Industrie Cartarie Tronchetti

Tyler Grange

Industrie Cartarie Tronchetti (ICT) UK Limited and Crag Hill Estates Ltd (CHEL)

Paper Mill Facility, Plot C

Airfields, Northern Gateway

Environmental Statement Part 2 – Ecology and Nature Conservation Technical Paper 5

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1. Introduction

1.1. This Paper has been prepared by Tyler Grange Group Ltd. on behalf of Industrie Cartarie Tronchetti (ICT) UK Limited and Crag Hill Estates Limited (CHEL).

1.2. This Paper will assess the impacts of the proposed development on ecological resources including protected sites, habitats and protected and priority species. The approach outlined in this Paper has been informed by desk-based study, site survey work and published guidance. A review of relevant legislation, national and local planning policy has also been undertaken as part of the impact assessment.

2. Documents Consulted

2.1. The following legislation, National and Local planning policy and data sources have been consulted to prepare this Technical Paper.

Legislation

2.2. Specific habitats and species are afforded protection in the UK under the following legislation:

- The Conservation of Habitats and Species Regulations (Various Amendments) 2018 (The Habitat Regulations);
- Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000;
- Environment Wales Act 2016 (as amended);
- The Protection of Badgers Act (PBA) 1992; and
- Hedgerow Regulations 1997 (as amended)

National Policy

2.3. The Welsh Government sets out in Paragraph 5.1.2 of Planning Policy Wales the following objectives for the conservation and improvement of the natural heritage:

- Promote the conservation of landscape and biodiversity, in particular the conservation of native wildlife and habitats;
- Ensure that action in Wales contributes to meeting international responsibilities and obligations for the natural environment;
- Ensure that statutorily designated sites are properly protected and managed;
- Safeguard protected species; and
- Promote the functions and benefits of soils, and in particular their function as a carbon store.

2.4. Section 5.4 of Planning Policy Wales requires that UDPs set out the locational policy framework for the conservation and enhancement of the natural heritage and seek to conserve and enhance the natural heritage in ways which brings benefits to local communities and encourage social and economic progress.

2.5. UDPs should encourage the appropriate management of features of the landscape which are of major importance for flora and fauna in order to complement and improve the ecological coherence of the Natura 2000 network. This encompasses features which, because of their linear or continuous structure or their function as "stepping-stones" or "wildlife corridors", are essential for migration, dispersal and genetic exchange. Policies should attach appropriate weight to statutory and non-statutory designations and devise criteria against which development will be assessed. The conservation and, where appropriate, enhancement of biodiversity outside designated areas, should also be sought.

National Development Framework

2.6. National Development Framework (NDF) sets out a 20-year land use framework for Wales to be read alongside the PPW. The NDF concentrates on development and land use issues of national significance, indicating areas of major opportunities and change, highlighting areas that need protecting and enhancing.

Wales Spatial Plan

2.7. The Wales Spatial Plan – People, Places, Futures – was originally adopted by the National Assembly for Wales in November 2004 and was updated in 2008 (Welsh Assembly Government, 2008). In Wales, spatial planning is the consideration of what can and should happen where. It investigates how policies and practice interact in specific areas as well as the role of places in a wider context. It goes well beyond traditional land-use planning and sets out a strategic framework to guide future development and policy interventions. The importance of the natural environment is reflected through its vision:

"We will sustain our communities by tackling the challenges presented by population and economic change. We will grow in ways which will increase Wales' competitiveness while assisting less well-off areas to catch up on general prosperity levels and reducing negative environmental impacts. We will enhance the natural and built environment and we will sustain our distinctive identity."

2.8. It is a principle of the Wales Spatial Plan that development should be sustainable. Sustainable development is about improving wellbeing and quality of life by integrating social, economic and environmental objectives in the context of more efficient use of natural resources. The

Wales Spatial Plan aims to deliver sustainable development through its Area Strategies in the context of the Welsh Assembly Government's statutory Sustainable Development Scheme. The Application Site falls within the North-East Wales Border and Coast Area Strategy and the importance of the natural environment is reflected under the third spatial plan theme of 'Valuing our Environment' through the following key priorities for North-East Wales:

"Protecting and enhancing protected wildlife, landscape and built heritage sites."

