLAND
BTA 19	Ford to Houghton	RIVER CORRIDOR
BTA 20	Arundel Park	WOODLAND & DOWNLAND
BTA 21	Houghton to Coldwaltham	RIVER CORRIDOR
BTA 22	Parham to Fittleworth	HEATHLAND & WOODLAND
BTA 23	Patching and Clapham Downs	WOODLAND
BTA 24	Central Downs - Arun to Adur	DOWNLAND
BTA 25	Lower Adur Arun Watershed	TRIBUTARIES
BTA 26	Findon Downs	WOODLAND & DOWNLAND
BTA 27	Knepp Estate with Fluvial Extensions	PASTURE PARKLAND & TRIBUTARIES
BTA 28	Shoreham Estuary and Beach	COASTAL
BTA 29	Adur to Newtimber including Mill Hill	DOWNLAND
BTA 30	North Bramber Floodplain	RIVER CORRIDOOR
BTA 31	Crooked Moon to Thundersbarrow	DOWNLAND
BTA 32	Brighton & Hove Urban Green Network	URBAN
BTA 33	Benfield to Hangleton	DOWNLAND & URBAN
BTA 34	St Leonards Watershed	HEATHLAND & WOODLAND
BTA 35	Woods Mill Stream to Adur	DOWNLAND & TRIBUTARIES
BTA 36	Rusper Ridge	WOODLAND
BTA 37	Ifield Brook	TRIBUTARIES
BTA 38	Gatwick Woods	WOODLAND
BTA 39	Tilgate and Furnace Green	URBAN, HEATHLAND & WOODLAND
BTA 40	Worth Forest	HEATHLAND & WOODLAND
BTA 41	Lower Adur Ouse Watershed	TRIBUTARIES
BTA 42	Stanmer and Ditchling Downs	WOODLAND & DOWNLAND
BTA 43	East Brighton Downs	DOWNLAND, COASTAL & URBAN
BTA 44	Lewes Brooks and the Ouse Valley	RIVER CORRIDOR & DOWNLAND
BTA 45	Seaford to Eastbourne Downs	DOWNLAND, COASTAL & RIVER CORIDOOR
BTA 46	Lewes Downs	DOWNLAND
BTA 47	Mid Ouse Floodzone	RIVER CORRIDOR
BTA 48	Western Ouse Streams and Ashdown Forest	HEATHLAND, WOODLAND & TRIBUTARIES
BTA 49	River Uck and its Headwaters	LOWLAND MEADOW & TRIBUTARIES
BTA 50	Cuckmere Ouse Watershed	TRIBUTARIES
BTA 51	Wilmington Woodlands and Watershed	WOODLAND & TRIBUTARIES
BTA 52	Eastbourne Brooks	WETLAND
BTA 53	Pevensey Levels	WETLAND
BTA 54	Medway, Ouse, Rother Watershed	TRIBUTARIES
BTA 55	Eridge and Broadwater	HEATHLAND & WOODLAND
BTA 56	Pevensey, Rother, Cuckmere Watershed	TRIBUTARIES
BTA 57	Rother, Brede and Tillingham Woods	RIVER CORRIDOR, MEADOW & WOODLAND
BTA 58	Combe Haven and Marline	WETLAND, WOODLAND & URBAN
BTA 59	RX	COASTAL & WETLAND

2.7 External Consultation events

Two external events were organised at Clair Hall in Haywards

Heath. Thursday 18th September Coastal and Wetland Consultation
Friday 19th September Non Wetland Consultation

The Agendas for the day were as follows:

- **10.00 am** arrival and refreshments.
- **10.15 - 10.45** Introduction to the mapping process – Henri Brocklebank, Sussex Biodiversity Record Centre.
- **10.45 - 10.50** Regional overview Tom Butterworth, Regional Biodiversity Co-ordinator, South

East England Biodiversity Forum.

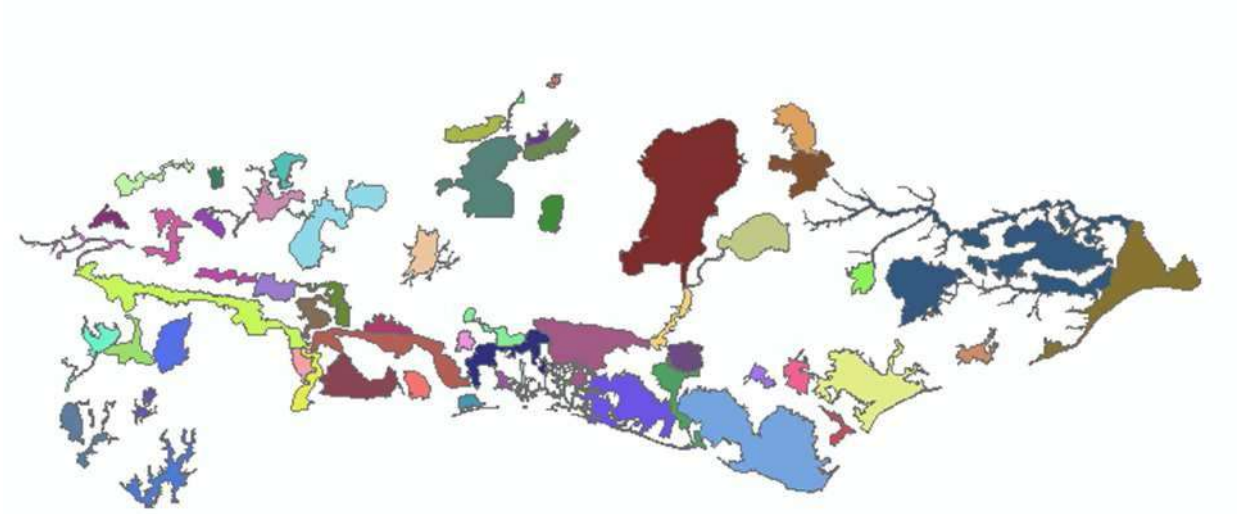
- **10.50 – 11.00** Making these maps relevant at a local context – Janyis Watson, Chair of the Sussex Biodiversity Partnership.
- **10.45 - 10.50** How the mapping process works and timetable for consultation – Henri Brocklebank, Sussex Biodiversity Record Centre.
- **10.50 - 11.20** Opportunity for discussion and questions.
- **11.30 - 12.30** Consultation hour Consultation hour (Maps for each site available for comment. GIS facilities available to look at proposed new sites in detail.)
- **12.30 - 1.30** Lunch (Vegan and vegetarian options available) Feel free to carry on looking at maps during lunch.
- **1.30 onwards** Further consultation.

47 and 42 people respectively booked onto each event. (though only 80% of these attended)

Complex discussions took place at each event and questions were answered where possible. Tom Butterworth attended on the second event only, but his assistance in answering questions was invaluable.

Attendees were invited to complete Comments sheets and edit maps. In total 92 edits were made to the maps as a result of these external events.

The map presented to consultees:



2.8 Online Consultation

Once the edits had been made to the BTA GIS layer the information including this report was put on line on the 10th October 2008 on www.sxbrc.org.uk/consultation The information was available for three weeks for consultees to get back in touch with their comments. A range of feedback was given and the suggestions included into the Target area boundaries and areas as appropriate. Recommendations are listed in detail later in this document.

Sussex Biodiversity Record Centre

The Source for Biodiversity Information in Sussex

Sussex Biodiversity Target Area

Consultation 2008

Welcome to the online consultation of the Sussex Biodiversity Target Area identification process. This is the final three week stage of a consultation that has been taking place since August 2008.

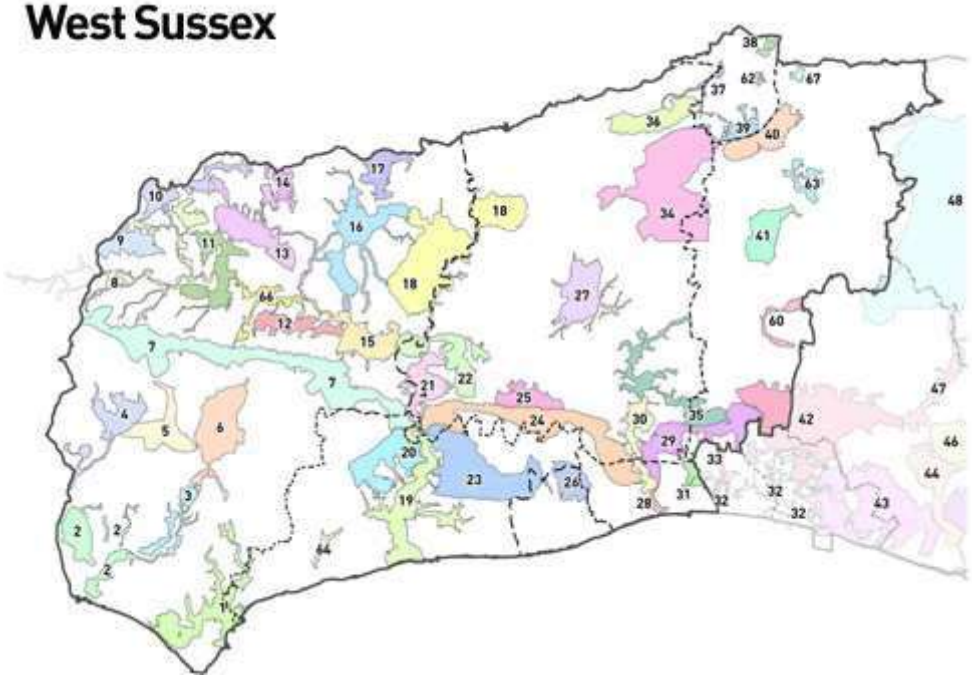
The methodology used in this consultation is outlined in this document. Please remember, when looking at the maps the focus is on opportunity, not on existing biodiversity value.

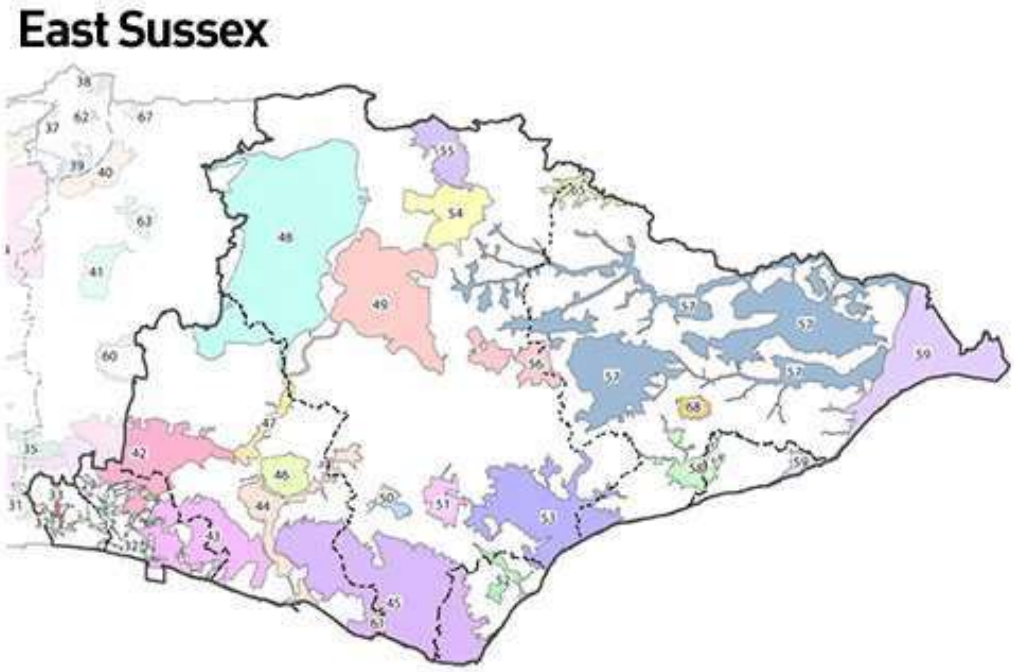
Please consider the current selection of BTAs and their boundaries. If you wish to suggest amendments please contact Henri Brocklebank. Note that Henri will be out of the office for the week beginning 20th October. If your comment requires an urgent response in that week then please contact Andrew Lawson.

We must receive all comments by Monday 3rd November.

Lookup the area you are interested in on the map, then click the relevant link in the list below to open a PDF containing a detailed map of that area. Please note that the area statements have not changed since the initial consultation. BTA's 60 to 69 are new areas that were suggested as a result of the initial consultation and, as yet, do not have an accompanying statement.

West Sussex





2.9 Compilation of Comments

All resulting comments and edits from the online consultation were made and the data provided to TVERC as per contract.

3.Concerns and issues

- The single most significant issue relating to this work relates directly to the rich matrix of habitats that we have in Sussex. Being limited to 30% coverage indicates that some habitat will get better coverage than others with ancient woodlands being a habitat that remains largely uncovered as are the headwaters of Many of our Sussex rivers.

- EA questioned the premise and approach of the mapping and the need to include an area of priority habitat in each target area. This leads to areas that don't have priority habitat, but provide really good opportunities being missed. These are the places with the least conflict.

- The Marine Bill is currently going through Parliament and suggests a network of Marine Protected Areas which will include rare and threatened and representative species and habitats. This legislation is in part due to the increased threat to the marine environment that includes

  fisheries, pollution, influx of new species due to climate change, off-shore energy, proposed artificial reefs, dealination plants and sewage. It is thus considered very important that Marine areas are included in this process. Even without these important new pieces of work the Marine environment holds half of the UK's biodiversity and includes BAP habitats such as sub littoral chalk, sabbelaria spinulosa Reefs, sublittoral gravels and sands and Zostera beds. Some of the Key BAP species to be considered ar Hippocampus hippocampus hippocampus guttilatus, cetaceans and seals. Marine Expert in Sussex met over the consultation period to discuss this work further and even though data was not contributed to this round of the consultation it is anticipated to be discussed locally at some point soon.

- If our target areas are representative of opportunities than many attendees at the Consultation events felt that European sites should not be included.

- Being a coastal County, Sussex has to consider all the implications of sea level rise, which brings about a whole raft of sustainability issues. Restoring Natural Processes wherever possible to make floodplain management resilient to Climate Change achieving habitat and biodiversity gain in sustainable locations. It is important in these instances not to be too prescriptive of what habitat is to be restored where. For this reason the tidal stretches f all Sussex floodplains were included.

- Matthew Thomas from Brighton and Hove City Council made a presentation of the work that he had undertaken on a Green Network for Brighton and Hove. It was agreed, that because biodiversity was a key driving force in this work that the urban part of the Brighton and Hove Network would be included in its entirety. The same would stand for any other Urban area in Sussex that had undertaken a similarly 'biodiversity driven' process in their areas.

- 95% of the consultees of this process were commenting on the boundaries of target areas and not on the content of the Target Area statements. These statements would be very much enhanced by further consultation in the future.

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3.1 Ensuring 30% Coverage

In the event of over 30% of Sussex being covered in Biodiversity Target areas some contingency plans for area reduction must be considered. Removing the European sites from the overall perspective allows for 11,188ha. Removing small urban areas may also be considered.

4.Consultation of Biodiversity Target Areas - Feedback

4.1 Internal consultation

On the 29th of August all SWT staff with 'on the ground knowledge' were invited to a presentation about the BTA process and were asked to make comments on the specific boundaries that had been used and to discuss the strengths and weaknesses of the methodology.

Head of Reserves – The work was looked at in relation to the Sussex Wildlife Trust acquisition Strategy. **West Weald Landscape Partnership –** The four core areas of the West Weald Landscape Project were considered with wide buffers around them. This is in keeping with the aims and objectives of this project. The WWLP officer then advised on the detail of these boundaries and where they should consequently either expand or contract.
Sussex Otters and Rivers Project – After studying a map of the Sussex catchments the SORP officer put forward several watershed areas across the County where tributaries from different catchments passed close by each other. Similarly watershed for chalk streams were discussed.
West Sussex Ancient Woodland Inventory Revision Project – No suggestions at this stage

Eastern Area SWT Reserves Officer- Suggested the inclusion of Queens wood into the Combe Haven and Marline BTA

Central Area SWT Reserves Officer – Suggested a boundary change (extension) of the Lewes Downs. Suggested the inclusion of the Woods Mill Stream area. He also suggested the inclusion of the Coldwaltham area, which was later discounted by another consultee.
Western Area SWT Reserves Officer – The Mens area BTA was extended East to include areas that are proving to be very important for rare bats.

4.2 One to one consultations

These took place in the SxBRC office, with access to GIS, with the exception of the High Weald AONB, where Henri Brocklebank visited the Unit with maps and a power point presentation.

South Downs Joint Committee, Chalk Grassland Guidance – West Sussex Downland sites had their boundaries extended north to the end of the chalk. East Sussex areas were identified and named. **Brighton and Hove City Council –** After much discussion with the city ecologist and TVERC it was agreed that the Brighton Green Network (urban parts) would be included as BTA. Having agreed this a system for including Green Networks in other urban areas was discussed which was then presented at the consultation event on the 19th September.

Regional Reedbed Project – Advice was given on all the major river valley areas in Sussex. On inclusion of the Cuckmere Haven area it was agreed that what was formerly three unique sites (Seaford Downs, Cuckmere Haven and Eastbourne Downs) should be united to form one contiguous target area. This was later contested by other consultees.

Butterfly Conservation – Rother Woods Project. The Rother Brede and Tillingham BTA already contained most of the important areas for opportunity for the Rother Woods Project. A few additional areas were added and one area removed.

High Weald AONB – After much discussion on the concepts on which this project is based and the positive and negative impacts of creating a Biodiversity Target Area map for Sussex, the HWAONB unit proposed the inclusion of their Tubney area. The inclusion of this large area was not practical so HWAONB Unit focused attention on the sites which the Unit has already identified as being particularly important for meadows. Having previously wanted the entire Tubney area included (This remains the HWAONB Unit preferred option) they then edited other BTAs in the area to include key areas for meadows.

