

South Humber Gateway Ecological Mitigation

North East Lincolnshire Delivery Plan

January 2019

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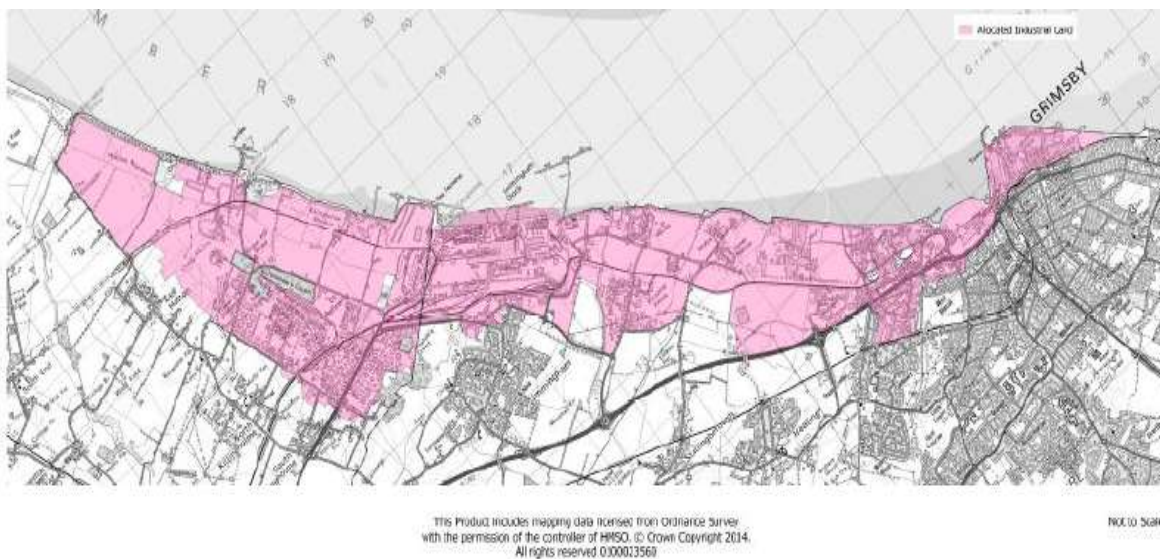
1.0 Executive Summary

- 1.1 The South Humber Gateway (SHG) is located on the south bank of the Humber estuary in northern Lincolnshire. Covering an area of approximately 1,000 hectares it represents one of the largest potential development areas in the UK. In recent years there has been significant development interest in the area particularly from the emerging renewable energy industry on the Humber.
- 1.2 The area is immediately adjacent to the Humber Estuary which is recognised for its importance for wildlife at both national and international levels. The Humber Estuary is designated as a Special Area of Conservation, a Special Protection Area, a Ramsar site and a Site of Special Scientific Interest. These designations mean that great care is required when undertaking works which may result in negative impacts on the wildlife interest features of the Estuary. A potential conflict therefore exists between the need to develop the South Humber Gateway's economic potential for the benefit of the national economy and the legal obligation to ensure that its wildlife is protected.
- 1.3 This document sets out a mechanism which will resolve the potential conflicts within the South Humber Gateway. In addition to providing details on the background to the strategy and the principles upon which it is founded, it seeks to identify the preferred mitigation sites for the North East Lincolnshire area, the proposals associated with them, and provide details of the approach to their implementation and delivery. Proposals for delivery within North Lincolnshire have been prepared separately.

2.0 The Strategy

Context

2.1 The South Humber Gateway (SHG) (Map 1) stretches from the outskirts of Grimsby to the East Halton Skitter on the South Bank of the Humber Estuary. Straddling the boundaries of North Lincolnshire and North East Lincolnshire Councils, the SHG is one of the most exciting strategic development locations in the UK. Covering almost 1,000 hectares of development land it is attracting significant global interest and unprecedented levels of investment. Major investments under way or planned are estimated to be worth almost £2billion. If all goes to plan, upwards of 15,000 new quality jobs will be created by 2020. The SHG already provides 27 per cent of the UK's refinery capacity and is home to the UK's busiest ports complex and one of the world's largest Combined Heat and Power (CHP) plants. Together with its sister Port of Grimsby, Immingham is the UK's largest port by tonnage.



Map 1 South Humber Gateway

2.2 At the same time an estimated 175,000 birds visit the estuary every winter, the Humber is one of the top six estuaries for migratory birds in the UK and one of the top ten in Europe. The estuary forms an essential link in a chain of wetland sites creating what is known as the East Atlantic Flyway, stretching from the Arctic Circle to southern Europe and Africa, via the estuaries of North West Europe. The Humber

supports internationally important populations of a number of bird species (containing more than one per cent of the relevant biogeographic non-breeding population) which are attracted by the plentiful food supplies of the salt-marsh and mudflats; often moving inland to roost and feed. In recognition of its value for biodiversity the Humber Estuary has been designated for its national, European and international importance. The Humber Estuary and the populations of wild birds it supports are afforded special protection being designated at national and international levels. The estuary includes several Sites of Special Scientific Interest (SSSI) and is designated as a Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site. As such, the estuary and its special features are covered by The Conservation of Habitats and Species Regulations 2017 (the “Habitats Regulations”) (SI No. 2017/1012) as amended.

- 2.3 A significant amount of effort has been expended on establishing the fact that large numbers of SPA birds rely upon terrestrial areas adjacent to the estuary for roosting, loafing and foraging especially at high tide. A suite of ecological surveys funded by the former regional development agency, Yorkshire Forward, North and North East Lincolnshire Councils, the Environment Agency and the RSPB and managed by the Humber Nature Partnership has established that these areas are of functional importance to the conservation of the SPA/Ramsar bird populations. Details of wintering and migratory wader surveys carried out to date are included in Box 1.

Box 1. South Humber Gateway wintering and migratory bird surveys

- North Lincolnshire (allocated land) – January 07 – March 07. Weekly surveys on a field by field basis by Nyctea Consultants. Attached to this there were further targeted surveys during April 07 and May 07 to identify field usage by passage curlew, ruff and whimbrel.
- North Lincolnshire (allocated land) – July 07 – March 08. Weekly surveys on a field by field basis by Nyctea Consultants.
- North East Lincolnshire (allocated land plus additional area both North and South of A180) – November 2007 – March 2007. Weekly surveys on a field by field basis by IECS.
- North East Lincolnshire (allocated land plus additional land both North and South of A80) – late July 2008 – November 2008. Weekly surveys on a field by field basis by Nyctea Consultants.
- North Lincolnshire (north and west of East Halton Skitter) – Jan 2009 – Mar 2009. Weekly surveys on a field by field basis by Nyctea Consultants.
- North Lincolnshire (north and west of East Halton Skitter) – August 2009 – March 2010. Weekly surveys on a field by field basis by Nyctea Consultants.
- Entire area (allocated land within North and North East Lincolnshire and area north and west of East Halton Skitter) – August 2010 – March 2011. Weekly surveys on a field by field basis by Nyctea Consultants.

Box 1. South Humber Gateway wintering and migratory bird surveys

2.4 Much of the early survey information was used by consultants to carry out a field-by-field study of usage of the South Humber Gateway by waterbirds at that time (Mott Macdonald 2009). Fields that had supported at least 1% of the Humber population of given waterbird species on at least one survey visit were flagged as being potentially important in supporting the waterbird assemblage of the Humber Estuary SPA. 454 hectares of such fields were identified across the SHG in North and North East Lincolnshire. However this resource was clearly highly variable, with some fields only being used on a few occasions, and other fields being used regularly by significant numbers of one or more species. More birds are concentrated on sites adjacent to the estuary than in fields further away. Habitats used varied from arable crops that might only be used at certain stages of growth or vegetation height to areas of permanent pasture that might be used more predictably from year to year.

- 2.5 The development of all or most of the SHG area is considered likely to lead to a significant loss of this supporting terrestrial habitat and it is not possible to conclude that an adverse effect on the integrity of the SPA will be avoided. The *Conservation of Habitats and Species Regulations 2017* require that appropriate mitigation must be provided to offset the loss of habitat used by SPA/Ramsar waterbirds. These mitigation measures must be in place prior to planning permission being supported.
- 2.6 It was determined that the most effective course of action in the SHG was to identify large areas of land which can be used to mitigate against the loss of land currently used by waders. In order to deliver this strategic mitigation, a South Humber Gateway Ecology Group was formed comprising local authorities, landowners and both statutory and non-statutory conservation bodies.
- 2.7 A Memorandum of Understanding (MOU) was prepared and signed by each of the parties within the SHG Ecology Group in June 2010. This demonstrated the commitment of all parties to cooperative working to the production, adoption and implementation of a framework to address the ecological and economical demands upon the Estuary. The signatories agreed to a strategic approach to delivery, believing this to be more preferable to piecemeal implementation and that positively planning reduces ad hoc loss, and speeds decision making. The objectives for the approach identified are detailed in Box 2.