2.9. Of specific relevance to the proposed development is the identification in the Spatial Plan that *"of note is the River Dee and particularly its estuary, which is internationally important for wildlife, the wonderful coastline with its sand dunes, sandy beaches and high quality bathing waters".*

The Adopted Flintshire Unitary Development Plan

2.10. In September 2011, the Council adopted the Flintshire Unitary Development Plan (Flintshire County Council, 2011). The Plan became operative on the date of adoption and will form the basis for all land use planning decisions affecting the County. The UDP will help to make Flintshire a better place to live and work, enhancing the quality of life of its residents by improving their social and economic well-being, whilst at the same time ensuring that the distinctive environmental and cultural heritage is preserved for the future. Four main themes underpin the Plan strategy, which together set a consistent agenda for the Plan to follow:

- Sustainable development;
- Biodiversity;
- Integrating land use and transport; and
- Community needs

2.11. With respect to the natural environment the plan's strategic aim is to conserve and enhance the natural environment and its diversity – landscape, nature conservation and biodiversity.

2.12. The Plan's strategic policies are the key guiding policies on major issues or topic areas and provide a strategic policy framework for the more detailed policies in Part II of the Plan. With respect to ecology the following strategic policies are of relevance:

GEN1 General Requirements for Development

Development that requires planning permission and is in accordance with the Plan's other policies, should be located on land, or within suitable buildings, which satisfies the following requirements: …

c. the development should not have a significant adverse impact on recognised wildlife species and habitats, woodlands, other landscape features, townscapes, built heritage, features of archaeological interest, nor the general natural and historic environment;

STR7 Natural Environment

The natural environment of Flintshire will be safeguarded by:

a. protecting the open character and appearance of strategic green barriers around and between settlements;

b. protecting and enhancing the character, appearance and features of the open countryside and the undeveloped coast;

c. protecting and enhancing areas, features and corridors of nature conservation, biodiversity and landscape quality both in urban and rural areas, including urban greenspace;

d. protecting and enhancing the Clwydian Range Area of Outstanding Natural Beauty;

e. protecting and enhancing the Dee Estuary;

f. the protection and enhancement of the water environment; and

g. the protection of the quality of land, soil and air.

2.13. The Plan then goes on to provide a series of more detailed policies of which a number are relevant to ecology.

TWH1 Development Affecting Trees and Woodlands

The Council will protect from development those woodlands and trees which are considered to be important local landscape, townscape and wildlife features. Where the principle of development affecting trees or woodland is acceptable, the County Council will require that:

a. *any tree, groups of trees or woodlands of value on or adjacent to the site are retained and that development is sympathetically incorporated around them;*

b. *the pre-planning assessment of the trees and the development complies with the British standard, Guide for Trees in Relation to Construction (BS 5837) 2005; and,*

c. *where the removal of trees is considered acceptable, suitable replacements that are appropriate to the character of the area shall be established elsewhere within the site.*

TWH2 Protection of Hedgerows

Hedgerows which are important for their wildlife, landscape, historic or archaeological value will be safeguarded from significant damage or loss. Where development proposals affect hedgerows the Council will seek to ensure that, wherever possible, they are retained and incorporated into the layout of the development.

WB1 Species Protection

Development which would have a significant adverse effect on important species or their habitats will not be permitted unless appropriate measures are taken to secure their long term protection and viability.

WB2 Sites of International Importance

Development will not be permitted unless:-

a. it is demonstrated that it will not have a significant adverse effect on any Ramsar Site or Natura 2000 site (including SPAs, potential SPAs, SACs, candidate SACs); or

b. *it is demonstrated, following appropriate assessment, that it will not adversely affect the integrity of any Ramsar or Natura 2000 site.*

WB3 Statutory Sites of National Importance

Sites of Special Scientific Interest (SSSI) will be protected. There will be a presumption against development either within or in the vicinity of a site which would have a significant adverse effect on the nature conservation interest of the site.

WB4 Local Sites of Wildlife and Geological Importance

Wildlife Sites and Regionally Important Geological Sites will be protected. Planning permission will not be granted for development that is likely to have a significant adverse effect on their nature conservation or geological value.

WB5 Undesignated Wildlife Habitats

Development will be permitted only if it will not have a significant adverse effect on wildlife and habitats of local importance.