EA Habitat Creation Program – The Environment Agency sought opportunities to create and develop new coastal and wetland habitats to secure sustainable flood risk management solutions for the South East. This work is being undertaken in partnership with Natural England and other interested organisations through the Southern Region Habitat Creation Programme. The project has identified five areas in Sussex appropriate for habitat creation. Three of these were already within BTAs already. One was very close to an existing BTA, so the boundary was altered accordingly. One, in Chichester harbour was not in an existing BTA, though the site was digitised in order to discuss further with a representative of Chichester Harbour Conservancy.

Chichester Harbour Conservancy – New areas were added and the Thorny Island and Itchenor peninsular were amalgamated in to one site along with the new areas. All Zostera beds were included. **South Downs Joint Committee, Heathland Guidance –** The existing Heathland BTAs in West Sussex, as well as the River Rother were reviewed by two Heathland officers. Considerable changes to boundaries were made.

Eastbourne Borough Council – Most consideration was given to the site known as Eastbourne Brooks, but it was quickly renamed Eastbourne Marshes. The boundary was considered in detail and extended to include a corridor to the coast as well as a corridor to Pevensey Levels.

West Sussex County Council – All river flood zones up to the tidal limit were suggested for inclusion. These entire zones are in the areas that were once intertidal estuaries that have been reclaimed by the construction of tidal embankments. EA policies are all now going in the direction of removing these embankments and restoring the floodplains, allowing the restoration, over the longer term, of a dynamic floodplain and its associated habitats. Also chalk streams were added in the North West of the Sussex. Woodlands and tributaries in the Fernhurst area were added. It was suggested that the floodzones West of Gatwick Airport should be used as the BTA boundary, rather than the existing SNCI boundary. This boundary was extended South West as far as the Rusper Ridge.

Sussex Botanical Recording Society – Two representatives from SBRS came to the Record Centre to go through each Target Area Boundary. Sindles Farm was a suggested addition to Westbourne Chalk streams and Compton Tributaries. West Heath Common was a suggested extension to the Rother Watershed. Golden Valley was a suggested inclusion to Weaver's Down to Lynchmere. Two suggested extensions were made to the Heyshott area including a Northern extension to include Hyde Park and a Southern extension towards Hoyle. Rewell Wood was considered as an extension to Arundel Park. Street Farm on the banks of the Rother was suggested for inclusion. Clapham and Patching Woods BTA was extended onto the Burgh. Henfield Common and Nep Town and Oreham Common were suggested inclusions to the Woods Mill streams to Adur area. Budletts Common was suggested as an inclusion to the Uck BTA. Hurstmonceux Castle and Wartling Wood were a suggested inclusion to the Pevensey Levels BTA. Heathfield Park and St Dunstan's farm was considered as an entirely new BTA. Land North of

Gatwick Stream was suggested as an addition to the existing Gatwick Stream area. Copthorne Common was suggested. Laughton Place and its associated streams was a suggested inclusion to the Lewes Brooks and Ouse Valley BTA. The Runcton area, up to the Urban fringe of Chichester was suggested as an addition to an existing BTA. Some extension were suggested as part of the Chichester Harbour BTA.

Natural England - Sites were looked at in relation to the potential of HLS targeting. The GIS shape file was provided to NE so that internal consultation within NE could take place.
Rother District Council – Two new sites were added. One was the Hastings Fringe and one the Bexhill Fringe. All other sites in Rother district were looked at in some detail.

4.3 Consultation events

Environment Agency – Amendments to boundaries between Bury and Houghton. In this area there is the opportunity to remove flood banks and increase floodplain connectivity with the river with regular flooding benefiting the environment. Shoreham Airport was removed from the Adur Estuary BTA. The stretch of the Arun North of the A27 at Shoreham was also added as previously omitted. All of the Arun Floodplain was suggested for inclusion. Further Stretches of the Adur were added to the Woods Mill Stream to Adur BTA. Westbourne Chalk Streams BTA was extended South to the harbour as there are two saline lagoons that need consideration. There is a particularly interesting interface between brackish and chalk waters that is yet o be investigated. Boundary changes at Fishbourne were suggested. Areas on Chichester Coastal plain were suggested for removal and some new areas suggested as there are likely possibilities for freshwater habitats. An extension to include Glynde Reach, an important and undesignated grassland, was suggested for the Ouse Valley Target area. Boundaries of the Woods Mill stream to Adur BTA were reconsidered with the inclusion of the chalk streams suggested. The Cuckmere floodplain below Exceat was suggested as a separate Target area as it is unique for its intertidal restoration opportunities. There is already a strong focus group operating in this area (Cuckmere Estuary Partnership). Plus there are other groups with different views on management here. Therefore it is considered that the lower Cuckmere merits being a separate target area in its own right. The Adur is very important and it was considered that the entire tidal floodplain should be included as there are a great many opportunities for Biodiversity gain.
RSPB – The area of Coldwaltham was excluded as there was little potential for habitat creation. All of the Arun Floodplain was suggested for inclusion. Areas on Chichester Coastal plain were suggested for removal and some new areas suggested as there are likely possibilities for freshwater habitats. An extension to include Glynde Reach, an important and undesignated grassland, was suggested for the Ouse Valley Target area. A small area of the Pevensey floodplain not included was put forward for inclusion. An area of RSPB land to the west of Parham was suggested as it is an important area for Heathland recreation. The Adur is very important and it was considered that the entire tidal floodplain should be included as there are a great many opportunities for Biodiversity gain. However, the airport is not an area that should be included.
Sussex Botanical Recording Society – All of the Arun Floodplain was suggested for inclusion. The River Lod was suggested for inclusion as an addition to the Snapes Copes site. Various additions were put forward for the Barlavington, Coates site including Duncton Mill pond and Stream, Lodge Copse, Winter's Copse and Heath End Sand Pit. Vale Wood Park with its marsh and dry and wet grassland was added to the Blackdown area. The Burpham and Wepham areas of the Arun Floodplain were suggested for inclusion. It was suggested that the Mens Area was extended East to the Arun floodplain on account of the potential for riverine flora and meadows. It was suggested that the entire River Rother (Western) should be included.

Eastbourne Borough Council – Part of Sovereign Harbour was included in the Pevensey Levels BTA and this was removed.

East Sussex County Council Coastal Project and Sussex Seasearch– Suggested inclusion of Intertidal cliffs at Newhaven. The intertidal sandstone between cliff end and Hastings was added to the RX area. Coastal area, in particular the intertidal chalk platform of the Seaford to Eastbourne Downs was put forward for inclusion. The Cuckmere floodplain below Exceat was suggested as a separate BTA as it is unique for its intertidal restoration opportunities. There is already a strong focus group operating in this area (Cuckmere Estuary Partnership). Plus there are other groups with different views on management here. Therefore it is considered that the lower Cuckmere merits being a separate target area in its own right.
East Sussex County Council – An area of relic reedbed should be added to the Eastbourne Marshes as it can be enhanced and connect an area of playing field that has potential for enhancement.

Another area of Grazing marsh was added to the site.

Sussex Ouse Conservation Society – The entire length of the Lewes Winterbourne in Lewes was added to the Ouse Valley BTA. Chalk Streams in of the Northern Scarp of the Downs North of Brighton were added (headwaters). Detail of this inclusion will be amended when the chalk rivers data for Sussex is completed in Autumn 2008. More of the headwaters of the Uck were suggested. The middle stretch of the Shortbridge Stream was recommended for inclusion. Two areas of the Arun Floodplain (also suggested by SBRS) were recommended for inclusion. It was suggested that additional downstream stretches of the Ouse should be included as this is an area that has been considerably modified with considerable potential for wetland creation.

Sussex Ornithological Society – SOS suggested a new site around Weirwood reservoir on account of the importance of the site for birds. Brighton Palace and Western Piers were suggested for inclusion into the Brighton Urban Green Network as they represent crucial roosts for Starlings. The area around the piers is also important for Marine Fauna (confirmed by BHCC ecologist). Clymping Beach was suggested for inclusion. Ardingly Reservoir and environs was suggested for inclusion. Lydsey Rife was recommended for inclusion. Bewl Water was recommended for inclusion.

Mid Sussex District Council – The Green Crescent around Burgess Hill (including Bedelands Farm) was suggested as a new area.

Natural England Coastal Project – An extension to include Glynde Reach, an important and undesignated grassland, was suggested for the Ouse Valley Target area. The Cuckmere floodplain below Exceat was suggested as a separate Target area as it is unique for its intertidal restoration opportunities. There is already a strong focus group operating in this area (Cuckmere Estuary Partnership). Plus there are other groups with different views on management here. Therefore it is considered that the lower Cuckmere merits being a separate target area in its own right.

Dolphin Ecological Services – An extension to include Glynde Reach, an important and undesignated grassland, was suggested for the Ouse Valley Target area. The Hants, Rother Watershed should be included as there is wetland and wet woodland potential. A new site was suggested around the Wisborough Green Area, part of the Western Rother Valley. The Lavant watershed area was extended south towards Fishbourne as an important element of the Chalk Streams Plan. Further gaps in the Rother BTAs were suggested for inclusion. The Mens BTA was extended further to the Arun to include and area with good potential for river restoration. The Eastern Extent of the Ebernoe area was extended to Barkfold Rough.

Arun District Council – Two small areas of the Arun floodplain that were not previously included were suggested for inclusion. Clymping Beach and the west bank of the River Arun were suggested for inclusion as one of the few areas of sand dunes in Sussex.

Patrick Roper Associates – West Park LNR on the Western boundary of Uckfield was suggested for inclusion along with farmland to the North with several ponds and potential to extend wet grassland habitat. Pebsham Tip was recommended for inclusion into the Combe Haven and Marline Target area. It was suggested that the Purbeck Beds were added to the Rother Brede and Tillingham Woods BTA on account of its regionally unique geology and biodiversity.

Sussex Otters and Rivers Project and the Regional Water for Wildlife Project – The Hants, Rother Watershed should be included as there is wetland and wet woodland potential. A new site was suggested around the Wisborough Green Area, part of the Western Rother Valley. The Lavant watershed area was extended south towards Fishbourne as an important element of the Chalk Streams Plan. Further gaps in the Rother BTAs were suggested for inclusion. The Mens BTA was extended further to the Arun to include and area with good potential for river restoration. The Eastern Extent of the Ebernoe area was extended to Barkfold Rough. Boundaries of the Woods Mill stream to Adur BTA were reconsidered with the inclusion of the chalk streams suggested. The Adur is very important and it was considered that the entire tidal floodplain should be included as there are a great many opportunities for Biodiversity gain. However, the airport is not an area that should be included.

Forestry Commission – A suggestion was made that the large area covering the Rother Brede and Tillingham should be split up into its separate habitat components of wetland and the woodland on the higher ground. After some discussion with other consultees SxBRC decided to leave this as one area, though it may be split in the future when further attention is given to it.

South Downs Joint Committee – It was suggested that the tributaries included in the Cuckmere Ouse Watershed Area should be reconsidered and that if we exceeded our 30% limit this area showed less opportunity than others. The Cuckmere floodplain below Exceat was suggested as a separate Target area as it is unique for its intertidal restoration opportunities. There is already a strong focus group operating in this area (Cuckmere Estuary Partnership). Plus there are other groups with different views on management here. Therefore it is considered that the lower Cuckmere merits being a separate target area in its own right.

Crawley Borough Council – The Tilgate Park BTA was extended both North and West, reaching as far as the Hawth Centre in the North and the Broadfield area in the West. This extends this BTA into

the urban area further. Also links between the Ifield BTA and Tilgate Park were suggested. Grattons Park LNR was suggested for inclusion as the EA propose to improve Gatwick Stream at this point which will open up opportunity to improve this important site in the next few years. This links in with a CBC Management plan.

RSPB/EA Reedbed Project - The Adur is very important and it was considered that the entire tidal floodplain should be included as there are a great many opportunities for Biodiversity gain. However, the airport is not an area that should be included.

Natural England – Barbastelle Flightlines around Ebernoe were commented on. Where these have been mapped and gaps have been identified land holdings will be a priority for HLS agreements. It was suggested that more flightlines should be included within the existing BTA.

4.4 Online Consultation

Natural England – Inclusions were made into the Target area statements of several Downland site Target Area Statements that did not make specific references to some key habitats or conservation opportunities. There was also comments on some of the terminology and spelling use (Ghyll or Gill and Cryptograms/Lower plants). The Archaeology section was questioned and specific comments were given on a range of sites in East Sussex.

West Weald Landscape Project – Up to date information on Barbastelle flighlines was included and edits to all the BTA Statements that fall within the West Weald Landscape Project area.

Rye Harbour Local Nature Reserve – The area that was formally known as RX was expanded into the Rother, Brede and Tillingham area so that the RX area reflected the Romney Marsh Natural Area more appropriately. The site was then renames Romney Marsh Area and edits made to its Target Area Statement.

Sussex Ornithological Society – Six sites were commented on in some detail including changing the name for several to better reflect the extent of the sites. Also the liaison with local authorities was enquired upon.

Eastbourne Borough Council – Eastbourne Brooks was renamed Eastbourne Marshes as requested earlier on in the process.

South Downs Joint Committee – Some areas in West Sussex were suggested for inclusion, though on further investigation it turned out that they were already included

Gatwick Green Space Project – Three of the Crawley areas were updated, with extensions being made. **Horsham District Council** – The St Leonards Forest area statement was amended with more up to date information.

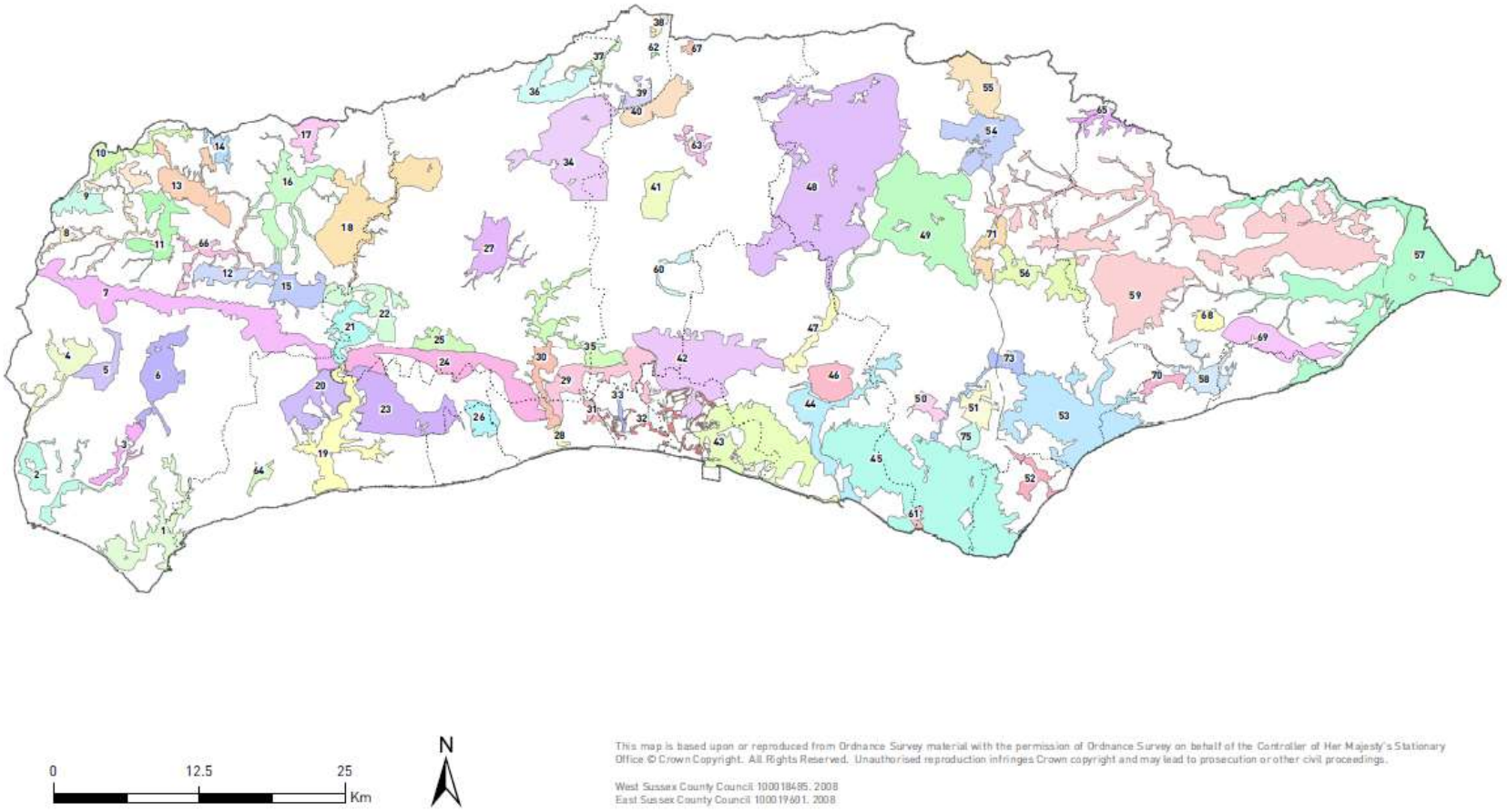
Wealden District Council - Several new sites were suggested including the extent of the Cuckoo Trail. Strong justification was provided for each of the new sites and site amendments.

5.Making the data fit

With only 30% of Sussex to be covered in Biodiversity Target Areas it was hoped that by the completion of this consultation process that we would be close to this target. Once all edits and suggestions had been made 1,333,354 hectares of Sussex were covered with Biodiversity Target Areas. This represents 34.7% of the area of Sussex meaning that the target areas are in excess of 18,052 hectares.