Box 2. Objectives for Strategic Mitigation Approach

- To identify strategic conservation mitigation options through an agreed Delivery Plan, which will form part of the Local Development Frameworks for both North Lincolnshire and North East Lincolnshire Council.
- To ensure that the Delivery Plan and the emerging LDFs comply with the Habitat Regulations and are subject to the relevant Regulations 61,62 and 66
- To examine the need and nature of Strategic Environmental Assessment for the LDFs
- To acknowledge that both the LDF and Delivery Plan for strategic mitigation will be delivered over a period of time and work together to establish these timescales with agreement over what will need to be delivered to meet environmental requirements.
- To identify implementation and financial mechanisms for utilising the strategic mitigation that provide a clear process for development to address the issue of direct land take of areas used by SPA and Ramsar birds within the SHG
- To ensure the Delivery Plan takes into account the implementation of the approved Humber Estuary Flood Risk Management Strategy and subsequent reviews, recognising that there are intertidal issues
- To agree that mitigation areas identified by the Delivery Plan and associated LDF
- Allocations documents will be delivered both within the SHG Employment Allocation zone and in close proximity outside this zone, as currently adopted.
- To meet the requirements of PPS9 to build in biodiversity to all developments.
- To examine and agree the evidence base to support the development and implementation of the Delivery Plan, including Identifying the location and extent of existing critical land areas for avifauna – identified through bird survey work.
- To agree the area where the Delivery Plan will operate, supported by an agreed evidence base, including optimal management guidelines and basic design principles to ensure that mitigation areas function appropriately
- To agree the basis for the ownership and management of mitigation sites, how contributions are worked out and methods of making contributions (S106 agreements/CIL etc.) as well as how they will be used and how mitigation sites will be managed and by whom.
- To agree requirements for monitoring and review of the Delivery Plan and the mitigation areas.
- To share data and to work together to ensure that data are interpreted in a consistent manner by developers and regulators.

Box 2. Objectives for strategic mitigation approach

- 2.8 The work proceeded outlining a series of general principles that would give a broad picture of what a final solution would likely look like. The principles identified in Box Three were utilised to assess the requirements.

Box 3. Strategic Mitigation – General principles

- Continued unmitigated development of the SHG will cause adverse effects on the integrity of the Humber SPA and Ramsar site
- It is highly unlikely that all adverse effects can be mitigated outside the SHG
- Given the size and length of the SHG a single mitigation site would not represent an acceptable solution
- The total area of mitigation will likely be less than the combined area of land used by birds, provide the mitigation is appropriately located, designed and managed
- There are likely to be areas in the SHG used in such large numbers that their loss alone or in combination with other development in the area constitute an adverse effect on the integrity of the Humber SPA and Ramsar site
- The pattern of bird use may indicate areas that subject to the right management could support higher levels of use and may be suitable for mitigation
- Some areas of the SHG will not be used by birds. This may be the result of factors that make areas unsuitable for mitigation (e.g. noise and visual disturbance). However this should be investigated on a case-by-case basis as usage may be affected by factors such as crop regimes rather than locational factors

Box 3. Strategic Mitigation – General principles

- 2.9 It was concluded that, in order to mitigate for the loss of 454ha of land used by SPA/Ramsar birds within the SHG area, four 20ha blocks of core wetland habitat, each surrounded by 150m wetland habitat buffers, would be sufficient to offset the potential loss of proposed development land. These should be located in close proximity to key intertidal feeding areas. These criteria led to the identification of a requirement for two of the above blocks to be provided in North Lincolnshire and two within North East Lincolnshire.
- 2.10 Further discussion relating to North East Lincolnshire led to agreement on an approach which will see the delivery of a number of sites smaller than the proposed buffered 20ha sites. These sites will provide a network of sites for birds which

reflects how birds are currently using the area. Whilst some of these sites are too small to function as mitigation alone, they are ecologically functional as part of the suite of mitigation sites. These were subsequently taken further and a set of Mitigation Principles have been developed and embodied in the Delivery Plan, as detailed in Box 4.

- 2.11 Care has been taken to consider and refine the mitigation principles, particularly considering their application in an area of existing landuses. In North East Lincolnshire the patchwork of existing industrial uses and the pattern of existing bird usage raises particular difficulties and considerations.

Preferred Sites

- 2.12 Whilst work advanced on refining the individual principles it became clear that there was not one solution that would deliver the mitigation solution based on the agreed principles and that specific site options needed to be considered and evaluated. This was not a simple process as there was no agreed consensus as to the significance of weighting or particular factors. It was therefore through a process of site identification, discussion and consideration that the site options were refined.
- 2.13 The options assessment resulted in the identification of five key sites, complemented by existing areas of grassland, totalling an area of c128ha as indicated on the plan below. These sites have been agreed within the Ecology group as the preferred sites for mitigation provision.

Box 4. Strategic Mitigation – Mitigation principles**Area (combined):**

The mitigation required to enable continued development of the SHG will need to be sufficient to support the needs of the birds using the inland areas of the SHG and intertidal areas. Data collected through the HINCA coordinated surveys suggests that the SHG supports more than 1% of golden plover, lapwing, curlew, whimbrel and ruff on c.454ha of the available c.1000ha – *the creation of optimal mitigation would therefore need to mitigate for the loss of the 454ha of land.*

Area (individual):

The size of individual mitigation areas will need to take account of species and numbers of birds to be accommodated, preferred roosting densities, scanning requirements, disturbance effects and viable management. *Calculations suggest that to create a 20ha core refuge, allowing for minimal edge effect a minimum 150m sub optimal area of habitat to absorb edge effects would be 50ha. To achieve confidence in ecological functioning a minimum of four mitigation areas are required within the SHG.*

Location:

Mitigation must be located within appropriate distance of the intertidal areas, other mitigation areas and 'the potential development areas' used by SPA birds. The sites should allow for distance impacts and should ideally be contiguous/ near contiguous to the Humber flood banks and should closely linked.

Availability and Suitability:

Potential mitigation should be available and suitable for use by target species prior to development commencing.

Accessibility:

Mitigation must be accessible to the birds they are to support, and provide clear pathways between other mitigation areas and areas of the Humber bank.

Timing:

The mitigation area required to support development must be ready to support SPA birds before that development commences.

Habitat Type and Management:

This should ensure that the needs of the target species are met and potential mitigation is maximised.

Efficacy

It is essential that adequate monitoring is undertaken to assess development and management and use of the mitigation areas.

Durability:

Arrangements for the ownership and management of the mitigation measures must be secured in the long term.