WB6 Enhancement of Nature Conservation Interests

The incorporation within development proposals of measures which improve the nature conservation value of an area will be permitted by the Local Planning Authority.

Flintshire County Council Local Planning Guidance

2.14. Flintshire County Council has produced a series of local planning guidance notes which relate to specific aspects of planning considerations. Of relevance to this chapter are the following:

Local Planning Guidance Note No.4: Trees and Development

Trees are an integral component of Flintshire's landscapes and make a valuable contribution to the quality of both rural and urban settings. Whilst the majority of this note is focused towards tree protection (and therefore outside of the scope of this chapter), this note does identify that *"trees provide habitat for a wide variety of flora and fauna such as badgers, bats, birds, beetles, lichen and bluebells which can be subject to separate legal protection".*

Local Planning Guidance Note No.8: Nature Conservation and Development

This Guidance Note states that the "presence of a species protected under European or UK legislation is a material consideration when the LPA is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitats." The guidance note states that "it is the responsibility of the application to check

the site for the presence of protected species and their habitat and to take them into account at the design stage". The note identifies that the following species are of particular relevance locally to Flintshire:

- Barn owl.
- Bats.
- Great crested newts. Flintshire has a high concentration of great crested newts.
- Snakes and lizards. Species include common lizard, slow worm and grass snake.
- Otters and water voles.
- Native black poplars.

Emerging Local Planning Guidance

Emerging National Policy

2.15. The National Development Framework (NDF) was published in February 2021 and sets out a 20-year land use framework for Wales. This should be read alongside the PPW. The NDF concentrates on development and land use issues of national significance, indicating areas of major opportunities and change, highlighting areas that need protecting and enhancing.

Emerging Local Policy

2.16. The Council are currently preparing a Local Development Plan (LDP). The LDP process gives the opportunity for engagement with a variety of stakeholders from early on in the process, in order that they have the opportunity to influence the Plan as it progresses. The policies contained within will guide decisions on planning applications and seek to protect and enhance the natural and built environment. It will also include proposals for the development of housing, retail, employment and other land uses. The deposit LDP was consulted on from September to November 2019 and is now subject to an independent examination with adoption not expected until 2022.

3. Consultations

3.1. In the case of this application we have not undertaken a detailed Screening or Scoping Opinion Request to the Council. On this basis, Spawforths have sought to confirm with the Council by letter the information to be provided in the Environmental Statement, in accordance with Part 4 (13) of the EIA Regulations, to ensure the scope of the technical chapters and the methodology for assessing the significance of effects is robust. To enable the Council to consider this, Spawforths enclosed the following plans and information:

- A Location Plan identifying "The Land";
- A description of the nature and purpose of the development including a Character Area Plan;
- Topic/Technical Chapters of the ES based on the issues to be assessed;
- Methodology for the Assessment of Significant Effects in accordance with EIA Regulations;
- The cumulative impacts to be considered

3.2. The Council subsequently confirmed that they accepted this approach and methodology including the range of environmental issues against which the proposals should be assessed as part of the Environmental Impact Assessment process.

3.3. In preparation of this Technical Paper, informal consultation has also been undertaken with Amanda Davies of Flintshire County Council, the ecological consultee for the Council. These informal discussions have comprised office and site meetings (detailed in **Table 5.1** below) to discuss and agree the scope of surveys required to accompany the application, along with the outline of level of mitigation necessary for each individual protected species.

3.4. **Table 5.1** provides a summary of the consultation undertaken in preparation of this Technical Paper.