A popular suggestion in the Target Area consultation events was that European sites should not be included in our final percentage, for reasons given earlier in this document. With this in mind the % of Sussex included in Target Areas is reduced to 31.8%. A review of the existing target areas showed small areas of 10 target areas that could be removed without removing any significant areas of the biodiversity potential of the site. This was done only for the larger sites. Also several connurbations were both ‘cut out’ of their respective areas. By the time these changes were made the percentage of Sussex covered with Biodiversity Target Areas was reduced to 30.9% which was considered close enough to 30% to be submitted to TVERC

6.Final Map


Biodiversity Opportunity Areas (BOAs) in Sussex, March 2009.
Sussex Biodiversity Record Centre
website: www.sxbrc.org.uk
email: sxbrc@sussexwt.org.uk
Tel: 01273 497552
Fax: 01273 494500
Woods Mill
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West Sussex County Council 100018485. 2008
East Sussex County Council 100019601. 2008

BTA Code	Site Name
BTA 01	Chichester Coastal Plain
BTA 02	Chichester Harbour
BTA 03	Fishbourne and Chalk Streams
BTA 04	Westbourne Chalk Streams to Compton tributaries
BTA 05	Walderton to Welldown including Kingley Vale
BTA 06	Lavant Watershed
BTA 07	Western Escarpment
BTA 08	Hampshire Rother watershed
BTA 09	Rogate Common
BTA 10	Weavers Down to Lynchmere
BTA 11	Stedham, Iping Woolbedding Crescent
BTA 12	Heyshott
BTA 13	Snapes Copse and Verdley Wood
BTA 14	Black Down
BTA 15	Barlavington, Coates and Rother
BTA 16	Ebernoe with watercourse flightlines
BTA 17	Chiddingfold Complex
BTA 18	The Mens and buffer and associated Barbastelle flightlines
BTA 19	Climping to Houghton
BTA 20	Arundel Park
BTA 21	Houghton to Coldwaltham
BTA 22	Parham to Fittleworth
BTA 23	Clapham to Burpham Downs
BTA 24	Central Downs - Arun to Adur
BTA 25	Lower Adur Arun Watershed
BTA 26	North-East Worthing Downs
BTA 27	Knepp Estate with fluvial extensions
BTA 28	Shoreham Estuary and Beach
BTA 29	Adur to Newtimber including Mill Hill
BTA 30	North Bramber Floodplain
BTA 31	Crooked Moon to Thundersbarrow
BTA 32	Brighton & Hove Urban Green Network
BTA 33	Benfield to Hangleton
BTA 34	The St Leonards Watershed
BTA 35	Woods Mill Stream to Adur
BTA 36	Rusper Ridge
BTA 37	Ifield Brook
BTA 38	Gatwick Woods
BTA 39	Tilgate and Furnace Green
BTA 40	Worth Forest
BTA 41	Lower Adur Ouse Watershed
BTA 42	Stanmer and Ditchling Downs
BTA 43	East Brighton Downs
BTA 44	Lewes Brooks and the Ouse Valley
BTA 45	Seaford to Eastbourne Downs
BTA 46	Lewes Downs
BTA 47	Mid Ouse Floodzone
BTA 48	Western Ouse Streams and Ashdown Forest
BTA 49	River Uck and its Headwaters
BTA 50	Cuckmere Ouse Watershed
BTA 51	Wilmington Woodlands and Watershed
BTA 52	Eastbourne Marshes
BTA 53	Pevensey Levels
BTA 54	Medway, Ouse, Rother Watershed
BTA 55	Eridge and Broadwater
BTA 56	Pevensey, Rother, Cuckmere

Watershed	
BTA 57	Romney Marsh
area	
BTA 58	Coombe Haven and
Marline	
BTA 59	Rother, Brede and Tillingham
Woods	
BTA 60	Burgess Hill Green
Crescent	
BTA 61	Lower Cuckmere
Reaches	
BTA 62	Grattons
Park	
BTA 63	Ardingly
Reservoir	
BTA 64	Lidsey
Rife	
BTA 65	Bewl
Water	
BTA 66	Western
Rother	
BTA 67	Copthorne
Common	
BTA 68	Great Wood
Area	
BTA 69	Hastings
Fringe	
BTA 70	Bexhill
Fringe	
BTA 71	Cuckoo Trail Habitat
Link	
BTA 72	Heathfield Habitat
Link	
BTA 73	Pevensey & Cuckmere Valley
Link	
BTA 74	River Cuckmere Habitat
Link	
BTA 75	Wooton Manor Grasslands
Link	

7.Sussex BTA Statistics

As a result of this consultation process 75 Target Areas were selected in Sussex. These cover a total of 129,794 hectares. However, one issue that was discussed at some length on the 18th September Consultation meeting was whether European site should be included in our final percentage cover (aiming to reach 30% land coverage. The conclusion was that European sites should be represented visually, but not statistically. Therefore 11188 hectares is removed from the BTA hectarage.

The remaining hectarage represents 30.9% of the landscover of Sussex.

	Sussex (Ha)	**BTA (Ha)**	**% in BTA**
National Nature Reserves	562.9	562.9	**100.0**
Sites of Special Scientific Interest	23964.7	20966.2	**87.5**
West Sussex Sites of Nature Cons. Importance	9943.6	7099.4	**71.4**
East Sussex Sites of Nature Cons. Importance	8736.3	5782.9	**66.2**
B & H Sites of Nature Cons. Importance	607.4	475.7	**78.3**
Local Nature Reserves	4002.8	3389.2	**84.7**
Ancient Woodland	38812.8	16700.1	**43.0**
Chalk Grassland	3037.7	2820.1	**92.8**

Heathland	6154.9	5726.9	**93.0**
Grazing Marsh	11463.9	10686.1	**93.2**
Reedbed	242.5	220.3	**90.8**
Floodzone	43003.4	28628.8	**66.6**

8. Acknowledgements

I would like to thank all the participants of this consultation for their time and goodwill. Melanie Hardie and Phillipa Burrell of TVERC provided all the necessary support to help SxBRC run this work smoothly. Particular thanks go to Matthew Thomas for his relentless drive to ensure that urban biodiversity issues are not annexed by conservationists in Sussex and Kate Cole, Jon Curson and Gerald Legg for pursuing the marine interest and insuring its inclusion. Tom Butterworth provided valuable support in attending one of the consultation events and fielding questions on the regional relevance of these maps. Janyis Watson, Chair of the Sussex Biodiversity Partnership also kindly gave the local perspective and fielded questions relating to this at both events. Laurie Jackson and Penny Green both contributed a great deal of time into the BTA statements. Thank you also to Charles Roper for organising the Online Consultation web-site.

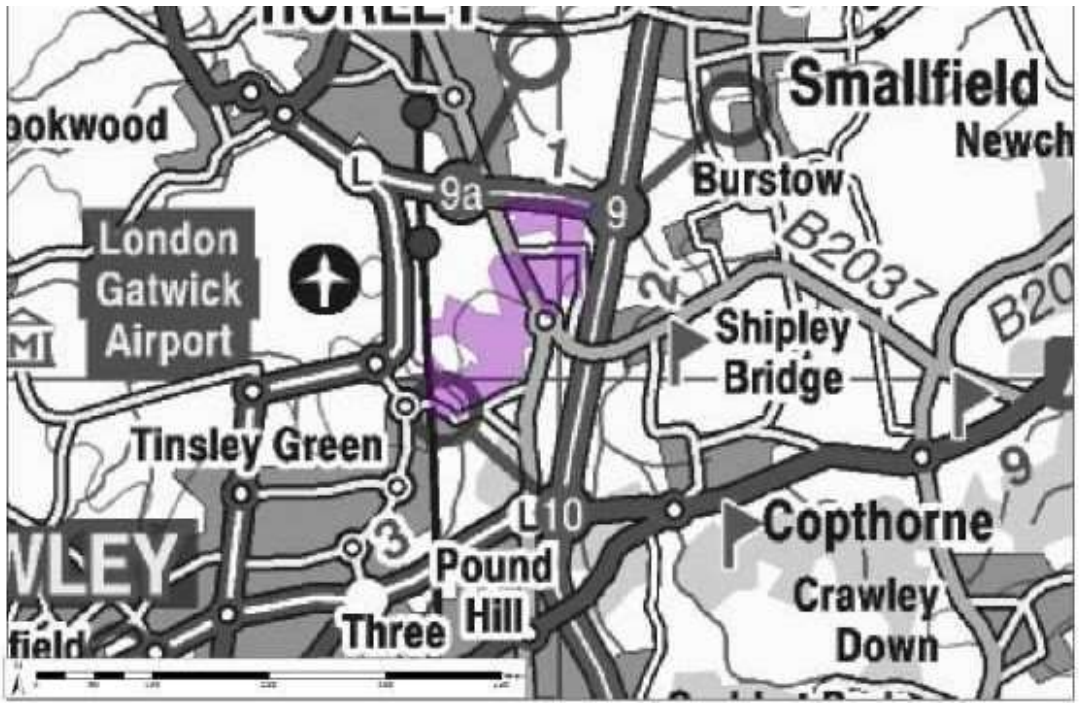
As always the SxBRC staff, Penny Green, Andrew Lawson, Charles Roper and Helen Burgess have been supportive and flexible with regards to this piece of work and were invaluable at the consultation events. Above all other acknowledgements the patience and tenacity of Andrew Lawson must be mentioned, in compiling the original maps and undertaking all edits.

Henri
Brocklebank
SxBRC
2008

APPENDIX C: GATWICK WOODS BIODIVERSITY OPPORTUNITY AREA STATEMENT

Gatwick Woods Biodiversity Opportunity Area

Joint Character Area Low Weald
Geology Gatwick Woods BOA lies on Weald clay formation mudstone



The Biodiversity Opportunity Areas (BOAs) are the regional priority areas of opportunity for restoration and creation of Biodiversity Action Plan (BAP) habitats. They are a spatial representation of BAP targets and are areas of opportunity, not constraint. The BOAs are the property of the South East England Biodiversity Forum www.sebiodiversity.org.uk. Contains Ordnance Survey data Crown copyright and database right 2010

Gatwick Woods have been recognised as a Biodiversity Opportunity Area (BOA) as they represent a priority area for the delivery of Biodiversity Action Plan (BAP) targets. This is one of 75 such areas across Sussex. The BOA covers approximately 133 hectares.

This area is dominated by the Gatwick Airport landscape but contains a small amount of ancient woodland amongst agricultural land where the opportunities for biodiversity gain and landowner liaison are tangible.

BAP Habitat

Woodland

BAP Species three species recorded, with the following in the last ten years:

Species	Habitat Requirements
Lesser Redpoll Carduelis	birch and alder woods, most common in the north in the summer
cabaret	
Lapwing Vanellus vanellus	Farmland, grazing marsh, wet meadows, seeds and insects

Invasive Non-native Species

No records

Designated Sites

HorleylandWoodSNCI a good example of ancient coppice-with-standards Bluebell wood, with a canopy consisting predominantly of Oak, Birch and Ash. There is abundant dead wood, and a pond which adds to the habitat diversity.

Opportunities Identified

- Woodland management and restoration
- Education and community engagement, including links to health
- Increased site designation
- Working with and attracting new businesses
- Ecological networks
- Visitor facilities

APPENDIX D: HEDGEROW HABITAT ACTION PLAN

oto: Alison Wright

Sussex Biodiversity Partnership

Hedgerow Habitat Action Plan

Last Updated: April 2010

National Lead Organisation Hedgerow Habitat Action Plan Steering Group

1. Habitat Description

A hedgerow is any boundary line of trees or shrubs over 20m long and less than 5m wide at the base, provided that at one time, the trees or shrubs were more or less continuous. It includes 'classic', shrubby hedgerows, lines of trees, shrubby hedgerows with trees and very gappy hedgerows (where each shrubby section may be less than 20m long but the gaps are less than 20m). All hedgerows consisting predominantly (80% or more cover) of at least one woody UK native species are covered by this priority habitat.

As well as their biodiversity importance, hedgerows have value for farming, landscape, cultural and archaeological reasons. There are 130 priority species associated with hedgerows, and they are a primary habitat for at least 47 species of conservation concern; being particularly important for butterflies and moths, farmland birds, bats and dormice.

2. Associated Species

The following species (UK Biodiversity Action Plan species in bold) associated with hedgerows have been recorded in Sussex:

- ***Anaptychia ciliaris subsp. ciliaris*** **(a lichen)**
- **August Thorn**
- **Autumnal Rustic**
- ***Bacidia incompta*** **(a lichen)**
- Badger
- Bank vole
- **Barbastelle**
- **Barberry Carpet**
- Barn Owl
- **Basil Thyme**
- **Bastard Balm**
- **Beaded Chestnut**
- **Bechstein's Bat**
- **Betony Case-bearer**
- Blackbird
- **Blood-Vein**
- Blue Tit
- Bluebell
- Brimstone
- **Brindled Beauty**
- **Broom Moth**
- **Broom-tip**
- **Brown Hairstreak**
- **Brown Long-eared Bat**
- **Brown-Banded Carder Bee**
- **Brown-spot Pinion**
- **Buff Ermine**
- **Bullfinch**
- ***Caloplaca virescens*** **(a lichen)**
- **Centre-barred Sallow**
- Chaffinch
- **Common Lizard**
- **Common Toad**
- **Copse-bindweed**
- **Corn Bunting**
- **Crested Cow-wheat**
- ***Cryptolechia carneolutea*** **(a lichen)**
- **Cuckoo**
- **Dark-barred Twin-spot Carpet**
- **Deep-brown Dart**
- **Deptford Pink**
- **Dot Moth**
- **Double Dart**
- **Dunnock**

- **Dusky Brocade**
- **Dusky Thorn**
- **Dusky-lemon Sallow**
- **Ear Moth**
- **Feathered Gothic**
- **Figure of Eight**
- **Flounced Chestnut**
- **Galium Carpet**
- **Garden Dart**
- **Garden Tiger**
- **Ghost Moth**
- **Goat Moth**
- **Golden Eye Lichen**
- **Grape Hyacinth**
- **Grass Snake**
- **Great Crested Newt**
- Great Tit
- **Greater Horseshoe Bat**
- **Green-brindled Crescent**
- **Grey Dagger**
- **Grey Partridge**
- **Harvest Mouse**
- **Hazel Dormouse**
- **Heart Moth**
- **Hedge Rustic**
- **Hedgehog**
- Holly Blue
- **House Sparrow**
- **Knot Grass**
- **Lackey**
- **Large Garden Bumblebee**
- **Large Nutmeg**
- **Lesser Redpoll**
- **Lesser Spotted Woodpecker**
- **Linnet**
- **Liquorice Piercer**
- **Minor Shoulder-knot**
- **Moss Carder Bee**
- **Mottled Rustic**
- **Mouse Moth**
- **Mullein Wave**
- **Noctule**
- **Oak Hook-tip**
- **Orange-fruited Elm-lichen**
- **Pale Eggar**
- ***Parmelina quercina* (a lichen)**
- **Pearl-bordered Fritillary**
- **Polecat**
- **Powdered Quaker**
- **Pretty Chalk Carpet**
- Primrose
- Purple Emperor
- **Purple Ramping-fumitory**
- **Rampion Bellflower**
- **Red-backed Shrike**
- **Red-horned Cardinal Click Beetle**
- **Red-Shanked Carder Bee**
- **Reed Bunting**
- Robin
- **Rosy Rustic**
- **Round-leaved Feather-moss**
- **Rustic**
- **Sallow**
- **September Thorn**
- **Shaded Broad-bar**
- **Shoulder-striped Wainscot**
- **Shrill Carder Bee**
- **Sloe Carpet**
- **Slow-worm**
- **Small Emerald**
- **Small Phoenix**
- **Small Square-spot**
- **Song Thrush**
- **Soprano Pipistrelle**
- **Southern Grey Physcia**
- **Spiked Rampion**
- **Spotted Flycatcher**
- **Sprawler**
- **Spreading Bellflower**
- **Stag Beetle**
- **Starling**
- Stoat
- **Streak**
- **Tree Pipit**
- **Tree Sparrow**
- **Turtle Dove**
- ***Usnea articulata* (a lichen)**
- ***Usnea florida* (a lichen)**
- **White Ermine**
- **White-letter Hairstreak**
- **White-line Dart**
- **White-spotted Pinion**
- Whitethroat
- Wren
- **Yellowhammer**

3. National Status

There has been a loss of about 45% of the hedgerows of England and Wales since 1945, with the net loss between 1984 and 1990 estimated at 21%. From data collected for Countryside Survey 2007, the total length of woody, linear features was estimated to by 700000 km in Great Britain and 547000 in England, representing losses of 1.7% and 1.4% respectively since 1998. The estimated total length of managed hedgerows was 477000 km in Great Britain and 402000 km in England, representing respective losses of 6.2% and 6.1% since 1998. These latter losses were attributed largely to lack of management with unmanaged hedgerows turning into lines of trees and relict hedgerows.

4. Local Status

We currently estimate there to be more than 11000 km of hedgerows in Sussex, with 30 woody shrub and tree species recorded amongst those surveyed. Hedgerows in Sussex are thought to differ in origin. Most of our Wealden hedgerows are likely to date from the medieval, Saxon or earlier assarting (clearance and uprooting) of ancient woodland - producing areas of small fields surrounded by shaws/rewes (strips of woodland) and hedgerows. The Coastal Plain, South Downs and possibly parts of the Upper and Lower Greensands are more likely to have been cleared in pre-history and subsequently lent themselves to extensive open field farming, with the hedgerows in these areas likely to have emanated from medieval, early Tudor or possible later parliamentary enclosures.

Hedgerows, with their associated standard trees, typically oak and Ash, are a defining feature of the Sussex countryside. People enjoy Sussex hedgerows and are quick to report any attempts to damage or remove them.

5. Biodiversity Opportunity Areas

Hedgerows may be a priority habitat in all of the Biodiversity Opportunity Areas identified in Sussex, but are also extensive throughout the wider countryside with native, species-rich hedgerows most widespread in the Low and High Weald.

6. Current Factors affecting Hedgerows

- Neglect and lack of management leading to hedgerows changing into lines of trees and becoming increasingly gappy.
- Over-severe or badly timed management can lead to poor habitat condition, development of gaps and can be detrimental to species such as Brown Hairstreak.
- There is a lack of funding for planting, coppicing and hedgelaying and these traditional skills are declining.
- The shifting age profile of existing hedgerow trees is leading to an overall loss due to low recruitment of replacements for senescent trees.
- Hedgerows may be removed for agricultural and development purposes.
- Use of chemicals close to hedgerow bases can cause problems of enrichment and lead to an overall decline in species diversity.

7. Current Action

- The Hedgerows Regulations 1997 are intended to protect 'important' hedgerows of wildlife, landscape or historical importance (assessed by various criteria) from destruction or removal. Hedgerows may also be partly protected under other legislation including the Town and Country Planning Act 1990 (through Tree Preservation Orders) and the Wildlife and Countryside Act 1981 (with respect to bird nesting).