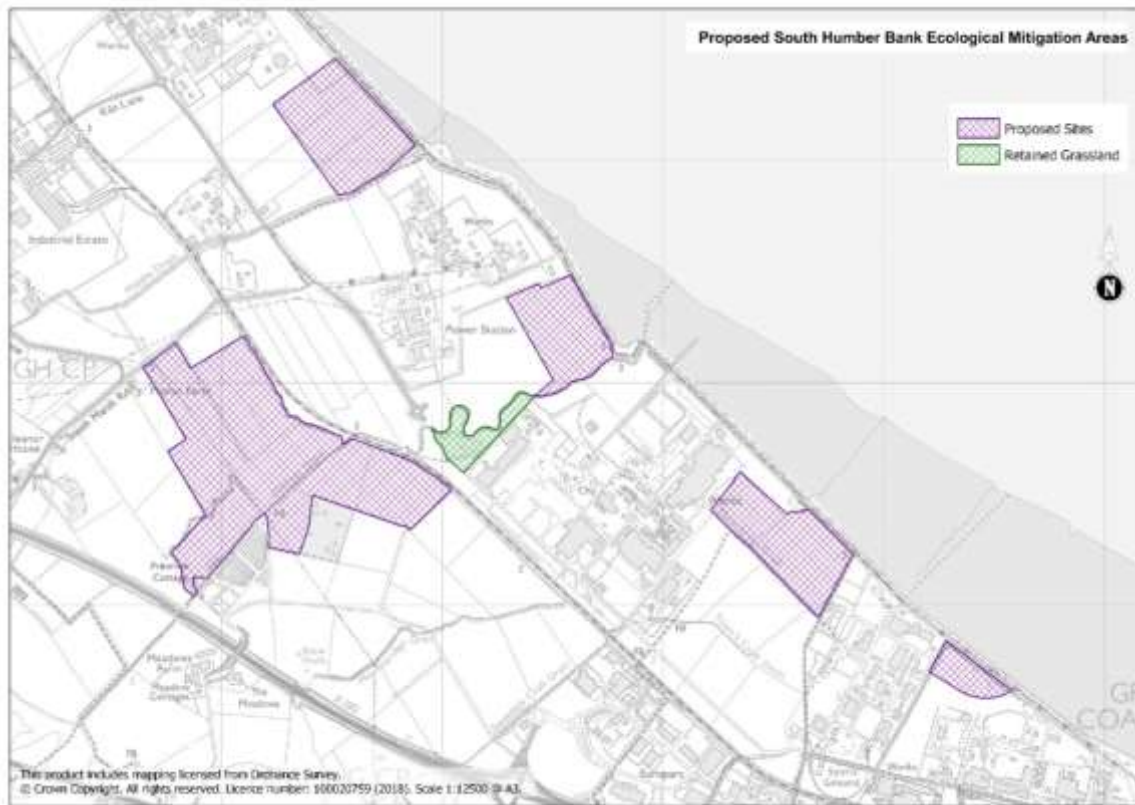


Figure 1. Proposed South Humber Bank Ecological Mitigation Areas

3.0 Delivery Plan

Site Specific Proposals

- 3.1 For the delivery plan a suite of *specific* mitigation sites must be identified, with clear boundaries, each with a *specific* long-term management plan that will deliver the appropriate habitat for the birds' functional needs. The key principles agreed by the Ecology Group are summarised as follows:
- 3.2 In terms of habitat management, wet grassland, managed to meet the requirements of passage and wintering birds, and fulfilling several functions to provide for foraging, roosting and loafing birds, was considered the most appropriate land use. To provide most value, the mitigation must be delivered close (preferably adjacent) to the estuary, and the areas should be of an appropriate size and shape to allow for undisturbed central 'refuges' surrounded by marginal habitats (acting as a buffer from disturbance).

- 3.3 Optimal management of such sites is generically well understood and would probably involve: the creation and management of ditches and other water features; the control of water levels; management of the sward through cattle grazing (with an appropriate breed of cattle), and vegetation control; maintaining open sight lines for waterbirds; and, keeping the areas free from disturbance while allowing access for stock checks and other maintenance works.
- 3.4 A complex mosaic of small-scale topography is also required due to being of greater potential benefit to waterbirds than larger-scale topographical work. This would result in a patchwork of dry and wet grassland, with the former providing a resource of invertebrate prey. Seasonal management of water levels would be actively managed and this was an early consideration in the design process.
- 3.5 A range of water features will be created, including field edge and in-field ditches (primarily for water and access management), including smaller drains (foot-drains) which are likely to be used by waders, scrapes and islands, and large seasonally inundated areas. Wet grassland will require an appropriate breed of cattle which would graze during the summer months to create a mosaic of tussocks and short turf (their dung will also help augment invertebrate populations). Cattle would (ideally) be removed, or stocking density at least reduced, during the passage and winter periods. Rush cover should be confined to less than 10% of the total waterbird mitigation area, this being controlled in part by trampling by cattle, but cutting and water-level manipulation may also be required to inhibit regrowth.
- 3.6 Mitigation areas are required to be as free as possible from disturbance during the key migration and winter periods. Both informal and formal access to the site should be controlled if possible to ensure the target birds are not subjected to disturbance. Measures to control disturbance have been designed and will be implemented on a site by site basis.
- 3.7 To progress the detailed design of the mitigation areas, North East Lincolnshire Council appointed The Environment Bank to undertake all necessary assessments,

discuss areas for inclusion with landowners and prepare detailed designs for each of the sites.

- 3.8 The principle habitat to be created and managed is wet grassland, primarily to provide displacement habitat and additional refuge for birds using the SPA during the overwinter period (principally September – March). The habitat will be established through a combination of seeding (sowing rates should be within 3-5g/m² and should be carried out in the spring or autumn), or use of green hay followed by a management regime based on that for coastal grazing marsh. The areas will be seeded with common plants from wet grassland habitats, including common grasses such as Red Fescue *Festuca rubra*, Rough Meadow-grass *Poa trivialis*, Marsh Foxtail *Alopecurus geniculatus*, Meadow Foxtail *Alopecurus pratensis*, Perennial Rye-grass *Lolium perenne* and Creeping Bent *Agrostis stolonifera*. Sowing blocks of taller tougher grasses such as Yorkshire Fog *Holcus lanatus*, Tall Fescue *Festuca arundinacea* and Tufted Hair-grass *Deschampsia caespitosa* provides tussocky structure to the sward and will therefore provide suitable habitat for nesting waders, recognising that the site will attract breeding waders. Low growing herbs of wet grasslands could also be sown such as Silverweed *Potentilla anserina*, Creeping Jenny *Lysimachia nummularia*, Cuckooflower *Cardamine pratense* and Self-heal *Prunella vulgaris*. (Final species that will form the planting list will be agreed prior to delivery.)
- 3.9 The key factors in creating wet grassland habitat for overwintering waterfowl are:
- a) Water management to create shallow standing water areas with muddy margins and a soft substrate
 - b) Sward management to create a suitable structure for invertebrates whilst maintaining an open landscape for bird predator detection
 - c) Disturbance management.
- 3.10 Due to the clay substrate, water level management will primarily be achieved through design of the habitat with scrapes and ditches impounding rainfall, with a much smaller influence through water level control structures. Perimeter ditch

water levels will be controlled by installed sluices to hold water back on site and distribute it across the field wetland features. These will be serviceable and maintained at specified levels to ensure sufficient surface water in features and a large perimeter of moist soil for terrestrial feeding. Small, shallow ephemeral pools will provide a food source for wader chicks through colonisation of invertebrate communities of high biomass such as the *Chironomidae*. Water levels will be monitored and adjusted in order to maintain desired features. As scrapes slowly silt up, they, or new ones will be dug to ensure that suitable habitat is always available. Water control structures will be inspected at least annually for damage.

- 3.11 The initial proposals for habitat creation on each of the sites are shown below. These may be subject to revision through the planning application process.
- 3.12 The former Huntsman Tioxide site, will be subject to separate management and monitoring, and will not be managed as wetland habitat. No mitigation plan for this site has therefore been provided. The delivery, management and monitoring proposals for this site will be progressed in accordance with the planning approval relating to the development of the adjacent employment site (DM/0304/17/FUL). The management of the mitigation site will be required to ensure the site continues to function as a roosting site for curlew.

INFORMATIVE

The sites shall be designed in such a way as not to compromise or constrain future flood management, and ongoing flood defence maintenance, considerations; including that where they abut existing tidal defences, a 16 metre buffer is set aside adjacent to the landward toe of the existing flood defences, to allow for future flood defence improvements. Screening and security fencing should be placed away from the toe of raised flood defences to allow for flood defence maintenance. Early dialogue with the Environment Agency must be undertaken in order to ensure these requirements are met and to establish the need or otherwise for an Environmental Permit.