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
Scoping pre-application meeting	9th August 2021	Flintshire County Council (Amanda Davies)	Team Meeting	Scope of surveys required to accompany application Assessment of discharge into River Dee to be undertaken once details of Environmental Permit has been agreed. Effects on Natura 2000 sites to be covered by an Appropriate Assessment.	Tyler Grange confirmed that most of the ecological works are being undertaken as part of the CHEL enabling works, including reptiles and water vole mitigation on the Northern Drain and Shotwick Brook. Tyler Grange will prepare an updated Phase 1 Habitat Survey Report which will also extend to include the area in the redline boundary of the site covering the Welsh Government road. Tyler Grange confirmed that details of any mitigation required associated with water quality and discharge of the River Dee will be met through controls applied as part of the Environmental Permit process. Amanda Davies of FCC confirmed she was happy with the scope and acknowledged that the mitigation already proposed by CHEL deals with the main issues. Amanda did state that the main area of further consideration should be a Habitats Regulations Assessment (HRA) on the River Dee and Dee Estuary to assess any impacts. Tyler Grange stated they will undertake a shadow HRA, which will also reference the mitigation required as part of any Environmental Permit application.
Plots C / D enabling works Deeside Airfields Ecological Assessment	20th October 2020	Flintshire County Council (Amanda Davies)	Submission of report	Details of surveys and mitigation to inform ecological assessment of plot C D enabling works	Scope of surveys and mitigation agreed.

Table 5.1: Summary of Consultations and Discussions

3.5. More generally, extensive previous consultation has been previously undertaken as part of the original Outline Application for the wider Deeside Airfields site and subsequent enabling works applications for the various plots and centred around:

- Scope of surveys of each plot required for each respective reserved matters application;
- The landscape / habitat creation works to undertaken in relation to each plot to implement the Framework Ecological Mitigation Strategy (FEMS) (Middlemarch Report RTMME-112447) which was submitted to discharge planning condition 24 of the outline consent for the wider Deeside Airfields site

4. Methodology and Approach

Study Area

4.1. The study area extends 10km beyond the site boundary for details of international statutory site designations and a 2km zone around the site for national statutory site designations. An updated data search for protected/notable species records was considered unnecessary given the volume of existing ecological data which exists for the site and immediate vicinity, gathered as part of the original Outline application and recent reserved matters application and discharge of planning conditions.

Scoping

4.2. A pre-application meeting was held with Flintshire County Council on the 9th August 2021 to confirm the extent of survey work required to inform the ecological assessment for the Proposed Development and was used to inform the scope of detailed surveys and relevant receptors for inclusion in this assessment. As discussed in Section 3, no formal ES Scoping Opinion was submitted to the Council.

Extended Phase 1 Habitat Survey

4.3. An updated Extended Phase 1 habitat survey was undertaken on 7th July 2021 by John Moorcroft of Tyler Grange Group Ltd., who is an experienced ecologist and full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The survey followed published guidance (JNCC, 2010) and comprised recording the main plant species and classifying/mapping broad habitat types present as well as assessing the potential for legally protected or notable species. Previous Extended Phase 1 Habitat Surveys were completed in 2012/2013 by Middlemarch to accompany the original Outline Planning Application and again in 2020 by Tyler Grange Group Ltd. to accompany the application for discharge of condition 19 for plots C and D of the Airfields Deeside Site.

4.4. Flora names provided in habitat descriptions use common names and follow those provided in New Flora of the British Isles 2nd Edition (Stace, 1997).

Detailed Surveys

4.5. The following surveys were completed to inform the assessment, with further details relating to methodology and results in the relevant Appendix shown:

- Badger survey (7th July 2021) – full survey results provided in **Appendix 5.1**;
- Reptile surveys (August – September 2019) survey results provided in Tyler Grange Report 11071_R11A **Appendix 5.2**
- Water vole / otter surveys (June – September 2019 provided in provided in Tyler Grange Report 11071_R11A **Appendix 5.2** and update survey was undertaken on the 8th July 2021) – full survey results provided in **Appendix 5.3**

Receptors

4.6. The results of the initial desk study, site surveys and data gathered during detailed surveys has been used to evaluate the importance of ecological resources within the ZoI in accordance with CIEEM's Ecological Impact Assessment (EcIA) guidance[1].

4.7. The guidance provides a framework for the evaluation of features that considers the direct biodiversity importance of habitats and species, the indirect importance of features which help support the ecological integrity of key features, legal protection for both sites and species, and evaluation against national and local planning guidance and objectives. It uses a geographic frame of reference for identifying important ecological features according the to the scale in **Table 5.2**.

Designation	Receptors

[1] Chartered Institute of Ecology and Environmental Management. (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. 2nd ed. CIEEM, Winchester.