- Hedgerow management has to be sympathetically carried out with consideration for diversity of habitat. Trimming is best completed in January or February on a two or three year rotation, in addition, periodic coppicing or laying may be necessary, and isolated hedgerow trees should be protected with provision made for new planting.

- Advice on hedgerow management can be obtained through Hedgelink and the participants in Sussex Hedgerows Habitat Action Plan working group regularly offer advice to landowners, Local Authorities and members of the public.

- Environmental stewardship schemes can offer a reliable form of protection through the provision of payments for hedgerow management, restoration and creation.

- When creating new hedgerows the most important aims are a diversity of native woody species and diversity of management regimes, and planting should be limited to species known to thrive locally. It may take centuries for a hedgerow to maximise its potential as a biodiverse, wildlife habitat.

- Sussex Biodiversity Record Centre is continuing research on all aspects of hedgerows including monitoring of change, associated research on ancient trees within or adjacent to hedgerows, and associated research on Hazel Dormouse presence or absence.

8. Action Plan Objectives

- Continue to augment the Sussex hedgerows database on current extent of native species-rich hedgerows and continue to digitise all Sussex hedgerow data.

- Encourage the favourable management of hedgerows and hedgerow trees. Halt the net loss of species rich hedgerows through neglect, removal or inappropriate management

- Support Local Authorities in their execution of the Hedgerows Regulations 1997.

- Seek to increase the numbers of native, species-rich hedgerows in favourable condition in Sussex.

- Maintain overall numbers of hedgerow trees at least at current levels by marking existing trees to allow to grow on as standards and encouraging new planting, in line with landscape guidelines.

- Encourage planting of native, mixed hedgerows where compatible with landscape guidelines, particularly where they will help provide connectivity on a landscape-scale. Species used should be compatible with that Character Area.

9. Action Plan Targets

A Maintain the net extent of hedgerows in all the Sussex Character Areas.
B Identify the extent of native species-rich hedgerows in favourable condition and ensure an annual increase in their number.
C Maintain the overall number of individual, isolated hedgerow trees and the net number of isolated veteran trees.
D Within the High Weald, Low Weald and Wealden Greensand Character Areas, restore annually a total of 20km of previously neglected native, species-rich hedgerows to ensure their integrity for the future.
E Encourage the planting of new native species-rich hedgerows widely among the agricultural community and Local Authorities.

10. Monitoring and Review

This Action Plan will be monitored annually, including an assessment of actions carried out against the targets set and reviewing whether objectives remain appropriate as circumstances change or in the light of new information.

11. Acknowledgements

East Sussex County Council
Farming and Wildlife Advisory Group
Natural England
South Downs Joint Committee
Sussex Wildlife Trust
West Sussex County Council

APPENDIX E: GATWICK FLOOD ATTENUATION SCHEMENT (planning application CR/2012/0575/FUL); LANDSCAPE, ACCESS AND ECOLOGICAL MITIGATION AND ENHANCEMENT STRATEGY

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Gatwick Airport Ltd

Gatwick Stream Flood Attenuation Development

Landscape, Access & Ecological Mitigation and Enhancement Strategy

February 2013

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Landscape, Access & Ecological Mitigation ana Enhancement Strategy

Approved

Dominic Watkins

Position Director

Date 13'h February 2013

Revision Final

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1.1 INTRODUCTION

1.2 Background

1.2.1 The Landscape, Access and Ecological Mitigation and Enhancement Strategy (LAEMES), sets out the mitigation and enhancement strategy to support the proposed construction and operation of a new flood attenuation development immediately adjacent to the Gatwick stream, for the Gatwick Airport estate (herein referred to as the Scheme, please refer to **Figure 1**, Location Plan and **Figure 2**, Aerial Photograph of the Scheme's extent). The new flood attenuation development is sited within the south western extent of Gatwick Airport's landholdings, east of the Brighton to London railway line (herein referred to as the Land East of the Railway Line, LERL).

1.2.2 The principal need for the flood attenuation development is to control surface water flows to reduce the risk of flooding to the airport. The proposed flood attenuation area would be capable of holding up to 186,000m^3 of flood water, during periods of heavy rainfall when flows in the Gatwick stream exceed 15m^3sec^{-1}. The proposed Scheme would involve the excavation of c.160,000m^3 of soil from the fields and the removal of significant lengths of hedgerow and trees forming the field boundaries, in order to create the required attenuation capacity. This would be followed by selective replanting of trees and hedgerows, and re- seeding to reinstate the grazing land. Attenuation capacity would be managed by a flow limiting control structure on the line of the Gatwick stream and associated earth bunds.

1.2.3 In order to facilitate the construction of the proposed flood attenuation development, the course of the Gatwick stream will be realigned along approximately 500m of its length as it runs north past the western boundary of the sewage treatment works (see **Figures 1** and **7**). The realignment of the stream will seek to replicate the physical characteristics of the existing watercourse, through the establishment of riffle and pool sequences, in-channel deflectors and log weirs, as well as appropriate marginal and riparian planting. A key element of the Scheme will be to ensure that the new section of the stream, and the on-line control structures do not inhibit the free passage of fish, or their ability to recruit.

1.2.4 The LAEMES sets out the framework and mechanism for delivering the mitigation and broader environmental enhancement measures (**Figure 7**, Landscape & Ecological Proposals Plan) identified in the Ecological Appraisal Report[1] (EAR) for the proposed flood attenuation scheme.

[1] (2012). Gatwick Stream Flood Attenuation Development: Environmental Appraisal Report. Prepared for and on behalf of Gatwick Airport Ltd.

1.3 Landscape and Ecological Context

1.3.1 The site is located immediately east of the London to Brighton Railway line, and is bordered along the west by the Gatwick stream.

1.3.2 A narrow line of trees connects the northern boundary of the Site to Horleyland wood and a Thames Water Sewage Works lies to the east of the Gatwick stream. The site is bordered to the south by Radford road, with associated private residential properties.

1.3.3 Although adjoining intensively developed areas, the LERL remains rural in character with a mosaic of woodland, including Ancient Woodland, scrub, hedges, grassland and a number of small ponds located throughout the LERL.

1.3.4 The LERL, although not the site itself, is criss-crossed by public footpaths (See **Figure 3**), which connect to a wider network of footpaths that extend through Horleyland Wood and Upper Pickets Wood and connect to Balcombe Road (to the east), Radford Road (to the south) and Gatwick Airport (to the north). These provide an amenity for local residents and are a means of pedestrian access to the airport from residential areas to the south and east of the Airport. The site and surrounding woodlands are managed by Gatwick Greenspace on behalf of GAL.

1.4 Legislative Context

1.4.1 The primary legislative drivers for the protection of wildlife within the UK, and that are pertinent to this site are:

- Wildlife and Countryside Act 1981 (as amended)
- Countryside and Rights of Way Act 2000 (otherwise known as the CRoW Act)
- Natural Environment and Rural Communities Act 2006 (otherwise known as the NERC Act)
- Conservation of Habitats and Species Regulations 2010.

1.4.2 The requirements for complying with legislation designed to protect wildlife within a planning context is currently set out in the National Planning Policy Framework (NPPF). It is a requirement that the obligations set out in primary legislation are adhered to in relation to planning law and associated decision making processes.

1.4.3 A brief outline of current legislative protection for each species is set out under the relevant headings below.

1.5 Baseline Surveys

1.5.1 Surveys for habitats and a range of species groups, including those protected by law, have been undertaken across the proposed development site during 2012 to augment the surveys undertaken in 2011 to inform the construction of a new pollution lagoon in the LERL and the Gatwick Airport Ecology Review (CBA, 2010) provided historic data records derived from previous surveys of the site undertaken over the last 10-15 years. The results of these surveys are summarised in the EAR.

1.6 Strategy Constraints

1.6.1 This Strategy has been prepared in the context of Civil Aviation Authority guidelines for bird control. The document "CAP 680: Aerodrome Bird Control", Civil Aviation Authority (2002) also provides comprehensive guidance for current good practice in the management of airport landscapes in terms of bird hazard control.

1.7 Strategy Aims and Objectives

Access

1.7.1 The aim of the access strategy is ensure that opportunities for local footpath usage, both for informal recreation and for providing pedestrian access to the airport, are conserved and enhanced. Specific objectives are:

Objective 1

To ensure that a new pedestrian route is provided to connect the existing footpath network to the north of the STW in Horleyland Wood (including FP360Sy) with the existing public footpath (FP3377) that terminates on the southern edge of Radford Road (See **Figure 3**).

Objective 2

To ensure that a new pedestrian route is provided to connect FP360/1Sy (east of the STW access road) to FP3377 (south of Radford Road) via a wooden footbridge over the Gatwick Stream (See **Figure 3**). This connection will be implemented as part of the flood attenuation development.

Objective 3

To ensure that a new circular pedestrian route is provided between the site and the STW access road for dog-walkers and other recreational footpath users (See **Figure 3**). This connection will be implemented as part of the flood attenuation development.

Mitigation Strategy

1.7.2 The strategic objectives of the LAEMES are to ensure that the most appropriate mitigation strategy is adopted for each of the species. The strategic objectives are as follows:

- *Avoidance*: the opportunity to ensure that any development activity does not affect the species of interest in the first place. This may be through revised working methods or timing of certain activities within particular areas of the development site;
- *Reduction*: the opportunity to identify means for reducing overall impacts. This may be facilitated through incorporation of ecological protection methods within Construction Method Statements, working methods;
- *Habitat recreation*: the opportunity to recreate habitats that may otherwise be permanently lost as the result of development activities;
- *Prevention*: the incorporation of methods for preventing intentional harm being caused to species, or the reckless destruction of habitat, such as the use of protective fencing or the management of site drainage (as discussed in the CMP). These measures can also be enmeshed within existing plans and structures as part of the overall delivery of the project; and
- *Relocation / Translocation*: the opportunity to move and re-establish populations of species or habitats that are situated within areas defined as comprising part of the proposed development area.

1.7.3 To achieve the objectives of the strategy, a series of Method Statements have been prepared to address mitigation relating to both habitats and species that will be affected by the development of the proposed flood attenuation scheme. There are six components of the mitigation strategy for which Method Statements have been prepared. These are as follows:

- Hedgerows (**Section 3.1**);
- Bats (**Section 3.2**);
- Breeding birds (**Section 3.3**);
- Invasive plant species (**Section 3.4**); and,
- Gatwick stream (**Section 3.5**).

1.7.4 A Method Statement has also been prepared for the retention of trees to be retained on site and this is set out in a separate report prepared by Martin Dobson Associates Ltd[2].

Ecological Enhancement

[2] Tree Survey, Arboricultural Impact Assessment and Method Statement, Martin Dobson Associates Ltd (Nov.2012)

1.7.5 In addition to the mitigation strategy, a series of enhancement measures have also been identified. The ecological enhancements relate to the flood attenuation scheme, but should be read in conjunction with the LAEMES for the new pollution lagoon project (CBA, 2011). Collectively the LAEMES provide a strategic overview of all the interventions to enhance the biodiversity of the LERL. This strategic overview will be further developed for Gatwick Airport Ltd (GAL) by Gatwick Greenspace, in a detailed Ecological Management Plan. It is anticipated that the delivery of these enhancements will significantly contribute towards GALs aims of achieving Biodiversity Benchmark status.

Landscape Enhancement

1.7.6 Landscape enhancement would be achieved through the provision of (1) new, off-site tree planting to enhance the vegetation structure and landscape amenity of the local landscape and (2) new pedestrian access to enhance the accessibility of this area of countryside by local residents. The off-site tree planting would be provided both along the western site boundary where there are gaps in the existing tree belt adjacent to the railway, and along the south- eastern edge of the STW to in-fill the existing gappy tree belt.

2.1 SITE DESCRIPTION

2.2 Introduction

2.2.1 This section provides a brief overview of the key features of ecological and landscape interest, as well as description of existing public access, as they relate to the proposed development site itself, as well as their relationship to the LERL as a whole.

2.3 Geology, Soils and Hydrology

2.3.1 The LERL is underlain by Weald Clay, from which develops a range of slowly permeable and seasonally wet clays and loam soils. It is drained by the Gatwick Stream which discharges into the River Mole north of the airport.

2.4 Habitats

Hedges

2.4.1 Hedges are distributed throughout the LERL, but the strongest network provides the field boundaries to the pasture in the south west of the Site adjoining the Gatwick Stream, and is located within the proposed development area. They comprise a network across a cattle-grazed field with species-poor improved grassland. In general they are quite similar in species composition but some have very large gaps and can be considered defunct hedgerows. Most of the hedges are unfenced and open to cattle grazing; a clear browse line can be observed where this has occurred. Some of the hedges support a ditch and most have a sparse woodland flora with bluebell *Hyacinthoides non-scripta*, and lords-and-ladies *Arum maculatum*.

2.4.2 The hedgerows also contain mature trees, especially pedunculate oak *Quercus robur*, and other species include hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, hazel *Corylus avellana*, dog rose *Rosa canina* and grey willow *Salix cinerea*. They appear to have been unmanaged for some time and many of them are now very gappy.

Grassland

2.4.3 The areas of grassland within the Site comprise a series of pastures either side of the Gatwick Stream. Although there is some variation both within and between pastures they are quite similar overall in species composition and consist of relatively species poor semi-improved grassland. It includes a range of common grass species including Yorkshire fog *Holcus lanatus*,

meadow grasses *Poa* species, cocksfoot *Dactylis glomerata*, perennial rye-grass *Lolium perenne*, common bent *Agrostis capillaris*, red fescue and meadow foxtail *Alopecurus pratensis*. Forbs are limited in terms of species and abundance and as a whole are typical of such grasslands. They include red and white clovers *Trifolium pratense* and *repens*, lesser stitchwort *Stellaria graminea*, common mouse-ear *Cerastium fontanum*, vetches *Vicia* species, buttercups *Ranunculus* species and plantains *Plantago* species. In disturbed areas thistles *Cirsium* species and docks *Rumex* species are frequent or abundant. This is most noticeable in the more northerly of the two fields immediately to the west of the access road to the water treatment works, which has been disturbed by recent works.

2.4.4 On the whole the most species rich of these fields is the most northerly one adjoining the Gatwick Stream. This supports a small number species characteristic of less improved grassland, including common knapweed *Centaurea nigra*, ox-eye daisy *Leucanthemum vulgare* and grass vetchling *Lathyrus nissiola*, albeit only patchily and in relatively small quantities.

Gatwick stream

2.4.5 The channel of the Gatwick Stream is relatively natural in form, with meanders, a bed of gravel and silt and pool and riffle features. There is little aquatic vegetation although small amounts of a water starwort *Callitriche* species are present in places. Due to the steep nature of the banks there is limited emergent or marginal vegetation, although hemlock water dropwort *Oenanthe crocata* is frequent and yellow iris and remote and pendulous sedge *Carex pendula* are present on the edge of the channel. Himalayan balsam *Impatiens glandulifera* is present on the channel banks.

2.5 Species

Bats

2.5.1 At least six species of bat have been positively determined as being present within the LERL:

- 45 kHz pipistrelle;
- 55 kHz pipistrelle;
- long-eared bat;
- Natterer's;
- serotine; and,
- noctule.

2.5.2 Other *Myotis* species are considered likely to have been recorded, including whiskered/Brandt's and Daubenton's. Many of the mature trees present in the Site, especially those with features such as cracks and cavities or substantial growths of ivy, have the potential

to be used as roosts by bat species. The woodlands, scrub, hedges, ponds and the Gatwick Stream may also be used as foraging and commuting areas by bats.

Breeding Birds

2.5.3 A total of 24 breeding bird species have been recorded in the LERL in 2011, summarised in **Table 2.1** below breeding territories relate to surveys undertaken in 2011. Further surveys were undertaken in 2012 to verify the findings of the 2011 results. In total 20 bird species, two of which are of conservation concern (song thrush *Turdus philomelos* and starling *Sturnus vulgaris*), were considered to be breeding or possibly breeding within the proposed development site during 2012. Overall, however, breeding activity between the two years across the Site is considered to be broadly similar.

Table 2.1 - Breeding bird territory numbers (for the whole of the LERL).

Species	Scientific name	Breeding territories
Wood pigeon	*Columba palumbus*	Many
Great spotted woodpecker	*Dendrocopos major*	1
Willow warbler	*Phylloscopus trochilus*	1
Wren	*Troglodytes troglodytes*	17
Dunnock	*Prunella modularis*	1
Robin	*Erithacus rubecula*	15
Blackbird	*Turdus merula*	1
Song thrush	***Turdus philomelos***	**1**
Common whitethroat	*Sylvia communis*	4
Blackcap	*Sylvia atriacapilla*	15
Garden warbler	*Sylvia borin*	2
Common chiffchaff	*Phylloscopus collybitta*	6
Goldcrest	*Regulus regulus*	
Long-tailed Tit	*Aegithalos caudatus*	2
Blue tit	*Cyanistes caeruleus*	13
Great tit	*Parus major*	3
Black-billed Magpie	*Pica pica*	Many
Eurasian Jay	*Garrulus glandarius*	
Carrion crow	*Corvus corone*	Many
Chaffinch	*Fringilla coelebs*	2
European greenfinch	*Carduelis chloris*	
European goldfinch	*Carduelis carduelis*	3
Eurasian Jackdaw	*Corvus monedula*	
Common bullfinch	*Pyrrhula pyrrhula*	1

2.5.4 A further ten species were recorded and although not confirmed duringthe 2011 survey, may breed in the LERL; these were treecreeper *Certhia familiaris*, nuthatch *Sitta europaea*, mistle thrush *Turdus viscivorus,* buzzard *Buteo buteo,* stock dove *Columba oenas*, collared dove, house martin *Delichon urbica*, and barn swallow *Hirundo rustica*. In addition, records were made on single visits of lesser whitethroat *Sylvia*

curruca which may have been a passagemigrant and house sparrow *Passer domesticus* which is likely to breed in houses near to the site.

Deer

2.5.5 Roe deer *Capreolus capreolus* are also present, remaining almost exclusively in the woodlands, although they can be observed in the grasslands at dawn and dusk.