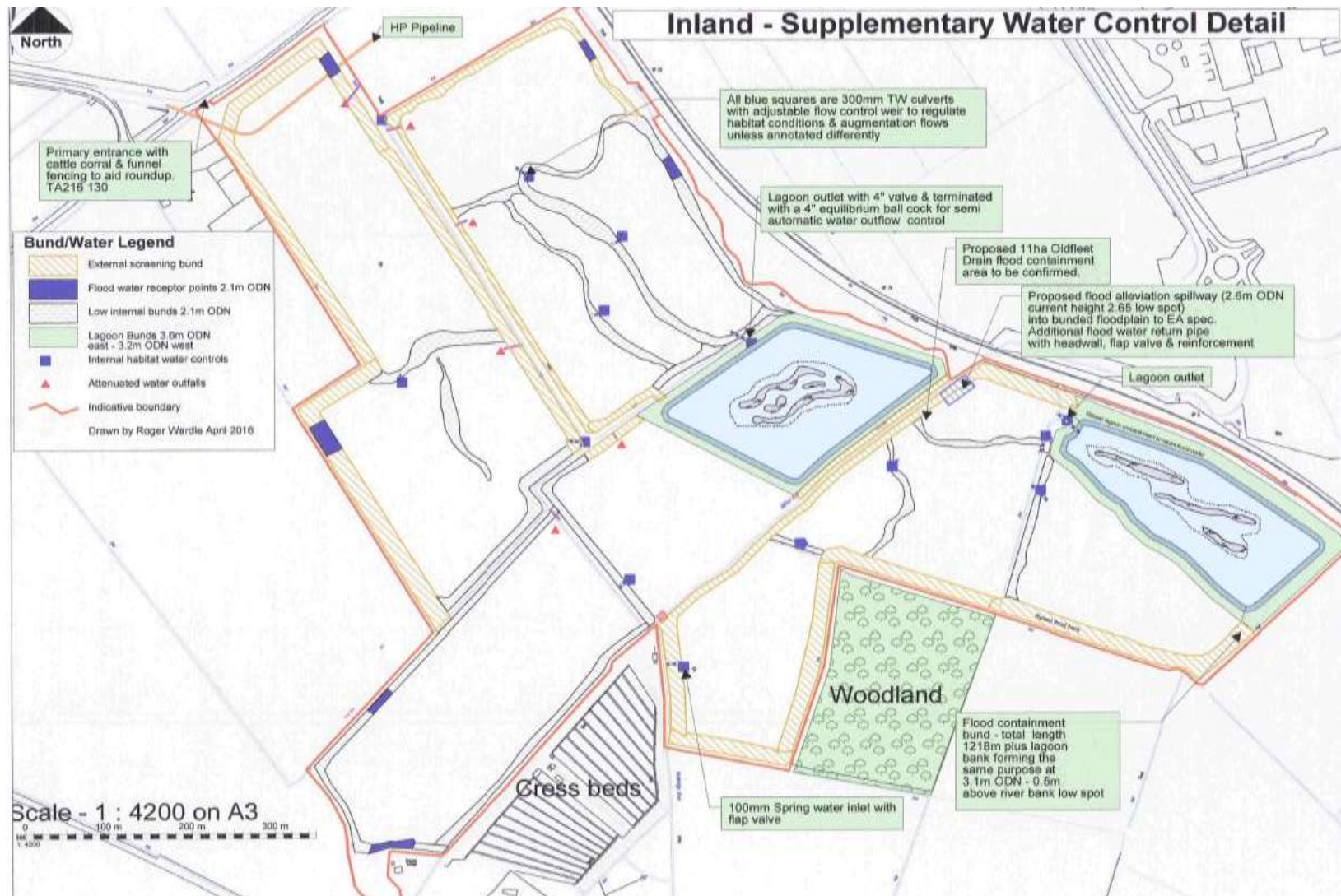


Figure 2. Inland – Supplementary water control detail

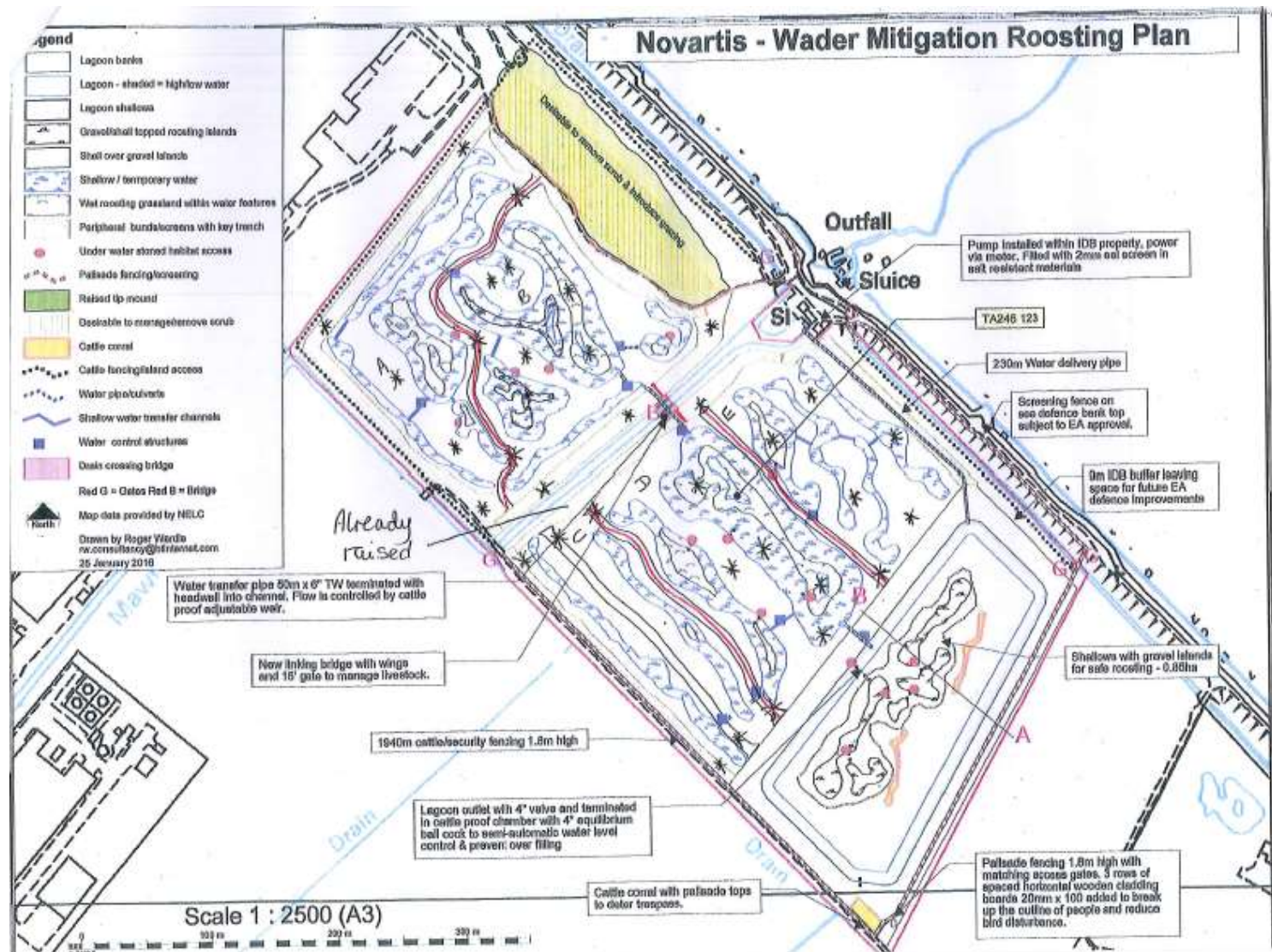


Figure 3. Novartis – Wader mitigation

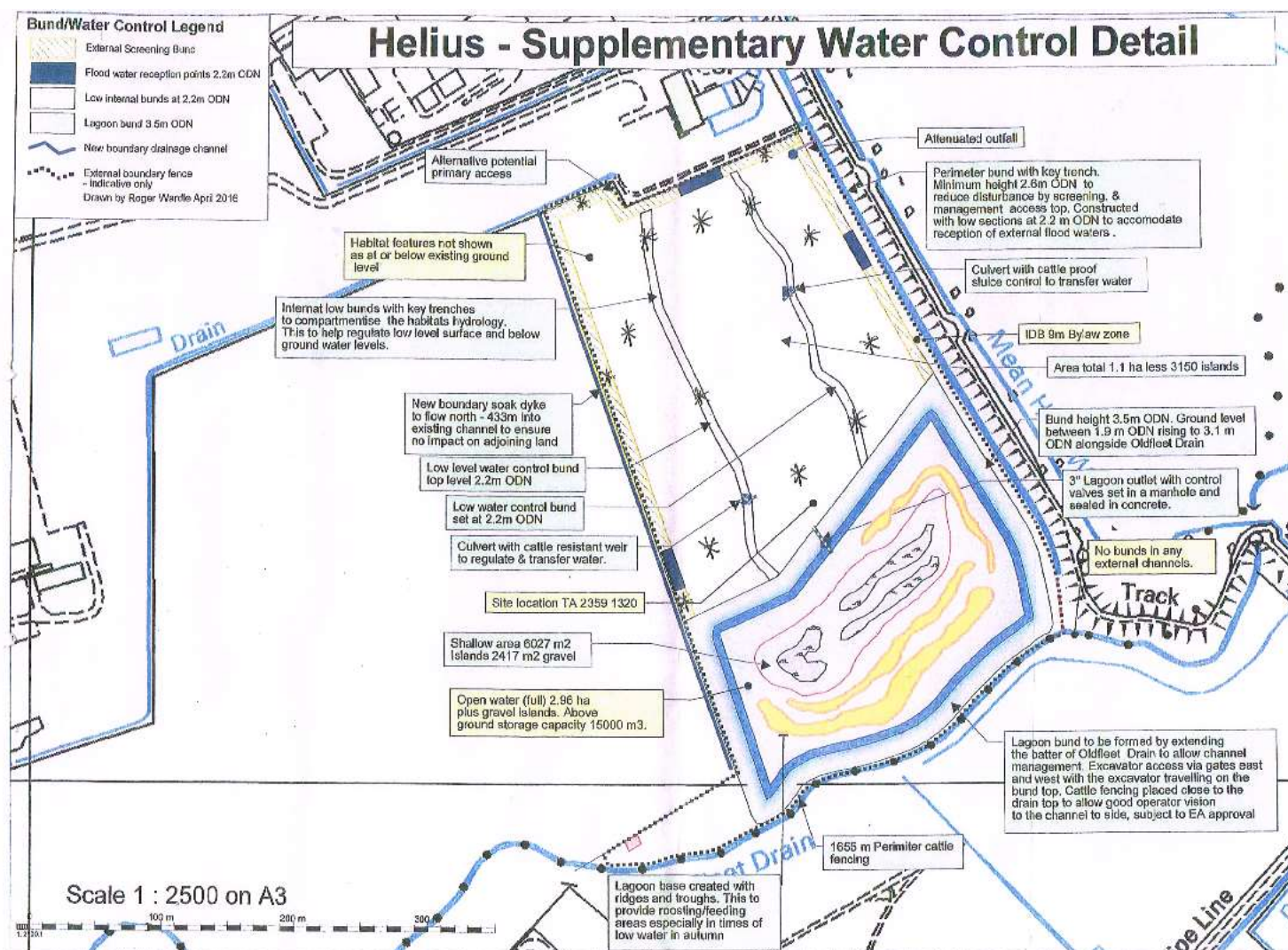


Figure 4. Helius – Supplementary water control detail

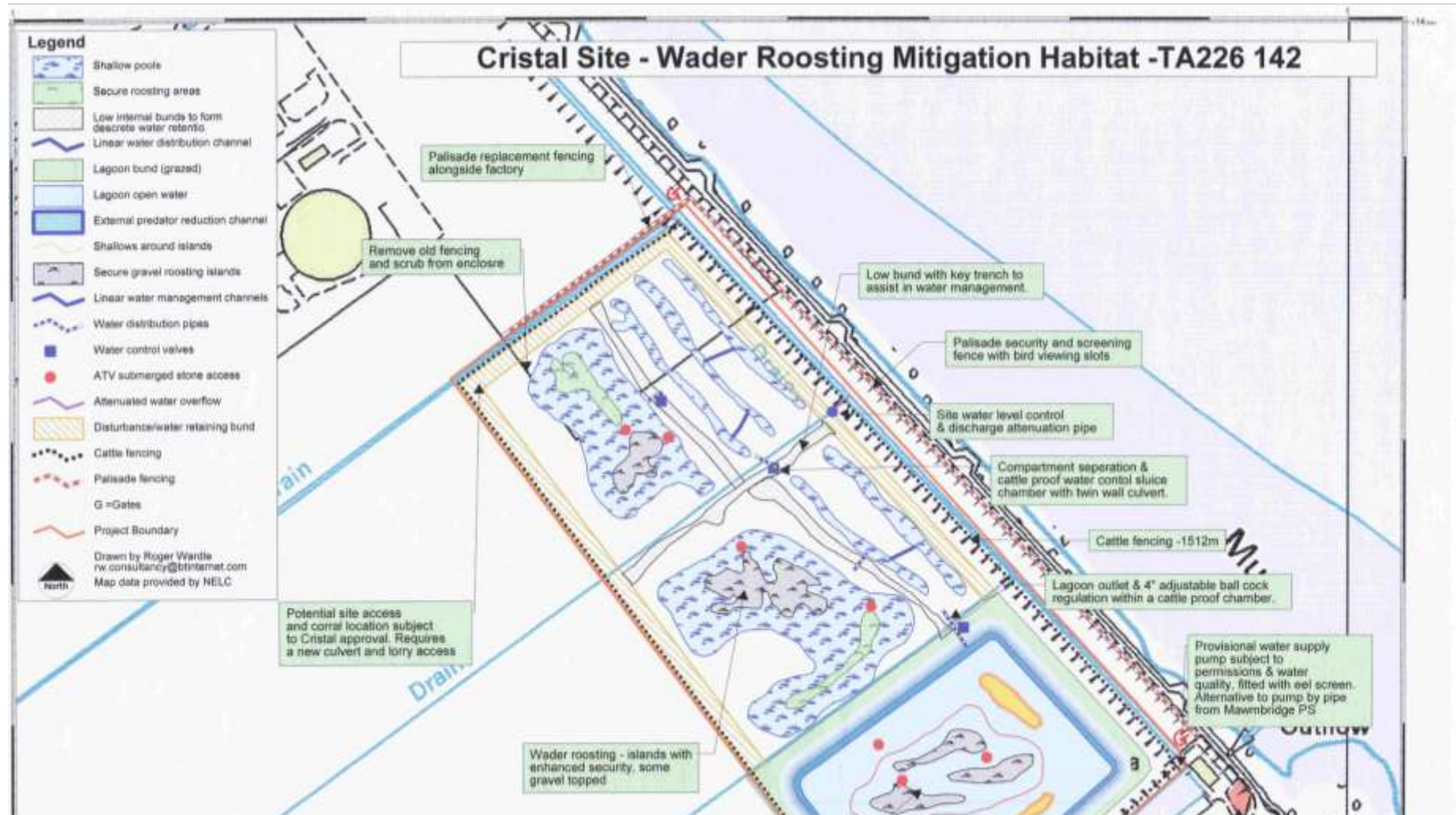


Figure 5. Cristal site – Wader roosting mitigation habitat

- 3.13 A management regime has been devised which incorporates, grazing with a breed of cow able to cope with wet exposed conditions to create the structure suitable for invertebrate prey populations and wintering waders. Grazing pressure should accord with the following: 0.2 livestock units per hectare per year in April to June inclusive in Year 1; and 0.3 livestock units per hectare per year in April to June inclusive in all subsequent years; in order to produce a mosaic of short sward of 5-7cm in length and tussocks (RSPB 1997).
- 3.14 In the spring and early summer grazing pressure should be lighter to avoid poaching and trampling the nests of breeding waders, and allow herbs to flower and seed. In the late summer and early autumn grazing pressure could be increased to allow cattle to break down any large stands of vegetation and open up the sward to create foraging areas for waders.
- 3.15 The ground will not be permitted to be poached, although small areas of bare ground can create niches for colonisation of plants. Cover of rushes *Juncus spp.* should be less than 10% (Natural England 2010). Tussocky swards require grazing to keep them more open between the tussocks (tussocks ideally at a density of 1 per m²). This provides suitable habitat for nesting waders. Where rushes are in the sward, management is needed to maintain the tussocks at the optimum density for Redshank and Lapwing. A combination of cutting in late summer and grazing can be used to keep density of tussocks to 1 in 10m². If tussocks are very dense they can be cut late autumn and flooded immediately to knock them back.
- 3.16 Signage and interpretative boards will be used to explain the management of the area and the importance of lack of disturbance to the area. Stock inspections will be done from a distance using binoculars, and management tasks will be undertaken in such a way as to limit the number of disturbance events.

Delivery and Phasing

- 3.17 The Council as the competent authority issuing planning permission require 'certainty' that the mitigation will meet the requirements of the Habitat regulations.

Natural England, as the statutory adviser on the Habitats Regulations is able to provide detailed advice.

- 3.18 The Council will through delivery of the mitigation sites ensure that sufficient mitigation land is always in place to support the development of employment sites. This approach will ensure the balance of mitigation land to developed employment sites on the South Humber Bank always remains effectively “in credit”.
- 3.19 The four main sites identified sit within seven separate ownerships. Arrangements for the ownership and management of the mitigation areas will be secured on either freehold or commercial lease terms.