2.6 Landscape Character

2.6.1 The STW has a semi-industrial character on account of the large-scale structures associated with this facility and this detracts from the rural character of adjacent land where views of these structures may be obtained. The large-scale buildings associated with the Gatwick Airport Office Park have a strong urban character and this imparts an urban fringe character to the western parts of the site. The visual appearance of the above buildings and structures are partially softened by intermittent belts of deciduous trees and shrubs, which provide a buffer between these built-up areas and the fields within the site.

2.6.2 Although adjoining these intensively developed areas, the site and other areas of the LERL remain predominantly rural in character with a mosaic of woodland, grassland, hedgerows and scrub. The site has a strong pastoral, semi-enclosed character, which is reinforced by evidence of past cattle grazing, remnants of strong field boundary hedgerows and the tree-lined Gatwick Stream. The areas of woodland east and west of the existing and new pollution control lagoons have a strong semi-natural, enclosed character. The Gatwick Stream, with its associated intermittent groups of mature trees, is a notable landscape feature in the local landscape. The frequent movement of trains and planes, together with vehicular traffic on Radford Road, detracts from the sense of tranquillity in the local landscape.

2.7 Access

2.7.1 The local area is criss-crossed by public footpaths, which connect to a wider network of footpaths that extend through Horleyland Wood and Upper Pickets Wood and connect to Balcombe Road (to the east), Radford Road (to the south) and Gatwick Airport (to the north). These provide an amenity for local residents and are a means of pedestrian access to the airport from residential areas to the south and east of the Airport.

3.1 METHOD STATEMENTS FOR THE MITIGATION OF NEGATIVE EFFECTS TO FEATURES OF ECOLOGICAL INTEREST

3.2 Hedgerows / Trees

On Site Status

3.2.1 8 hedgerows (H8-15) were identified within the Site boundaries that are likely to be affected by the proposed flood storage scheme (**Figure 4**). They comprise a network across a cattle-grazed field with species-poor improved grassland. In general they are quite similar in species composition but some have very large gaps and can be considered defunct hedgerows. Most of the hedges are unfenced and open to cattle grazing; a clear browse line can be observed where this has occurred. Some of the hedges support a ditch and most have a sparse woodland flora with bluebell *Hyacinthoides non-scripta*, and lords-and-ladies *Arum maculatum*.

3.2.2 H8 is a tall unmanaged hawthorn *Crataegus monogyna* hedge with two mature oak standards *Quercus robur*. There are several gaps in the line of the hedge beneath the oak canopies and a very sparse ground flora. The mature oaks are 20-25m tall and feature cracked bark and several cavities that could be potential bat roosts.

3.2.3 H9 is an old coppiced hedgerow featuring a central ditch with water running along its entire length. There is mature ash *Fraxinus excelsior* and pedunculate oak trees, other woody species include elder *Sambucus nigra*, rose *Rosa* spp., willow *Salix* spp., hawthorn and hazel *Corylus avellana*. Occasional pignut *Conopodium majus* features in the ground flora. It is connected to three other hedgerows and features a pond at the northern end.

3.2.4 H10 is a gappy defunct hedge consisting of scattered hawthorn and blackthorn *Prunus spinosa* bushes. These woody species are unmanaged and have become tall and leggy in overall shape due to the influence of cattle grazing. There is a dry ditch running along the length of the hedge and three mature oak standards. The ground flora is quite varied and includes bugle *Ajuga reptans* and wood anemone *Anemone nemorosa*.

3.2.5 H11 is a dense unmanaged hedge mainly comprised of hawthorn and blackthorn with mature oak standards. A dry ditch and barbed wire fence runs along its length and this appears to have prevented the cattle from browsing it as much as the other hedges. Overall it is quite uniform in structure and has possibly been managed more recently than the other hedges.

3.2.6 H12 is a defunct unmanaged hedge. It is very gappy and species-poor, mainly comprised of hawthorn and blackthorn with two pedunculate oak standards. The hedge has clearly suffered

from grazing at the ground level and 1m or so upwards. There is a dry ditch running along its length and dog's mercury *Mercurialis perennis* in the ground flora.

3.2.7 H13 is an unmanaged hedge with hazel coppice and hawthorn that looks like it has previously been laid. A ditch with water runs along the entire length of the hedgerow with the hazel bordering the east side and hawthorn on the west. There are several mature ash and pedunculate oak trees with numerous cavities and woodpecker holes. One of the oak trees has a major cavity caused by heartwood rot extending from the base all the way up the tree and has significant bat roost potential. The ground flora is sparse but features ramsons *Allium ursinum*.

3.2.8 H14 is a short section of dense unmanaged hedge with a dry ditch. There is one oak standard and a variety of other woody species such as holly *Ilex aquifolium*, hawthorn, blackthorn and hazel. The shrub layer includes bramble *Rubus fruticosus* and honeysuckle *Lonicera periclymenum*. The ground flora is sparse but also quite varied and features dog's mercury.

3.2.9 H15 is a short section of fenced hedgerow showing signs of former management such as coppicing and laying. It is fairly dense and comprised mainly of hazel and hawthorn. The ground flora includes common dog violet *Viola riviniana* and wood avens *Geum urbanum*.

3.2.10 Three of the eight hedgerows surveyed (H9, 13 and 14) meet the criteria for classification as Important Hedgerows under the Hedgerow Regulations 1997. Table 3.1 summarises the findings of the hedgerow survey and evaluation.

Table 3.1 Results of Hedgerow Survey and Evaluation

(Number of Woody Species, Associated Features and Important Hedgerows are as set out in Paragraph 7(3), 7(4) and 7(1) respectively of Schedule 1, Part II of the Hedgerows Regulations. Refer to Section 2.1).

Hedgerow No.	Hedgerow Length (m)	Number of Woody Species	Adjacent to a bridleway/footpath /road/byway	Number of Associated Features	Important Hedgerow
8	100	5	No	2	No
9	200	6	No	5	Yes
10	155	4	No	3	No
11	200	4.5	No	2	No
12	140	3.5	No	2	No
13	260	6	No	5	Yes
14	40	6	No	3	Yes
15	60	3	No	2	No

Legislative Protection

3.2.11 Hedgerows are protected under the Hedgerows Regulations 1997.

3.2.12 Under the Hedgerows Regulations 1997 it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. The local planning authority is also the enforcement body for offences created by the Regulations.

3.2.13 Local planning authority permission is normally required before removing hedges that are at least 20 metres (66 feet) in length, more than 30 years old and contain certain plant species. The authority will assess the importance of the hedgerow using criteria set out in the regulations.

Mitigation Strategy

3.2.14 Many of the hedgerow plants will need to be removed as part of the delivery of the Scheme (as shown on **Figure 5**). It is intended, however, that approximately 5% (est. 20 – 30) of the hedgerow plants (depending on size, age, condition) will be temporarily transplanted during the period of the construction phase, and then re-established in the blocks of tree / hedgerow planting, which will be undertaken once all the excavations are complete (**Figure 7**, Landscape and Ecological Proposals Plan).

3.2.15 The selected hedgerow plants would be reduced in height to approximately 4-5ft above ground level. This remaining stem will be sufficient to enable new growth to develop during both the temporary storage period and once the plants are re-established in their permanent positions. Once the crown of the plant has been reduced, the rootball will be lifted using a mechanical excavator, and transferred to a prepared plot at the edge of the development site. Once the rootballs have been moved, the plots will be back filled and, if necessary, the ground watered.

3.2.16 The condition of the rootballs will be monitored during the period of the construction works; it is anticipated that they will require watering during the drier months. Monitoring will also be undertaken to identify new growth and to ensure that the plants have remained healthy. Any transplants that fail will be identified and not transferred back to the permanent planting positions.

3.2.17 Following completion of the construction works, the rootballs will be transferred from their temporary positions and planted in prepared plots at their permanent locations. New hedgerow plants will also be planted where the transplants have failed, to ensure the overall coverage of hedgerow plants is maintained in the final planting scheme.

3.2.18 In the short term, the transplants will require protection. The new planting will be fenced to prevent access to the plants either by cattle or deer. In the longer term, the hedgerow plants

will either be managed mechanically (i.e. flailed), or by traditional techniques such as hedgelaying. This will be dependent on how the plants develop and whether laying could practically be undertaken.

3.2.19 Hedgerow plants and trees that have been identified for retention as part of the scheme (please see **Figure 5**) would be protected during the construction phase by the establishment of root protection zones. Details of the tree protection measures are set out in the separate Tree Survey Arboricultural Impact Assessment Report[3] but in summary would consist of physical barriers to prevent plant and/or machinery from damaging either the trees themselves, or their roots. For example, all construction activities within the vicinity of the retained trees would be restricted to ensure that:

- no machines track over the root zones;
- there is no potential for damage to trees resulting from accidental movements of excavator arms during earth moving activities;
- no compaction occurs during construction activities; and,
- no compaction occurs as the result of the permanent positioning of the earth bunds.

3.3 Bats

On Site Status

3.3.1 At least six species of bat have been positively determined as being present within the LERL. These species are:

- 45 kHz pipistrelle;
- 55 kHz pipistrelle;
- long-eared bat;
- Natterer's;
- serotine; and,
- noctule.

3.3.2 Other *Myotis* species are considered likely to have been recorded, including whiskered/Brandt's and Daubenton's, however, there is no reliable way of specifically determining whether such other *Myotis* species are present on the Site without catching the bats. Daubenton's and whiskered/Brandt's bats are relatively widespread species which would be expected to occur in the habitats of the LERL and the surrounding countryside.

Legislative Protection

3.3.3 All British bat species receive legal protection in the United Kingdom. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the

[3] Tree Survey, Arboricultural Impact Assessment and Method Statement, Martin Dobson Associates Ltd (Nov.2012)

Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CRoW) Act 2000 and the more recent Conservation of Habitats and Species Regulations 2010. All British bat species are listed under Schedule 5 of the 1981 Act, and are therefore subject to the provisions of Section 9, which makes it an offence to:

- Intentionally kill, injure or take a bat [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a bat [Section 9(2)]
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstructs access to any structure or place which a bat uses for shelter or protection [Section 9(4)(c)]
- Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a bat [section 9(5)]

3.3.4 Bats are also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, all British bats are protected under The Conservation of Habitats and Species Regulations 2010 (the Habitat Regulations). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Schedule 2 of the Regulations whereby Regulation 39 makes it an offence to:

- Deliberately capture or kill a bat [Regulation 39(1)(a)];
- Deliberately disturb a bat in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR ii) the local distribution of that species. [Regulation 39(1)(b)];
- Damage or destroy a breeding site or resting place of a bat [Regulation 39(1)(d)].

3.3.5 Under the law, a roost is any structure or place used for shelter or protection. This could be any structure, for example any building or mature tree. Bats use many roost sites and feeding areas throughout the year. These vary according to bat age, condition, gender and species, as well as season and weather. Since bats tend to re-use the same roosts for generations, the roost is protected whether the bats are present or not.

3.3.6 The UK is a signatory to the Agreement on the Conservation of Bats in Europe, set up under the Bonn Convention. The Fundamental Obligations of Article III of this Agreement require the protection of all bats and their habitats, including the identification and protection from damage or disturbance of important feeding areas for bats.

Biodiversity Action Plans

3.3.7 All the bats identified on the site are included in lists developed by the "UK Biodiversity Action Plan Steering Group Report" (HMSO 1995). Pipistrelles are a Priority Species, being of

'unfavourable conservation status' in Europe having suffered a 25-49% decline in numbers/range in Great Britain in the last 25 years (HM50, 1995). All other species found on the site are listed in the Long List of Globally Threatened/Declining Species and are of 'unfavourable conservation status' in Europe.

3.3.8 A Species Action Plan for pipistrelles is included in the Sussex Biodiversity Action Plan.

Mitigation Strategy

3.3.9 Three trees will need to be removed to facilitate the construction of the water control bunds which have been identified as having potential to support roosting bats (as discussed in the Environmental Assessment Report[4]). As a consequence, these trees will need to be removed during the period when bats are active during April. A series of emergence surveys will be undertaken for each tree to determine whether bats are present from mid-March onwards. If bats are positively identified using the trees, a Natural England European Protected species (EPS) licence would be required and no works would be undertaken to the trees until the licence is in place. However, if following these surveys, the risk of encountering bats is considered to be limited, works to the trees would be undertaken, under supervision of a suitably qualified ecologist, who specialises in bat work. Dusk and dawn surveys would also be undertaken on each tree the evening / morning immediately prior to the felling taking place; as so long as no bats are recorded, the tree would be section felled and reduced, rather than felled at the base. If bats are encountered during this process, works would cease immediately and Natural England contacted.

3.4 Breeding Birds

On Site Status

3.4.1 20 breeding bird species were recorded during the survey. A further ten species were recorded, but were believed not to be breeding. The bird community comprises mostly relatively common and widespread species typical of the habitats and features present. However, some of these species have experienced substantial declines.

3.4.2 Most records and probable breeding were associated with woody vegetation, including trees and hedges.

Legislative Protection

[4] CBA (2012). *Gatwick Stream Flood Attenuation Development: Environmental Appraisal Report*. Prepared for and on behalf of Gatwick Airport Ltd.

3.4.3 Birds are protected by four major pieces of legislation:

- EC Directive 79/409/EEC on the Conservation of Wild Birds 1979 ('the Birds Directive')
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended; 'the Habitats Regulations')
- The Wildlife and Countryside Act 1981 (WCA) (as amended)
- The Countryside and Rights of Way (CRoW) Act 2000

3.4.4 In the UK the provisions of the Birds Directive are implemented through the WCA and the Habitats Regulations. The WCA gives protection to all birds during the breeding season. Birds listed under Schedule 1 of the WCA are afforded protection at all times.

3.4.5 The CRoW Act strengthens aspects of the WCA, adding 'reckless' disturbance' of birds, including those listed under Schedule 1, during the breeding season is an offence.

3.4.6 No schedule 1 species were recorded during the survey and the habitats present are considered unlikely to support any such species.

Summary of Listings

3.4.7 The population status of bird species in the UK is identified in 'Birds of Conservation Concern'[5]. This categorises bird species into Red, Amber and Green lists using a number of criteria such as population size and trend.

3.4.8 Of the 20 breeding species recorded, one (song thrush *Turdus philomelos*) and starling *Sturnus vulgaris*), were considered to be breeding or possibly breeding within the proposed development site during 2012.

Biodiversity Action Plans

3.4.9 Two of the recorded species (song thrush and common bullfinch *Pyrrhula pyrrhula*) are listed in the UKBAP.

Mitigation Strategy

3.4.10 All tree felling and removal of hedgerows should, as far as possible, be conducted outside the bird breeding season. Natural England and RSPB guidelines suggest March to August inclusive as the period during which the majority of breeding bird activity takes place in the UK.

[5] Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD, 2009. Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp296–341.

However, breeding birds are protected irrespective of the time of year and certain species, such as collared dove and song thrush, will breed throughout the year if the conditions are suitable.

3.4.11 It is highly likely that some site clearance works will need to occur within the bird breeding season. Under these circumstances, a suitably qualified ecologist will attend site immediately prior to the work being undertaken. The ecologist will assess the site to determine whether there is evidence of bird breeding in the affected areas.

3.4.12 In the event that breeding birds are recorded within any affected area, a 20m (radius) exclusion will be established around individual nests in order to avoid disturbance. Nests will be periodically monitored by the ecologist to determine when breeding is complete. Breeding is deemed to be complete when the young have fledged and left the nest. Particular care must be taken to determine whether adults have commenced a second brood.

3.5 Non-native invasive plant species

On Site Status

3.5.1 Himalyan balsma *Impatiens glandulifera* is present along the banks of the Gatwick stream.

Legal Status

3.5.2 In the UK there are two main pieces of legislation that cover Japanese knotweed, Himalayan balsam and giant hogweed. These are:

- Wildlife and Countryside Act, 1981 (as amended). Listed under Schedule 9, Section 14 of the Act, it is an offence to "plant or otherwise cause the species to grow in the wild" (please note that since the last report was completed Himalayan balsam has now been included under Schedule 9 of the W & CA 1981); and
- Environmental Protection Act, 1990

3.5.3 An offence under the Wildlife and Countryside Act can result in a criminal prosecution. An infringement under the Environmental Protection Act can result in enforcement action being taken by the Environment Agency which can result in an unlimited fine. One can also be held liable for costs incurred from the spread of knotweed into adjacent properties and for the disposal of infested soil off site during development which later leads to the spread of knotweed onto another site.

Mitigation Strategy

3.5.4 The control and management of non-native invasive weed species is a specialist activity. As such, a specialist contractor, experienced in the management and disposal of invasive weed species would be appointed to develop a Site-specific eradication and control strategy. The specification for the control and management of Himalayan balsam is included as **Appendix 1**. On the basis of the specification the Contractor will prepare a plan that sets out the management of excavated soil contaminated with Himlayan balsam and vehicle movements to control the potential transfer of contaminated soil, plant material and/or seeds off-site. In brief, control measures to prevent the spread or transfer of plants, seeds or ground contaminated with seeds would include:

- Continued physical and chemical control;
- Barriers and other control measures to prevent material entering the river;
- Agreed controls on the movement and stockpiling of soils on the site;
- The appropriate disposal and waste transfer of contaminated materials off-site; and,
- Control measures such as wheel and/or jet washing and cleaning prior to the movement of vehicles off-site.

3.5.5 The implementation and monitoring of appropriate control measures to manage invasive weed species on site and to prevent their transfer off site would include ongoing monitoring for the presence or re-establishment of invasive weed species for the long-term operation of the Site.

3.6 Gatwick Stream

On Site Status

3.6.1 The Gatwick stream is a tributary of the River Mole, draining into the Thames basin. The stream within the LERL is limited in terms of its overall ecological quality. With respect to its macroinvertebrate community, the stream supports mainly 'very common' species.

3.5.2 The stream supports a total of 8 fish species:

- Bullhead
- Brown trout
- Chub
- Common Bream
- Dace
- Perch
- Three spine stickleback
- Stone loach

3.5.3 The fish community has a reasonable diversity, including brown trout, which are an indicator of both water and hydromorphological quality. The results of the survey also show that bullhead are actively recruiting (or have done so in the last year), again indicating that

conditions appear suitable for the on-going maintenance of those populations. Due to the low number of fish caught, including young of the year fish, this conclusion is tentative.

3.5.4 Overall a total of 12 macrophyte species were recorded, with water-pepper (*Persicaria hydropiper*), the bryophyte *Pellia endiviifolia* and and macroalgae with the greatest percentage cover of the surveyed sections of the stream.

Mitigation Strategy

3.5.5 The most significant threats to the status of the Gatwick stream are likely to arise during the construction process. It is important to protect the retained sections of the watercourse within the site, but to also ensure that the watercourse is protected to prevent it becoming a conduit for the transfer of pollutants, sediments and or oil spills, further downstream.

3.5.6 Prior to the commencement of construction, an Ecological Clerk of Works (ECoW) will be appointed to monitor construction work as it progresses. Prior to commencement, the ECoW will be responsible for providing the contractors a series of toolbox talks and briefings to ensure that everyone on site is informed and aware of potential ecological issues that could arise during construction works.

3.5.7 The construction area, including access and egress routes, all areas required for ancillary activities such as access and egress routes, storage, site cabins, turning areas, soil stockpiles etc. will be clearly delineated and established prior to the commencement of any works. These areas would be mown and/or strimmed of vegetation, prior to a topsoil strip and the laying down of a temporary surface. Where necessary, these working areas would be bunded in order to prevent slippage of material into the Gatwick stream.

3.5.8 All construction work will comply with industry standard good working practices. These practices will be set out in a Construction Management Plan (CMP) and will address the following issues:

- Construction working times (no works will be undertaken during evening or nigh times where lighting would be required);
- The use of machinery fitted with bog tracks or wheels, to reduce as far as possible, the effects of vibration;
- The safe storage and handling of fuel for machinery. This will include:
  - The proper use of bunded fuel tanks;
  - Designated (and where necessary, bunded) fueling areas;
  - The use of drip trays under machinery stored on site overnight;
- The provision of spill kits to deal with any leaks or spillages;
- The control and disposal of surface run-off following rain events;
- Periodic damping down during dry weather conditions to minimise dust generation;

- The battering of earth stockpiles, to prevent potential slippage into areas adjacent to the construction site and,
- Appropriate disposal of all waste materials generated during the construction works.

3.5.9 With respect to the ongoing operation of the scheme, the principal requirement will be to ensure the free passage of fish through the control structure at the downstream end of the realigned section of the Gatwick stream. Under normal flow conditions, fish will be able to swim freely up and down the course of the Gatwick stream as there would be no physical barriers preventing them from doing this. Under flood conditions, however, there will be free passage during flows up to 15 m^3sec^{-1} (approx the 1 in 50 year event). For inflows greater than 15 m^3sec^{-1}, a pair of sluice gates will progressively close to maintain the outflow from the control structure at 15 m^3sec^{-1} as the reservoir fills. Fish passage will still be possible in this situation, but the velocities will be increased.

3.5.10 In order to ensure that the realigned section of the Gatwick stream will provide suitable habitat for the fish population, a series of habitat enhancement measures are proposed relating to bankside and riparian planting, and physical modifications to the stream bed, including log weirs, riffle and pool sequences, and in-channel flow deflectors. These are discussed in further detail in **Section 4** below.

4.1 LANDSCAPE&ECOLOGICALENHANCEMENTS

4.2 Introduction

4.2.1 In addition to the mitigation measures to be carried out in relation to the construction of the new flood attenuation area a range of other management interventions will be delivered with the aim of enhancing the habitats and features present in the Site for a range of wildlife species.

4.2.2 Objectives and prescriptions for the relevant habitats and features are listed below.

4.3 Gatwick Stream – Realigned Section

4.3.1 The creation of new waterbodies in the vicinity of the airport's flight path is highly controlled, due to the risk of attracting flocking birds and consequent bird strikes. Additionally, a range of engineering requirements, to ensure that the stream operates within its design parameters (e.g. flows at which water begins to discharge into the flood attenuation area), also need to be taken into consideration. As such, opportunities for enhancing the realigned section of the Gatwick stream are constrained. Nevertheless, some interventions are possible in order to ensure that the realigned section is as 'naturalised' as possible and reflects the overall sinuous pattern of the existing watercourse. Enhancement opportunities are illustrated in **Figure 6**, (typical cross-sections).

4.3.2 **Objective 1**: Enhance the hydromorphological characteristics of the Gatwick stream through the design and installation of in-channel features designed to create irregular flow characteristics and aquatic habitat heterogeneity, which will help to support fish recruitment.

4.3.3 Prescription 1a. Install log weirs at intervals along the course of the channel to create pools and runs.

4.3.4 Prescription 1b. Install suitably sized riffle sequences to vary bed depth and water velocity within discrete sections of the watercourse.

4.3.5 Prescription 1c. Install in-channel, bankside log deflectors to aid the sinuous development of the stream channel. The deflectors will be securely pinned to the channel bottom/banks.

4.3.6 **Objective 2**. Enhance the riparian botanical diversity of the stream.

4.3.7 Prescription 2a. Undertake planting of a range of marginal and riparian plant species typical of the River Mole catchment. Examples are included in the table below:

Latin Name	English Name
Butomus umbellatus	Flowering rush
Caltha palustris	Marsh marigold
Cardamine pratensis	Cuckooflower
Carex acutiformis	Lesser pond sedge
Eupatorium cannabinum	Hemp agrimony
Filipendula ulmaria	Meadowsweet
Iris pseudacorus	Yellow flag
Juncus articulatus	Jointed rush
Juncus inflexus	Hard rush
Lychnis flos-cuculi	Ragged robin
Lycopus europaeus	Gypsywort
Mentha aquatic	Water mint
Myosotis scorpioides	Water forget-me-not
Petasites hybridus	Butterbur
Polygonum amphibium	Amphibious bistort
Ranunculus flammula	Lesser spearwort
Ranunculus sceleratus	Celery-leaved buttercup
Sagittaria latifolia	Arrowhead
Schoenoplectus lacustris	Common club rush
Sparganium emersum	Unbranched bur-reed
Sparganium erectum	Branched bur-reed
Veronica beccabunga	Brooklime

Prescription 2b. Augment the plug planting of marginal and riparian plug plants, listed in Prescription 2a by sowing a suitable seed mix, for example a mix that contains 20% native wildflower seed and 80% British wild grasses, such as the meadow mix supplied by, for example, Herbiseed.

4.3.8 Prescription 2c. Undertake new woodland planting, predominantly on the eastern bank of the realigned stream with a mix of willow species *Salix* spp., alder *Alnus glutinosa* and black poplar *Populus nigra.* Mixes of trees should be planted in irregular blocks to ensure that the future development of the canopy is uneven. Future rotational management of the trees, particularly the willow will help to create an uneven aged stand of trees which is beneficially both ecologically and from an aesthetic point of view.

4.4 Grassland Enhancement Areas

4.4.1 The grasslands within the proposed development site will be lost as a result of the excavation works. However, these grasslands are currently considered to be relatively species poor, therefore the opportunity to enhance the floral diversity of the fields will be taken when the ground is reinstated and reseeded for its restoration to grazing pasture.

4.4.2 The reinstated land will be hydroseeded, as this is likely to offer the most appropriate method for quickly establishing a new grassland sward, both in terms of germination times, and also in reducing the availability of seed which may attract flocking birds.

4.4.3 Seed mix composition would reflect the underlying clay geology and may be similar in composition to the commercial mixes offered by suppliers such as Emorsgate seeds (e.g. mixes EM3 or EM4). If a seed mix could be sourced from a closer supplier such as the Weald Meadow Initiative, then this would be preferable.

4.4.4 **Objective 3** Increase the species richness of the grasslands adjoining the Gatwick Stream.

4.4.5 Prescription 3a. Sow an appropriate seed mix, such as those described above, by hydroseeding.

Appoint a suitably qualified contractor to undertake this work.

4.4.6 Prescriptions 3b. Control bulky and invasive weeds, including creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, broadleaved dock *Rumex obtusifolius* and curled dock *Rumex crispus*, by repeated spot spraying using an appropriate herbicide during the establishment of the new sward.

4.4.7 Prescription 3c. Allow the sward to establish and develop prior to reintroducing cattle to the fields. Establishment may take 2-3 years, in which case it may be necessary to mechanically top the sward during the summer. If this is necessary, undertake any works using a machine fitted with bog tracks or low pressure tyres to prevent compaction of the ground, as this will inhibit germination by some species and will lead to the long term creation of areas of bare ground. Additionally, the use of heavy machinery may also result in the creation of depressions which may develop into ephemeral ponds, which needs to be avoided in order to prevent the risk of attracting waterfowl to the site.

4.4.8 Prescription 3d. In subsequent years the grassland should be managed as pasture in the first instance, with the possible introduction of hay meadow management in future years, subject to the views of Gatwick Safeguarding. These two approaches could be combined with some fields

managed as hay meadow and some as pasture and this could be rotated from year to year, with some compartments grazed, and others mechanically cut periodically.

4.4.9 In the immediate future, however, the fields should be managed as pasture grazing which should be at a sufficiently low intensity to allow some flowering and seeding to take place. Alternatively, grazing could be relaxed for periods of about eight weeks during spring/summer to allow this to happen. Ideally, the fields should be grazed with a relatively docile breed of cattle, such as longhorns.

4.4.10 Prescription 3e. Continue control of bulky and invasive weeds by spot spraying with an appropriate herbicide as required.

4.5 Gatwick Stream

4.5.1 The Gatwick Stream appears to be relatively unmodified and adds a significant element of habitat diversity to the area which is of value to a range of wildlife species. However, some parts of the channel and banks do appear to have been disturbed and the invasive alien plant species Himalayan balsam *Impatiens glandulifera* is present on the banks.

4.5.2 **Objective 4**. Enhance the Gatwick Stream and its features of interest.

4.5.3 Prescription 4a. Explore opportunities for re-profiling parts of the stream banks, for example to create bays or backwaters and to enable access, for example for educational activities. Areas of disturbed bank should be targeted for any such re-profiling and areas supporting a flora characteristic of relatively long periods free from disturbance, such as stands of bluebell and/or ramsons *Allium ursinum*, should be avoided.

4.5.4 Prescription 4b. Install 2 brush wood or log weirs, and 4 sets of in-channel deflectors at suitable locations in the channel, for example using logs, within the channel of the stream to diversify flow characteristics.

4.5.5 Prescription 4c. Lightly thin (20-30%) areas supporting woody vegetation. As far as possible and compatible with other objectives retain all mature trees and their characteristic features, including dead wood, cracks and cavities, and all standing and fallen dead wood.

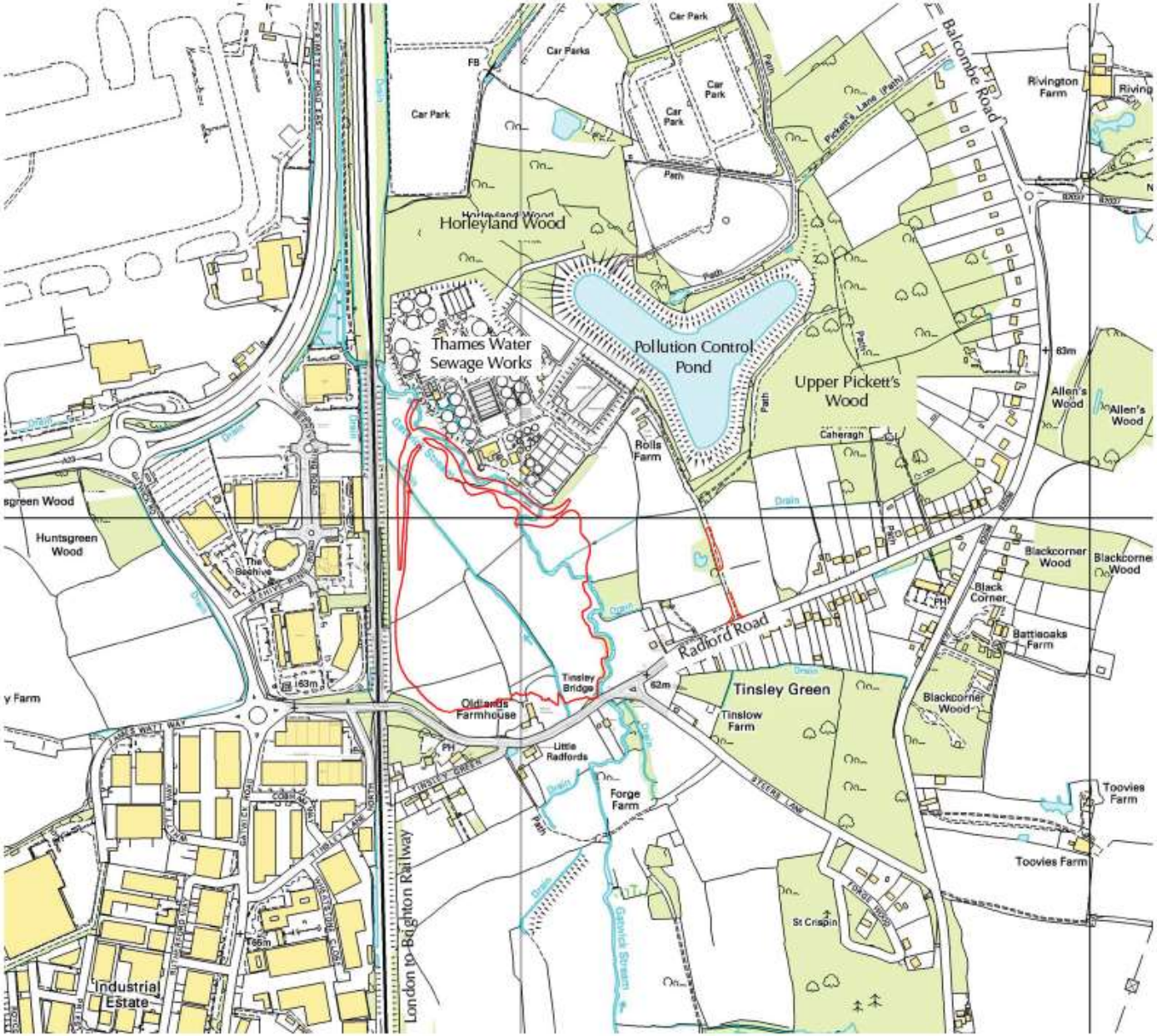
4.5.6 Prescription 4d. Control Himalayan balsam through regular strimming and/or hand pulling before flowering and seed set.

5.0 ACCESS ENHANCEMENTS

5.1.1 There are no public footpaths within the site although there is a long-term plan, agreed as part of an earlier planning application (Ref CR/2011/0620/FUL), to connect FP360/1Sy (east of the STW access road) to FP3377 (south of Radford Road) via a wooden footbridge over the Gatwick Stream (See **Figure 3**). This connection will be implemented as part of the flood attenuation development

5.1.2 One landscape enhancement measure, to be taken forward as part of these proposed works, will be to connect the existing footpath network to the north of the STW in Horleyland Wood (including FP360Sy) with the existing public footpath (FP3377) that terminates on the southern edge of Radford Road. This new route will initially head south-eastwards from Horleyland Wood along a narrow corridor of land between the STW and the existing pollution lagoon before heading south-westwards through the attenuation area to join the northern edge of Radford Road.

5.1.3 This new connection would be a significant enhancement in the opportunities for people to access the countryside for both recreational enjoyment and for health benefits.



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environment landscape planning

November 2012

GATWICK STREAM FLOOD ATTENUATION DEVELOPMENT
Gatwick Airport Ltd

FIGURE No 1
SITE LOCATION PLAN

Issue 2: Whether the policies for environmental protection, open space and sustainable construction are proportionate, robust and consistent with NPPF.