- 3.20 Delivery of each site will be dependent upon the ability to quickly negotiate land interests and access arrangements with the respective landowners. However, it is recognised that development within the SHG area will remain restricted until the mitigation is in place; i.e. the Council must ensure the provision of mitigation remains “in credit”.
- 3.21 Prior to the positive determination of development planning applications, the balance sheet approach will be utilised to demonstrate the relationship between mitigation provision and development consented. This approach accounts for the variation in bird usage across the Mitigation Area, and seeks to ensure that sufficient mitigation area is always available and bird numbers are maintained.
- 3.22 In all circumstances, developers within the area will be expected to provide a financial contribution towards the cost of strategic mitigation provision in lieu of on-site mitigation. This is based upon an equal cost for each developer based upon the land take; i.e. a cost per hectare (to one decimal place) of the development site.
- 3.23 For the basis of determining the mitigation balance, where development is planned on land which is functionally linked to the estuary, development will draw down against the mitigation provision at a ratio of 1ha : 1ha (development to mitigation). Where land is not functionally linked, but is demonstrated to contribute towards the “in-combination” effect on the estuary, development will draw down against the

mitigation provision at a ratio of 5.2ha : 1ha (development to mitigation). During the construction period, temporary draw down of mitigation land may be secured in order to safeguard against disturbance effects. This will be assessed on a case by case basis. Details of the Balance Sheet Process are set out in Appendix THREE.

In perpetuity

- 3.24 The mitigation sites will be required to remain in place for the duration of development. This is anticipated to be beyond any lease term agreed. In circumstances where it is not possible to secure additional agreements for the identified sites, alternative mitigation areas will be required to be put in place prior to the loss of the mitigation site. The Council will need to identify whether there is sufficient mitigation capacity to allow further developments to be consented, in accordance with ensuring that the mitigation balance sheet remains “in credit”.
- 3.25 The Council will procure appropriate/suitable contractors to undertake the habitat creation works, and will also procure an appropriate management company to ensure that appropriate management of the mitigation sites is undertaken in accordance with the agreed. All appointments will be subject to the Public Procurement Regulations 2015.
- 3.26 The Council will ensure appropriate monitoring of the mitigation sites is undertaken in accordance with the monitoring framework and report the results to the ecology group to advise on on-going management and need for remedial measures.