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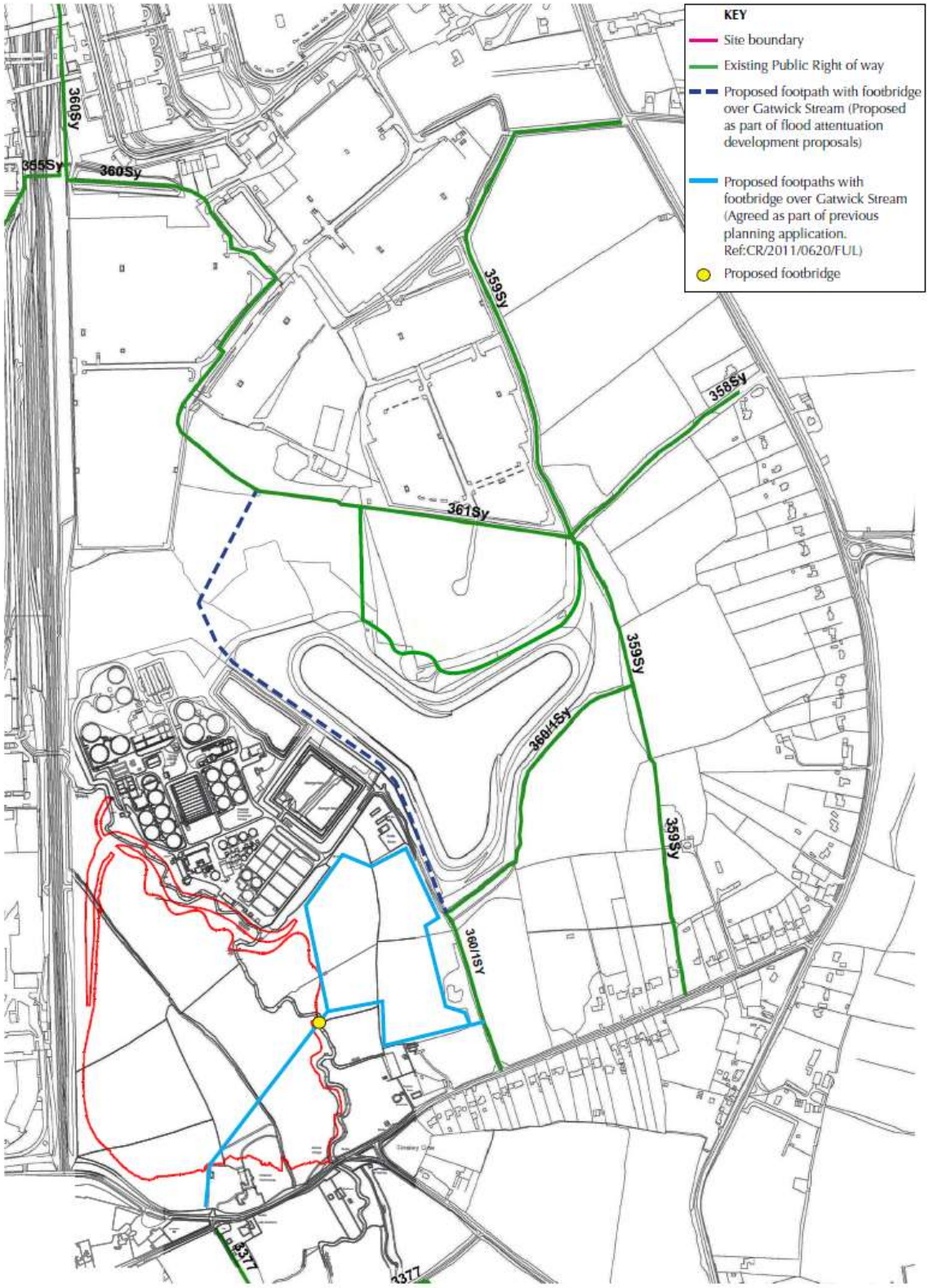
GATWICK STREAM FLOOD ATTENUATION DEVELOPMENT
Gatwick Airport Ltd

FIGURE No 2
AERIAL PHOTOGRAPH



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GATWICK STREAM FLOOD ATTENUATION DEVELOPMENT
Gatwick Airport Ltd

FIGURE No 3
EXISTING AND PROPOSED PATHS

February 2013

Key

H8-15 Hedgerow Number

Important Hedgerow
Yes
No

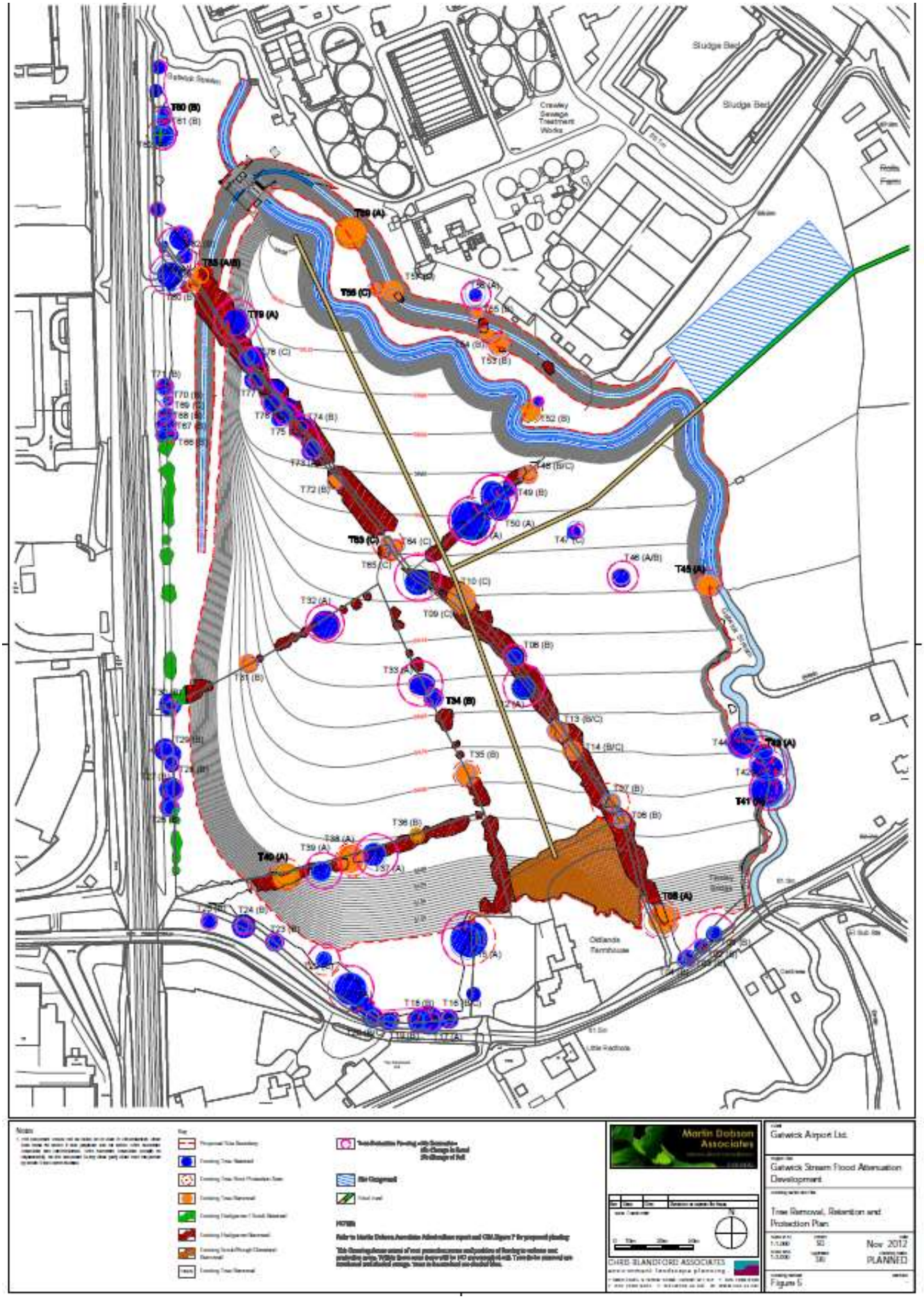
CHRIS BLANDFORD ASSOCIATES
environment landscape planning

GATWICK FLOOD STORAGE SCHEME
HEDGEROW SURVEY

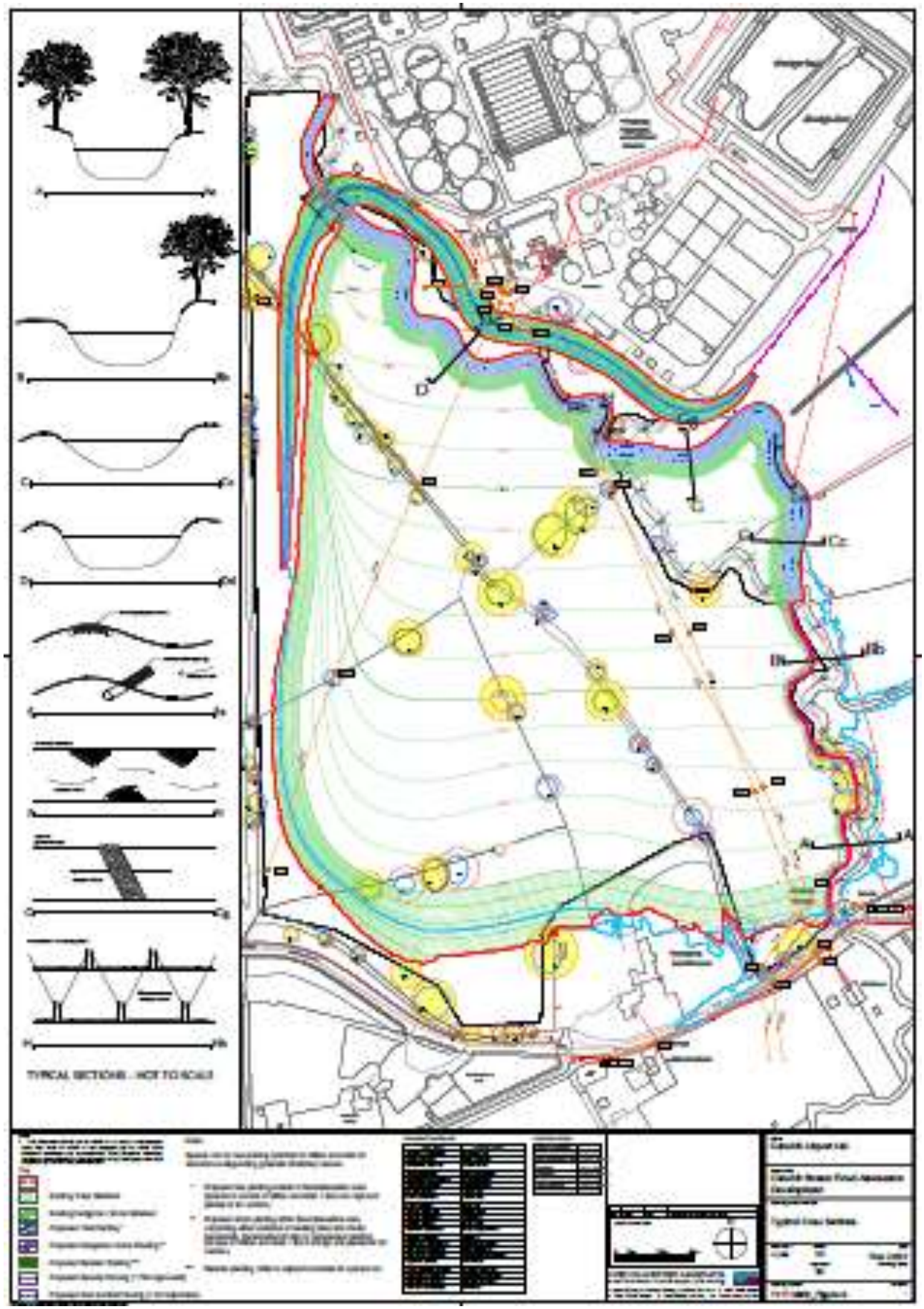
FIGURE 4
Location and status of hedgerows on site

AUGUST 2012

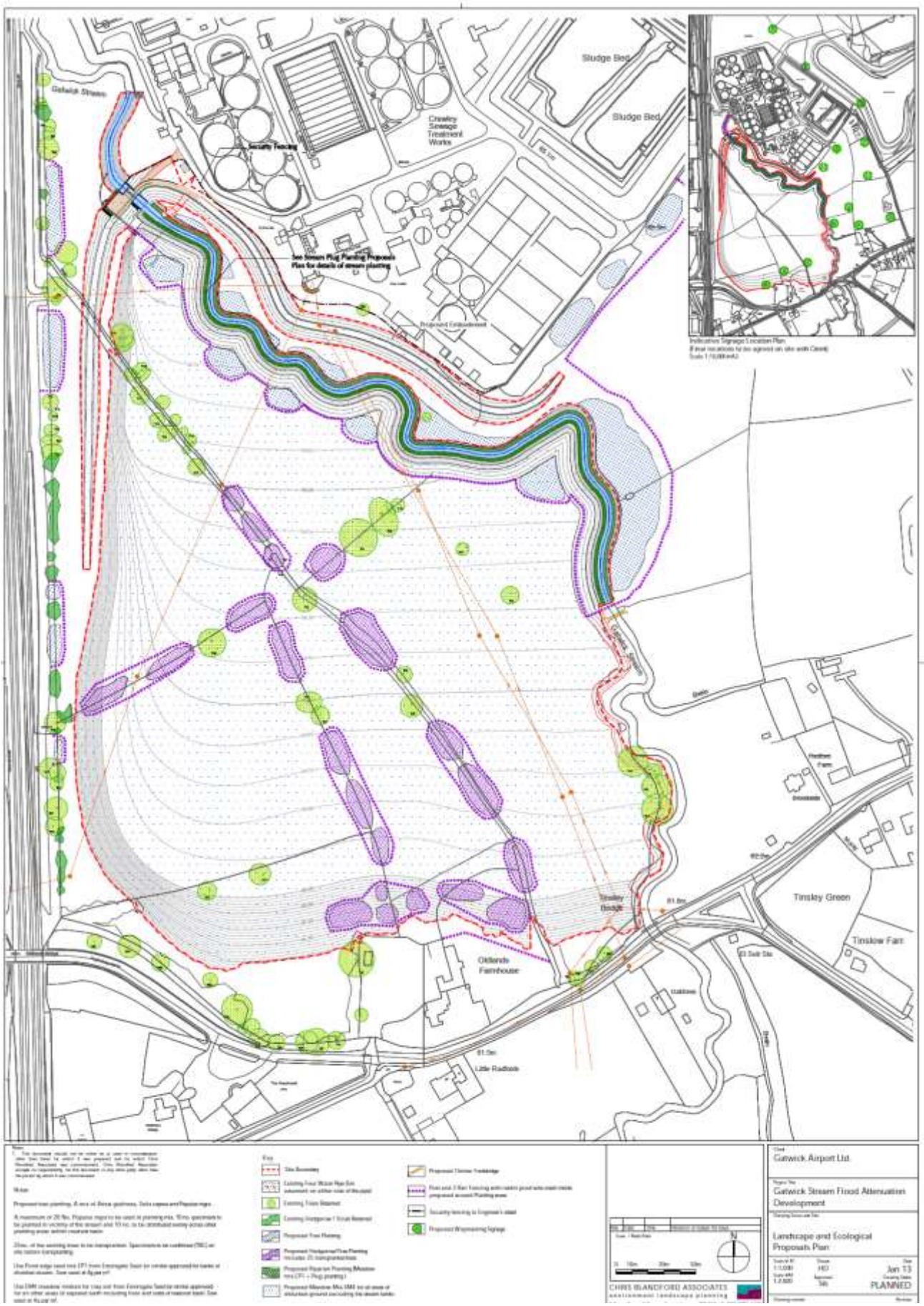
Issue 2: Whether the policies for environmental protection, open space and sustainable construction are proportionate, robust and consistent with NPPF.



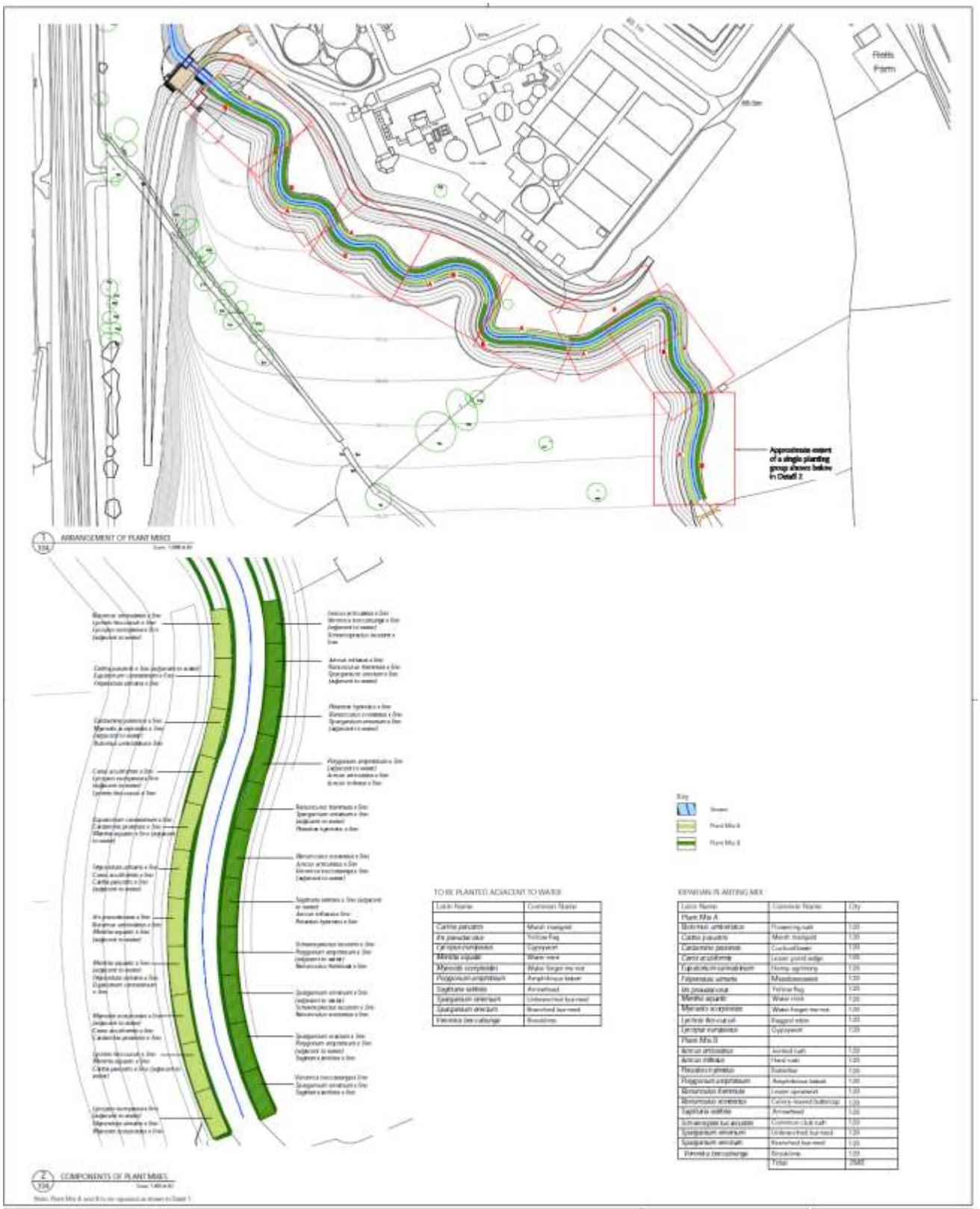
Issue 2: Whether the policies for environmental protection, open space and sustainable construction are proportionate, robust and consistent with NPPF.



Issue 2: Whether the policies for environmental protection, open space and sustainable construction are proportionate, robust and consistent with NPPF.



Issue 2: Whether the policies for environmental protection, open space and sustainable construction are proportionate, robust and consistent with NPPF.



APPENDIX F: PROPOSED POLICY ENV4: OPEN SPACE, SPORT AND RECREATION MAIN MODIFICATION

LOCAL PLAN MARKED-UP MODIFICATIONS EXTRACT:

Policy ENV4: Open Space, Sport and Recreation

Proposals that remove or affect the continued use of existing open space, sport and recreational spaces will not be permitted unless:

a) An assessment of the needs for open space, sport and recreation clearly show the site to be surplus to requirements; or

b) The loss resulting from the proposed development would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location; or

c) The development is for alternative sports and recreational provision, the needs for which clearly outweigh the loss.~~; and~~

Whilst a site may be surplus to requirements as open space it may still be of environmental or cultural value; or the site's development may have an unacceptable visual or amenity impact, or adversely affect its wider green infrastructure functions, including for climate change mitigation. Applicants should also carefully consider the character and environment policies in the plan.

~~Loss of the site will not result in overriding visual, amenity, environmental or cultural impacts. Sites which have significant nature conservation, historical or cultural value should be afforded protection, even if identified as surplus to requirements as open space for recreation.~~

APPENDIX G: PROPOSED POLICY ENV6: SUSTAINABLE DESIGN AND CONSTRUCTION MAIN MODIFICATION

LOCAL PLAN MARKED-UP MODIFICATIONS EXTRACT:

Policy ENV6: Sustainable Design and Construction

Proposals for new dwellings should as a minimum meet Code for Sustainable Homes Level 3, ~~and~~ until these are superseded by any requirements arising from adoption of Nationally Described Standards, including any subsequent improvements to Building Regulations.

Proposals for new non-domestic buildings should work towards achieving ~~adhere to~~ BREEAM Excellent (for water and energy credits) where technically and financially viable.

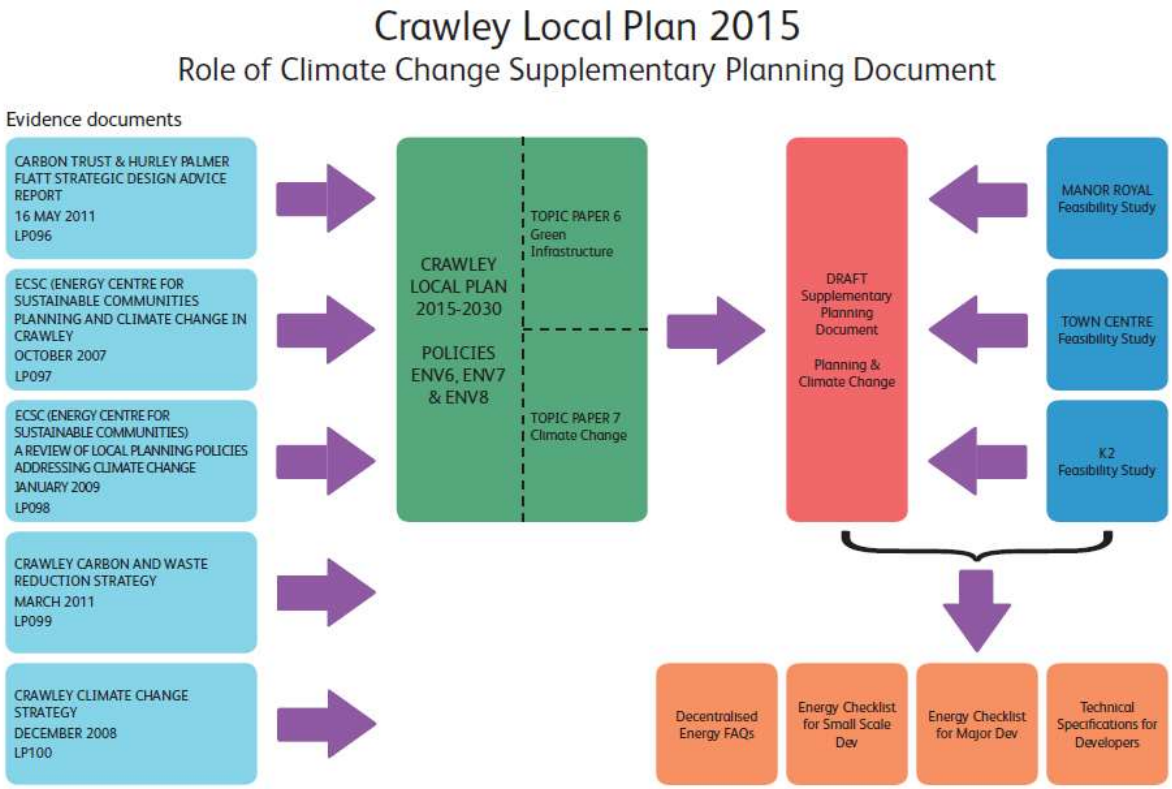
All development, including the alteration and extension of existing buildings, should achieve the following sustainability objectives:

i. Take an active approach to reducing its need to consume energy;
ii. Tackle the serious water stress in the borough (see Policy ENV9);
iii. Support the establishment and integration of district energy networks within heat priority areas or near potential sources of waste energy (see Policy ENV7);
iv. Utilise renewable and low carbon energy technologies where appropriate;
v. Look at ways to improve the existing building when adding improvements or extensions;
vi. Minimise the amount of carbon emitted throughout the implementation and construction process and ensure any existing embedded carbon onsite is retained;
vii. Cope with future temperature extremes, and ensure it does not unduly increase the impact of heatwave events.

All development involving the creation of a new dwelling or the creation, change of use, or refurbishment of over 100sqm of internal floorspace should submit a Sustainability Statement demonstrating how the sustainability objectives above have been achieved during the design process, or will be achieved during the construction process.

Further details on how these objectives can be achieved can be found in the Planning and Climate Change SPD.

APPENDIX H: CBC CLIMATE CHANGE POLICY FLOW CHART



APPENDIX I: PROPOSED POLICY ENV7: DISTRICT ENERGY NETWORKS MAIN MODIFICATION

LOCAL PLAN MARKED-UP MODIFICATIONS EXTRACT:

Policy ENV7: District Energy Networks

The development of district energy networks and associated infrastructure is encouraged and should be approved unless it results in significant adverse impacts on the environs.

Priority areas for the delivery of District Energy Networks are identified on the Local Plan Map.

Any major development within the borough, ~~that is located outside a priority area for district energy networks~~ and all development proposals within a priority area for District Energy Networks that would involve the creation of one or more new dwellings or the creation of over 1000sqm of internal floorspace should, where technically and financially viable, demonstrate how they have considered the following hierarchy:

i. ~~all development should,~~ where a network is in place in the immediate area: connect to an existing District Energy Network; or

ii. where a network is not yet in place:

a) development should consider developing its own system for supplying energy to any surrounding existing or planned buildings. ~~install a new district heating and/or cooling network serving the development and be capable of serving a wider area.~~ Any system installed should be compatible with a wider district energy network and developments should ensure that connection to a wider network is ~~not compromised by poor~~ facilitated in the future through good design ~~or~~ and site layout.~~; or~~

b) or include the incorporation of site-wide communal energy systems ~~to serve all demand;~~

~~iii.~~ c) or be "network ready", optimally designed to connect to a District Energy Network on construction or at some point after construction, ~~where a network is not yet in place, and where development cannot comply with the requirements above as it is not technically feasible or viable, by virtue of the type of development proposed and its design, then the development should as a minimum requirement be "network ready".~~

All development subject to the requirements of Policy ENV7, including justification of any exceptional circumstances, must be supported through the submission of a sustainability statement in compliance with the Planning and Climate Change SPD.

APPENDIX J: Status report on Crawley Heat Network projects

Network name	K2 Crawley	Town Centre	Manor Royal & County Oak
High level study	Completed	Completed	Completed
Funding for detailed feasibility	Obtained	Obtained	HDNU application being considered (March ’15)
Detailed feasibility	Completed	Due March ‘15	Not yet underway
Business case & model determined	Completed	Oct ‘15	Tbc
Heat customers	Phase 1 - confirmed	Mar ‘16	Tbc
Capital funding	Confirmed	Mar ‘16	Tbc
Procurement	Phase 1 - March ‘15	Jun ‘16	Tbc
Implementation	Phase 1 – September ‘15	Dec ‘16	Tbc

APPENDIX K: STATEMENT OF COMMON GROUND BETWEEN CRAWLEY BOROUGH COUNCIL AND HORSHAM DISTRICT COUNCIL ON CLIMATE CHANGE AND RENEWABLE ENERGY

Position Statement between Horsham District Council and Crawley Borough Council on Climate Change and Renewable Energy

February 2015

This Statement sets out the joint position on Climate Change and Renewable Energy as agreed by Horsham District Council (HDC) and Crawley Borough Council (CBC).

The policies on climate change, renewable energy and sustainable construction contained within the Horsham District Planning Framework (HDPF) and Crawley 2030 Local Plan are justified and consistent with national policy set in the National Planning Policy Framework (NPPF).

Paragraph 97 of the NPPF requires local planning authorities to design policies to 'maximise renewable and low carbon energy development' and to 'consider identifying suitable areas for renewable and low carbon energy'. CBC and HDC have done this through their respective energy policies by requiring developments to use less energy and by identifying priority areas for the delivery of district energy networks/ heat priority areas.

Policy 34 of the Horsham District Planning Framework and Policy ENV6 of the Crawley 2030 Local Plan encourage developments to include measures which reduce energy consumption and adapt to the impacts of climate change. Each of these policies supports the use of decentralised, renewable and low carbon energy supply where appropriate.

Policy 35 of the HDPF and Policy ENV7 of the Crawley 2030 Local Plan, take this requirement one stage further by identifying district heating networks as the most sustainable form of energy production and identifying areas where connection to this source of energy should be considered. In Horsham District these areas are defined as 'Heat Priority Areas or strategic development locations' and in Crawley Borough these include 'priority areas for the delivery of district energy networks.'

Both policies use a hierarchical approach to provide flexibility to development where connection to a district heating network may not be possible. Each hierarchy places connection to an existing network as the most appropriate with alternative options where connection is not technically feasible or viable lower down the hierarchy.

Evidence

The policies contained in the HDPF and Crawley 2030 Local Plan were based on local evidence undertaken by expert consultants in the energy field.

The West Sussex Sustainable Energy Study, 2009 supporting the HDPF was commissioned by five local authorities in West Sussex (including HDC) to provide an evidence base for the development of policies to "encourage reduced energy consumption and carbon emissions from buildings and greater sustainable energy generations". The study was carried out by the Centre for Sustainable Energy in conjunction with Impetus Consulting and Land Use Consulting.

Issue 2: Whether the policies for environmental protection, open space and sustainable construction are proportionate, robust and consistent with NPPF.

A detailed assessment of renewable energy resources was undertaken for each local authority covering heat and electricity generating technology. The study concluded that although onshore wind could make a significant contribution to the renewable energy mix of the Horsham District, opportunities were restricted by the significant number of suitable sites with sensitivity to landscape character. The report concluded that given the rural nature of the District, the focus for new development should be on heat from biomass, solar hot water and heat pumps, and small scale electricity generation from photovoltaic panels.

Crawley Borough Council did not participate in the 2009 West Sussex Sustainable Energy study as it was already engaged in its own assessment of opportunities and technologies for renewable energy within Crawley Borough and this study was further advanced at the time. The 2007 Energy Centre for Sustainable Communities study confirmed Crawley's early approach and was expanded upon by a 2011 Decentralised Energy study undertaken by HurleyPalmerFlatt. Whilst the evidence base behind each authority's policies was from a different source, there was a continual dialogue and exchange of information between the authorities as the policy frameworks were developed. An updated WSCC Renewable Energy study undertaken in 2013, which did include Crawley, subsequently re-confirmed and supported the findings of the CBC's earlier work.

Both councils have worked with The Carbon Trust on the development of their respective policies and approaches to decentralised energy. The Carbon Trust is a world leading organisation that helps businesses, governments and the public sector to accelerate the move to a sustainable, low carbon economy through carbon reduction, energy saving strategies and commercialising low carbon technology.

Signed Diana Maughan 23rd February 2015 Crawley Borough Council

Signed Barbara Childs 23rd February 2015 Horsham District Council

APPENDIX L: STATEMENT OF COMMON GROUND BETWEEN CRAWLEY BOROUGH COUNCIL AND ENVIRONMENT AGENCY

STATEMENT OF COMMON GROUND BETWEEN CRAWLEY BOROUGH COUNCIL AND THE ENVIRONMENT AGENCY

CRAWLEY BOROUGH LOCAL PLAN EXAMINATION

Introduction

This Statement of Common Ground has been prepared and agreed on a joint basis by Crawley Borough Council (CBC) and the Environment Agency (EA). CBC and the EA have worked jointly throughout the Local Plan process to prepare a robust evidence base, including the Gatwick Sub Region Water Cycle Study and Crawley Borough Strategic Flood Risk Assessment, and in the evolution of environment policies.

This Statement of Common Ground focuses on Local Plan Policies ENV6 (Sustainable Design and Construction), ENV8 (Development and Flood Risk) and ENV9 (Tackling Water Stress). These policies have been developed on a joint basis by CBC and the EA, and are considered to be sound.

ENV6 (Sustainable Design and Construction)

CBC and EA agree that:

- The Policy approach, as proposed to be modified, is appropriate, recognising the forthcoming amendments to the Building Regulations, and providing interim guidance to ensure that developers are provided with a clear steer until such time that the policy is superseded by the adoption of Nationally Described Standards.

- The proposed BREEAM Excellent standard for nondomestic buildings is justified by evidence, particularly given that Crawley is recognised as a water stressed area. The policy is considered to have full regard to viability and technical feasibility.

- The wording of Policy ENV6 is not unnecessarily prescriptive. It provides a clear policy steer until such time that new regulations are introduced, whilst allowing flexibility for developers to demonstrate how they have considered the criteria as part of the development process.

ENV8 (Development and Flood Risk)

CBC and EA agree that:

- Policy ENV8 is consistent with NPPF paragraphs 94, 100 and 103, and Section 21 (paragraph 50) of the NPPF Planning Practice Guidance, in proactively seeking to manage and address flood risk from all sources.

- The proposed modification to Policy ENV8 is consistent with Section 21 paragraphs 51 and 52 of the NPPF Planning Practice Guidance, prioritising the use of Sustainable Drainage Systems as a means to mitigate the causes and

impacts of flooding, whilst providing flexibility to assist the viability and deliverability of development.

- CBC and EA will continue positive joint working to consider surface water flooding in further detail through the Planning and Climate Change Supplementary Planning Document.

ENV9 (Tackling Water Stress)

CBC and EA agree that:

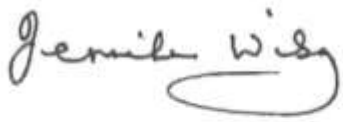
- The provisions of Policy ENV9 are consistent with current national planning policy, specifically reflecting to NPPF sections 94, 99 and 109.

- The policy approach responds to the serious water stress affecting Crawley and the wider region, and pro-actively seeks to address this through requiring that the minimum national standard is exceeded.

- The Policy ENV9 provisions are demonstrated to be viable by robust evidence, and provide sufficient flexibility allowing developers to show how they will address the policy requirements without prescribing specific technologies or approaches.

- The approach provides appropriate guidance for developers until such time as the new national Regulations are adopted.

Diana Maughan, Head of Strategic Planning and Housing, Crawley Borough Council



Jennifer Wilson, Planning Specialist, Environment Agency

Crawley Borough Council and Environment Agency
26 February 2015

End of Statement

APPENDIX M: PROPOSED POLICY ENV11: DEVELOPMENT AND NOISE MAIN MODIFICATION

LOCAL PLAN MARKED-UP MODIFICATIONS EXTRACT:

Policy ENV11: Development and Noise

People's quality of life will be protected from unacceptable noise impacts by managing the relationship between noise sensitive development and noise sources. To achieve this, Policy ENV11 should be read in conjunction with the Local Plan Noise Annex.

A. Noise Sensitive Development
Residential and other noise sensitive development will be permitted where it can be demonstrated that users of the development will not be exposed to unacceptable noise disturbance from existing or planned uses.

~~*i. Noise sensitive development affected by noise from transport sources:*~~
Noise sensitive uses proposed in areas that are exposed to significant noise from existing or future industrial, commercial or transport (air, road, rail and mixed ~~sources~~) sources will be permitted where it can be demonstrated that appropriate ~~through~~ mitigation, through careful planning, layout and design, will be undertaken to ensure that the noise impact for future users will be made acceptable. Proposals that would expose future users of the development to unacceptable noise levels will not be permitted. ~~future users will not be exposed to an unacceptable noise impact. Levels set out in the Local Plan Noise Annex will establish if the proposal is acceptable in noise impact terms.~~

~~ii. *Noise sensitive development affected by industrial or commercial noise sources:*~~
~~Noise sensitive uses proposed in areas that are exposed to noise from existing or planned industrial or commercial sources will be permitted where it can be demonstrated that, through careful planning, layout and design, the noise impact for future users will be made acceptable. future users will not be exposed to an unacceptable noise impact that would result in creation of a statutory nuisance. Proposals that would expose future users of the development to unacceptable noise levels will not be permitted. The Local Plan Noise Annex will establish if the proposal is acceptable in noise impact terms.~~

B. Noise Generating Development
Noise generating development will only be permitted where is can be demonstrated that ~~any~~ nearby noise sensitive uses (as existing or planned) will not be exposed to noise impact that will adversely affect the amenity of existing and future users ~~of surrounding noise sensitive premises.~~ Proposals will adhere to standards identified in the Local Plan Noise Annex to establish if the proposal is acceptable in noise impact terms, and will be required to appropriately mitigate noise impacts through careful planning, layout and design. Development that would expose users of noise sensitive uses to unacceptable noise levels will not be permitted.

C. Noise Impact Assessment
A Noise Impact Assessment will be required to support applications where noise sensitive uses are likely to be exposed to significant or unacceptable noise exposure. The Noise Impact Assessment will:

i. assess the impact of the proposal as a noise receptor or generator as appropriate; and

ii. demonstrate in full how the development will be designed, located, and controlled to mitigate the impact of noise on health and quality of life, neighbouring properties, and the surrounding area.

In preparing a Noise Impact Assessment, applicants will adhere to Planning Noise Advice Document: Sussex (2013) for further guidance.

D. Mitigating Noise Impact

Where proposals are identified as being subject to significant or unacceptable noise impact, either through noise exposure or generation, the best practical means ~~of mitigation~~ must be employed to mitigate noise impact to an ~~appropriate~~ acceptable level. ~~Proposals that do not appropriately mitigate against unacceptable noise impact through the design and planning process will be refused.~~