Funding

- 3.27 Current estimates of cost for land acquisition, habitat creation and ongoing management are currently estimated at between £5.5m and £6.8m, the extent of which is dependent upon the result of land negotiations and final prices agreed. A breakdown of the funding requirement is shown below.

Strategic Ecological Mitigation Costs	
Land Acquisition/Lease costs (25 years)	£3,296,000 - £4,560,000 ¹
Habitat Creation	£1,380,500
Ongoing Management (25 years)	£894,000
TOTAL	£5,570,500 - £6,834,500

Table 1. Strategic ecological mitigation costs

- 3.28 Funding has been committed from the Council's SHIP programme, (a £15m funding programme to deliver key infrastructure projects across the South Humber Bank). In addition to Greater Lincolnshire LEP LGF and ESIF funding has been secured. All funds required to deliver the Ecological Strategic Mitigation are therefore in place.
- 3.29 It is intended that the Council will utilise the funds available to it to acquire appropriate interests in the sites, create wet grassland habitat and ensure a programme of ongoing management. This investment will therefore enable future economic/employment development within the South Humber Gateway area, subject to the balancing provisions referred to in Paragraph 3.22 above.
- 3.30 Planning legislation requires that responsibility for ensuring that the negative impact of development is appropriately mitigated rests with the developer. All development proposals within the Mitigation Zone will therefore be expected to contribute financially to the implementation of the Mitigation Strategy. This money will be used to support the securing of mitigation land and delivering future management and monitoring. Contributions are anticipated to be secured either through Unilateral Agreements or s106 agreements.
- 3.31 Analysis of the Employment Land Review indicates that within the proposed Mitigation Zone, the total developable area equates to 481ha (1,189 acres). This includes all sites held for some form of future potential development.

¹ Variations in Acquisition costs based on minimum and maximum values anticipated to be required as part of the negotiation process.

- 3.32 The contribution sought from developers will be therefore based on the following equation:

$$\text{Total Cost/Total Land} = \text{£ per ha (£ per acre)}$$

Based on an estimated project costs, this equates to:

$$\text{£5,570,000/481} = \text{£11,580 per ha (£5,570,000/1,189} = \text{£4,685 per acre)}$$

- 3.33 **The Council has set a contribution figure of £11,580/ha (£4,685/acre) within the Local Plan.**

Programme

- 3.34 The external funding regimes (Greater Lincolnshire LGF and ESIF) associated with this scheme require that all funding is committed within the period April 2016 to March 2020. The Council funding commitment has the ability to be utilised more flexibly, but is currently anticipated to be fully expended by March 2021. The programme therefore anticipates delivery of Strategic Mitigation grassland sites within a five year programme, although schemes will be delivered as soon as possible as this will facilitate economic development within the SHG.

Monitoring

- 3.35 In order to ensure the efficacy of the mitigation sites, regular monitoring will take place over the perpetuity period to ensure the ecological functioning of the wet grassland sites on the following basis:

WET GRASSLAND & OPEN WATER

Creation of wet grassland is a well-established process and hence there is some certainty about the ability to develop it. Wet grassland habitat is known to be used by foraging and roosting shorebirds especially as intertidal food resources become depleted as winter progresses. Much of the open estuary land is intensively farmed resulting in little grassland around the Humber estuary. The establishment of wet grassland habitat will provide valuable habitat for shorebirds particularly at high tide.

Objective WG1: The site will contain wide open expanses of wet grassland habitat with unobscured views of the surrounding area.

TARGET 1	Creation of wet grassland habitat
Management	• Sowing with an appropriate seed mix (for example EG8 Wet Grassland Mix from Emorsgate Seeds) and leaving uncut and un-grazed for 3-6 months, as appropriate • Sowing rates should be within 3-5g/m² and should be carried out in Spring or Autumn • 0.2 livestock units per hectare per year in April to June inclusive in Year 1; and • 0.3 livestock units per hectare per year in April to June inclusive in all subsequent years; or • Equivalent management by cutting the grassland • No fertilisers to be used except if needed to boost earthworms • No herbicides to be used except if needed to control problem plant species. These to be applied with a weed wipe or via spot control
Monitoring	• Permanent quadrats to be established measuring 1m x 1m within the wet grassland area • Plant species and abundance to be recorded for each quadrat
Who	• Consultant Ecologist or appropriate Ecology Officer.
When	• Monitoring to be undertaken annually in June for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group • Monitoring can cease if wet grassland habitat is achieved for three consecutive years, provided the management regime remains unchanged

Limits of Acceptability	At least one species characteristic of wet/damp grassland must be present in 80% of quadrats
Remedial Action	Adjust soil moisture through amending site drainage affecting extent of flooding

TARGET 2	No scrub (including bramble) or trees across the entirety of the site
Management	0.2 livestock units per hectare per year in April to June inclusive in Year 1; and 0.3 livestock units per hectare per year in April to June inclusive in all subsequent years; or - Equivalent management by cutting the grassland
Monitoring	Visual assessment of scrub
Who	Consultant Ecologist or appropriate Ecology Officer
When	- Monitoring to be undertaken annually in June for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group - Monitoring can cease if wet grassland habitat is achieved for three consecutive years, provided the management regime remains unchanged
Limits of Acceptability	No more than 5% scrub or trees across the site
Remedial Action	Cutting down vegetation and treatment of stumps with herbicide

TARGET 3	No more than 10% dense stands of rushes (<i>Juncus</i> spp.), tall sedges (<i>Carex</i> spp.), reeds (<i>Phragmites australis</i>, <i>Phalaris arundinacea</i>, <i>Glyceria maxima</i>, <i>Typha</i> spp.) within the open water area
Management	• Management by cutting and removal of rushes and tall sedges
Monitoring	• Visual assessment
Who	• Consultant Ecologist or appropriate Ecology Officer
When	• Monitoring to be undertaken annually in June, for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group
Limits of Acceptability	• No more than 10% dense stands of rushes (<i>Juncus</i> spp.), tall sedges (<i>Carex</i> spp.), reeds (<i>Phragmites australis</i>, <i>Phalaris arundinacea</i>, <i>Glyceria maxima</i>, <i>Typha</i> spp.) within the open water area
Remedial Action	• Cutting of rushes and sedges

Objective WG2: The wet grassland will be managed to give a suitable sward for wading birds throughout the months of August to March

TARGET 1	Creation of wet grassland with a suitable sward for wading birds (August to March)
Management	• Management by cutting to maintain Average sward height of 10cm across the wet grassland each month from July to March
Monitoring	• Visual assessment
Who	• Consultant Ecologist or appropriate Ecology Officer

When	Monitoring to be undertaken annually in June, for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group
Limits of Acceptability	No more than 10% grassland with sward height >10cm
Remedial Action	Cutting of grassland, or increased grazing

Objective WG3: The site should contain open water with at least one island.

TARGET 1	Creation of shallow standing water with muddy margins and soft substrate
Management	- Water level management through design of habitats with scrapes and ditches, impounding rainfall, with a much smaller influence through water level control structures - Open Water - Average depth 0.20m to 0.30m in depth (footdrains and scrapes) and average depth 0.20m to 0.50m for permanent open water according to season
Monitoring	- Visual assessment of extent of flooding - Water control measures to be monitored annually
Who	Consultant Ecologist or appropriate Ecology Officer
When	- Monitoring to be undertaken annually in June for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group - Monitoring can cease if target is achieved for three consecutive years, provided the management regime remains unchanged
Limits of Acceptability	No less than 0.25m average depth

Remedial Action	Adjust water control measures (adjusting sluice height, irrigate rates)
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BIRDS

The basic objective of the mitigation habitat is to maintain the population of birds displaced from within the SHG. The timely creation of suitably located secure wet grassland habitat will allow economic development to progress whilst ensuring that loss of open land does not impact on bird numbers.

Objective B1: The mitigation sites combined support annual peak and mean counts of displaced bird species for the whole NE Lincs SHG area

The effectiveness of the mitigation sites will be determined by assessing the numbers of birds using the mitigation site compared to the numbers that were recorded in the SHG survey work. *The respective bird targets will change as development comes forward; hence no numbers have been included in the target boxes. See Appendix ONE*

TARGET 1 - strategic	For each species, the NE Lincs mitigation sites combined support an annual peak count equal to or greater than the annual peak count for the whole NE Lincs SHG area For each species, the NE Lincs mitigation sites combined support an annual mean count equal to or greater than the annual mean count for the whole NE Lincs SHG area
Management	- Provide secure roost - Provide foraging opportunities
Monitoring	Monthly through the tide counts (counts to include details of any disturbance and disturbance response behaviour (especially alert and flushing distances))
Who	Suitable surveyors

When	• Monthly counts August-April for minimum of five years. • After 5 years the frequency of monitoring will be reviewed by the Ecology Group with an expectation that monitoring will continue at some level.
Limits of Acceptability	• Any one year where declines exceed Humber Estuary bird trends • Any one year where declines exceeded changes in national trend • Two years of consecutive decline, irrespective of being within the range of negative changes in national trend
Remedial Action	• Review data to ascertain if population is being maintained within the Humber • Make adjustments to habitat and environmental conditions to facilitate achievement of the objective, where a review of the monitoring data identifies any obvious cause for failure to reach the target. (These adjustments could include management of disturbance, • Increase/decrease of soil moisture, changing the number, size, location and shape of wader scrapes, and adding biomass to increase worm numbers.) • Sward height management through grazing or cutting.

Objective B2: The individual mitigation sites support annual peak and mean counts equal to or greater than the balance sheet target for each site.

The targets for individual mitigation sites are divided on a simple percentage basis i.e. the contribution (%) the individual mitigation site makes to the overall 126ha of mitigation.

(If the development of sites x, y and z require 10% of the mitigation land provision then the bird targets for the delivered mitigation will be equivalent to 10% of the total peaks and means for each species).

The respective bird targets will change as development comes forward; hence no numbers have been included in the target boxes. (Appendix ONE)

TARGET 2 – Site Specific	For each species, the individual mitigation sites support annual peak counts equal to or greater than the relevant balance sheet target for each site. For each species, the individual mitigation sites support annual mean counts equal to or greater than the relevant balance sheet target for each site. Black-tailed godwit, ringed plover and whimbrel – targets triggered once either fields 293 or 398 are developed.
Management	• Provide secure roost • Provide foraging opportunities
Monitoring	• Monthly through the tide counts (counts to include details of any disturbance and disturbance response behaviour (especially alert and flushing distances))
Who	• Suitable surveyors
When	• Monthly counts August-April for minimum of five years. • After 5 years the frequency of monitoring will be reviewed by the Ecology Group with an expectation that monitoring will continue at some level.
Limits of Acceptability	• Any one year where declines exceed Humber Estuary bird trends • Any one year where declines exceeded changes in national trend • Two years of consecutive decline, irrespective of being within the range of negative changes in national trend

Remedial Action	• Review data to ascertain if population is being maintained within the Humber • Make adjustments to habitat and environmental conditions to facilitate achievement of the objective, where a review of the monitoring data identifies any obvious cause for failure to reach the target. (These adjustments could include management of disturbance, increase/decrease of soil moisture, changing the number, size, location and shape of wader scrapes, and adding biomass to increase worm numbers.) • Sward height management through grazing or cutting. All mitigation sites will continue to be optimally managed in the long term and remedial measures will be implemented when necessary; however if the target 1 strategic objectives are met then the integrity of the Humber Estuary SPA/ Ramsar site will be maintained and therefore remedial measures may not be required.
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Objective B3: The individual mitigation sites support breeding birds. (Not legally required as part of the strategic mitigation)

There are no identified targets for individual mitigation sites but as the sites are likely to be attractive to breeding birds it is important to monitor the species present to allow the sites' contribution to local biodiversity to be assessed.

TARGET 3 – Breeding birds	No identified target (not legally required as part of the mitigation strategy)
Management	• Provide secure breeding opportunities • Provide foraging opportunities
Monitoring	• Monthly through the tide counts (counts to include details of any disturbance and disturbance response behaviour (especially alert and flushing distances))

Who	• Suitable surveyors
When	• Annual breeding bird survey for a minimum of 5 years. • After 5 years the frequency of monitoring will be reviewed by the Ecology Group with an expectation that monitoring will continue at some level.
Limits of Acceptability	• N/A
Remedial Action	• Make adjustments to habitat and environmental conditions to facilitate achievement of the objective, where a review of the monitoring data identifies any obvious cause for failure to reach the target. (These adjustments could include management of disturbance, • Increase/decrease of soil moisture, changing the number, size, location and shape of wader scrapes, and adding biomass to increase worm numbers.) • Sward height management through grazing or cutting.

4.0 Conclusions

- 4.1 This Mitigation Delivery Plan highlights the importance of the Humber Estuary in ecological terms, and the conflict that occurs between the protection of the ecological importance of the Estuary and the importance of economic development within the South Humber Gateway.
- 4.2 The Habitats Regulations require, that where it is not possible to rule out an adverse effect on the integrity of the designated, appropriate mitigation is required that can be put in place to off-set the adverse impacts.
- 4.3 A number of surveys relating to the important bird species utilising the estuary have been undertaken and these have established the extent and importance of the bird populations. Any development within the SHG is considered to contribute to impacts on the designated site, and therefore a strategic approach to mitigation has been devised.
- 4.4 Within North East Lincolnshire, four main mitigation sites have been identified which meet the overall criteria established by the Ecology Group. Detailed proposals for each of the sites have now been developed, and negotiations have commenced with all of the landowners concerned.
- 4.5 In addition, North East Lincolnshire Council has been successful in securing appropriate funds to ensure the delivery of the mitigation habitats, and progress has been made in securing sites for mitigation purposes. All funding needs to be utilised between 2016 and 2020. Developers within the SHG mitigation area as shown within the North East Lincolnshire Local Plan will be expected to make an appropriate contribution towards the cost of the mitigation scheme.
- 4.6 This document demonstrates the extent of work and level of commitment that North East Lincolnshire Council has put into delivering the Strategic Mitigation scheme. A funding strategy is in place, and a programme has been devised which enables the delivery of the scheme. This strategy will ensure that there is adequate provision of mitigation; maintaining the integrity of the Humber Estuary SPA whilst at the same

time enabling the planned level of economic development within the SHG to progress.

Appendices

Appendix ONE: The mitigation balance sheet

The calculation of the amount of mitigation that will need to be drawn down for development of a site within the Mitigation Zone is calculated utilising a balance sheet spreadsheet. This spreadsheet includes all fields within the South Humber Employment Zone and identifies the appropriate mitigation response based upon the record of bird use of each field. This determines whether or not a field was recorded as being used by significant numbers ($\geq 1\%$ of SPA population using the relevant 5 year mean) of SPA birds during the 2007/8 and 2010/11 SHG surveys.

The survey data is broken down to identify three categories:

- $>1\%$ = the field was used at least once in the two years of surveying by SPA birds in numbers $\geq 1\%$ of SPA population
- $<1\%$ = the field was used by SPA birds but in numbers $<1\%$ of SPA population
- None = no SPA bird usage was recorded during the SHG surveys

Using the survey information each field has then been assessed to determine whether a field is functionally linked to the SPA. Three categories:

- Functionally linked = used regularly by significant numbers of SPA birds
- In-combination impact = used by SPA birds in either non-significant numbers, or irregularly in significant numbers
- No use during SHG surveys = no use recorded during 2007/08 or 2010/11 surveys

Fields are classed as functionally linked if they had three or more significant counts of SPA birds during the SHG surveys. Three has been used as a threshold to establish regularity of use due to the specific results and patterns of bird usage recorded in the SHG surveying.

Within the spreadsheet when a field is identified for development it calculates the mitigation required based on the area of the field in question and the following ratios:

- Land identified through the SHG surveys as functionally linked land (land regularly used by significant numbers² of SPA/ Ramsar waterbirds) will draw down mitigation at a ratio of 1 : 1.
- Land identified through the SHG surveys to have some usage by SPA/ Ramsar waterbirds but is not functionally linked land – i.e. contributing to in-combination effects - will draw down mitigation at a ratio of 5.2 : 1 (development to mitigation).
- Land which had no SPA/ Ramsar waterbird usage during the SHG surveys will not draw down any mitigation, but developers are required to contribute financially. This is because it has been agreed that all developers within the SHG will contribute equally to the strategic mitigation. The bird surveys represent the distribution at set points in time when the surveys were undertaken. The distribution can be affected by cropping patterns, or specific temporary activity on a site.
- In exceptional circumstances developers can choose not to do this, but this will mean that they need to undertake at least one year's bird survey of their development site. If the land is now determined to be functionally linked to the SPA/ Ramsar site or to contribute to in-combination effects, they will need to provide sufficient mitigation either on their site or in close proximity. It is expected that this will be extremely difficult to achieve as this was one of the fundamental reasons for the strategic mitigation.

Bird Targets

Bird targets are allocated using the same principles as described above and are set out in a separate accompanying spreadsheet. Both the peak and average bird targets are based on the same principles; linking bird numbers to the habitat area required for development of a given field. This ensures that bird targets are proportional to mitigation habitat areas.

i.e. mitigation required (Ha) / overall NELC mitigation area = field bird target / NELC population for each field and species.

² Used by 1% or greater of the SPA/ Ramsar bird population

The peak count for each species is the highest recorded weekly total from any of the SHG surveys. The average count for each species is the average weekly count from all SHG surveys.

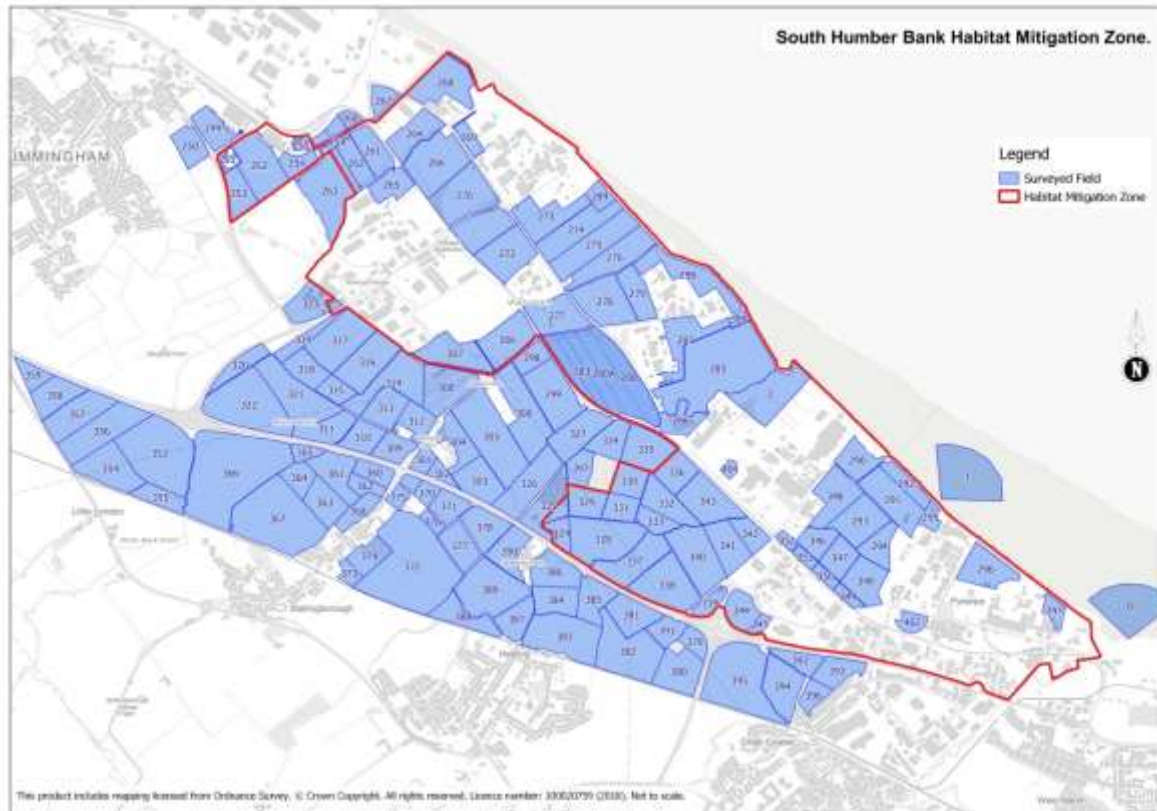
The exceptions to these principles are species with limited distributions, for which there are separate targets triggered once specific fields are developed as set out below:

Black-tailed godwit, ringed plover and whimbrel – targets triggered once either fields 293 or 398 are developed.

Targets to be met from any estuary side mitigation site		
	Peak	Mean
Black-tailed godwit	180	5.50
Ringed plover	37	1.50
Whimbrel	5	0.10

Table 2. Targets to be met from any estuary side mitigation site

Appendix TWO: Field location



Appendix THREE: South Humber Gateway balance sheet

North East Lincolnshire Council has been working with the South Humber Gateway (SHG) ecology group for many years on a strategic approach to mitigation. A number of mitigation sites have been agreed and wet grassland habitat will be created, and managed and maintained in the long term. Due to ongoing discussions with landowners, NELC is unable to deliver all the mitigation sites upfront and so it has been necessary to devise a balance sheet which will ensure that habitat creation always outweighs development. The SHG monitoring programme demonstrated that bird usage varies across the Gateway with some fields being more important to SPA/ Ramsar bird populations than others. The balance sheet has been designed to take this into account and ensure that sufficient habitat is always available to support the waterbird populations as the Gateway is developed. In this way, the Council and individual developers will ensure they comply with the Habitats Regulations.

Principles of the balance sheet

- All developers within the SHG will contribute financially at a rate agreed by the council
- The total agreed area of mitigation is 128ha
- Land identified through the SHG surveys as functionally linked land (land regularly used by significant numbers³ of SPA/ Ramsar waterbirds) will draw down mitigation at a ratio of 1 : 1
- Land identified through the SHG surveys to have some usage by SPA/ Ramsar waterbirds but is not functionally linked land – i.e. contributing to in-combination effects - will draw down mitigation at a ratio of 5.2 : 1 (development to mitigation) which will bring the total mitigation up to the 128ha figure
- Land which had no SPA/ Ramsar waterbird usage during the SHG surveys will not draw down any mitigation but developers are required to contribute financially. This is because it has been agreed that all developers within the SHG will contribute equally to the strategic mitigation. In exceptional circumstances developers can choose not to do this, but this will mean that they need to undertake at least one

³ Used by 1% or greater of the SPA/ Ramsar bird population

year's bird survey of their development site. If the land is now determined to be functionally linked to the SPA/ Ramsar site or to contribute to in-combination effects, they will need to provide sufficient mitigation either on their site or in close proximity. It is expected that this will be extremely difficult to achieve as this was one of the fundamental reasons for the strategic mitigation.

- Bird targets are allocated using the same principles as described above. The exception to this are species with limited distributions, for which there are separate targets - see the South Humber Gateway Bird Objectives document. (Appendix FOUR)

Disturbance

It is acknowledged that the full mitigation package cannot be delivered at this time. In North East Lincolnshire it was not possible to deliver the 2 x 50ha mitigation blocks agreed as part of the SHG mitigation principles and an alternative approach was devised which provided a number of smaller blocks which would function together to ensure that the overall package of mitigation was ecologically functional. Given that all the mitigation cannot be delivered at this time, it is necessary to consider disturbance as developments come forward.

- Disturbance from developments will be assessed on a case by case basis.
- If there will be temporary construction disturbance to adjacent fields this will be assessed using the actual data – i.e. what area will be affected and for how long. If noise is significant, there will be a temporary draw down from the mitigation using the agreed ratio based on bird usage recorded in the SHG surveys.
- If there will be construction and operational disturbance – i.e. permanent disturbance, then this will require a permanent draw down from the mitigation using the agreed ratio based on bird usage recorded in the SHG surveys.
- Wherever possible, development sites adjacent to a mitigation area should aim to retain some open areas and locate disturbing activities involving loud sudden noises and personnel away from the perimeter of the site. Screening/ bunding may also be required.

Appendix FOUR: South Humber Gateway bird objectives

This document should be used together with the South Humber Gateway balance sheet which sets out how much mitigation (hectares) is required for development of land within the SHG and provides the associated bird targets.

Key points:

- The South Humber Gateway partners have taken a strategic approach to the delivery of mitigation to offset the impacts of economic development on the Humber Estuary SPA/ Ramsar site. We have therefore also taken a strategic approach to bird targets based on the ultimate aim which is to maintain the integrity of the European site. We have therefore set targets across the total amount of mitigation that will be delivered in North East Lincolnshire.
- There are two levels of objectives – level one and level two – with the targets divided between the individual mitigation sites on a simple % basis – i.e. the contribution (%) the individual mitigation site makes to the overall 126ha of mitigation.
- The two levels of objectives are hierarchical and therefore as long as the level one targets are met (subject to the caveat regarding site condition), the overall target will have been achieved.
- Data – the SHG bird data set has been used – i.e. that collected between 2007 and 2011 and funded by the former regional development agency Yorkshire Forward, North and North East Lincolnshire Councils, the Environment Agency and the RSPB, and managed by the Humber Nature Partnership.

Objectives

Bird targets are identified using the same principles as mitigation sites and are set out in a separate accompanying spreadsheet (see Appendix THREE).

Level one – strategic objectives

For each species, the NE Lincs mitigation sites combined support an annual peak count equal to or greater than the annual peak count for the whole NE Lincs SHG area.

For each species, the NE Lincs mitigation sites combined support an annual mean count equal to or greater than the annual mean count for the whole NE Lincs SHG area.

Level two – mitigation site objectives

For each species, the individual mitigation sites support annual peak counts equal to or greater than the relevant balance sheet target for each site.

For each species, the individual mitigation sites support annual mean counts equal to or greater than the relevant balance sheet target for each site.

Black-tailed godwit, ringed plover and whimbrel – targets triggered once either fields 293 or 398 are developed

Targets to be met from any estuary-side mitigation site.

	Peak	Mean
Black-tailed godwit	180	5.50
Ringed plover	37	1.50
Whimbrel	5	0.10

All mitigation sites will continue to be optimally managed in the long term and remedial measures will be implemented when necessary; however if the level one objectives are met then the integrity of the Humber Estuary SPA/ Ramsar site will be maintained.

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