International	An ecological feature (species, designated site or habitat) which is important at an international level. A population that would meet the published selection criteria as a qualifying feature for designation of a SAC. An internationally designated site or candidate site, i.e. an SPA, proposed SPA (pSPA), SAC, candidate SAC (cSAC), Ramsar site, or an area which would meet the published selection criteria for such designation. Other significant areas of Annex I priority habitats listed in the Habitats Directive, the loss of which would significantly change the overall range and area at the European scale in the long term.
National	Nationally significant populations of species identified in Section 7 of the Environment Wales Act as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the national scale. A population that would meet the published selection criteria as a qualifying feature of a SSSI. A nationally designated site, i.e. SSSI, NNR or discrete area which would meet the published selection criteria for national designation (e.g. SSSI selection guidelines). A significant area of a non-designated habitat type identified in Section 7 of the Environment Wales Act as being of principal importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area of that habitat at the national scale in the long term. Such habitat should be a major component of areas that are at near-equivalence to SSSIs, meeting most of the published SSSI selection criteria
Regional (North Wales)	Regionally significant populations of species identified in Section 7 of the Environment Wales Act as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the regional scale. A significant area of a non-designated habitat type identified in Section 7 of the Environment Wales Act as being of principal importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area of that habitat at the regional level in the long term. Significant areas of semi-natural ancient woodland that do not meet the national value criteria (above) should be considered at this scale due to the irreplaceable nature of such habitat.
County (Flintshire)	Significant populations of species identified in Section 7 of The Environment Wales Act as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), or priority species in the County BAP the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the County scale. Sites formally recognised by local authorities, e.g. SBI, or considered to meet published ecological selection criteria for such designation. A significant area of a non-designated habitat type identified in Section 7 of the Environment Wales Act as being of principal importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area of that habitat at the county scale in the long term. A significant area of key habitat identified in the County BAP.
Local	Species listed on any of the above-mentioned priority lists, that appreciably enrich District/Borough biodiversity, but which are not in themselves of District/Borough importance or greater. Semi-natural habitats, listed on any of the above-mentioned priority lists, that appreciably enrich local biodiversity, but which are not in themselves of District/Borough importance or greater.

Negligible / Site	Species populations of limited ecological importance due to their size, composition or lack of threat/rarity. The loss of such features would have no discernible impact on the species'/habitat's overall range and conservation status at any administrative scale in the long term but would inevitably impact on habitats or populations of species within the context of the site.

Table 5.2: Receptors

Environmental Impacts

4.8. The assessment should consider impacts including direct loss of habitats, fragmentation and isolation of habitats, disturbance or killing / injury of species, changes to key ecological features, and changes to the local hydrology or water quality.

4.9. The following factors are considered when describing ecological impacts:

- Positive or negative – an impact can improve or reduce the quality of the environment, evaluated against nature conservation objectives and policy;
- Extent - this is the area over which an effect occurs;
- Magnitude - the size or amount of an effect, determined on a quantitative basis where possible;
- Duration - the time for which an effect is expected to last prior to recovery or replacement of the resource or feature;
- Timing and frequency - some effects are only likely if they happen to coincide with a critical life-stage or seasons. Others may occur if the frequency of an activity is sufficiently high;
- Reversibility - an irreversible (permanent) effect is defined as one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) effect is one from which spontaneous recovery is possible or for which effective mitigation is both possible and enforceable; and
- Cumulative effects - where consideration is given to any other developments within the ZoI, together with the proposed development, may result in significant effects.

The overall magnitude of impacts and the associated environmental impact are presented in **Table 5.3** below.

Magnitude	Environmental Impact
Major	An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a national level or above.
Moderate	An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a county or regional level.
Minor	An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a local or site level.
Negligible	An effect which will have an insignificant impact on an ecological feature.
Neutral	No effect which will impact an ecological feature.

Table 5.3: Environmental Impacts

Significance of Effects

4.10. The significance of effect is determined using the significance matrix in Section 6 of the Environmental Statement Part 1 Report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

4.11. In accordance with professional guidance and terminology, a significant effect, in ecological terms, is defined as an effect (positive or negative) on the integrity of a defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative effects. Insignificant effects are those that would not result in such changes.

4.12. The importance of any features that would be significantly affected is then used to identify geographical scales at which the effect is significant. This value relates directly to the consequences, in terms of legislation, policy and/or development control at the appropriate level. So, a significant negative effect on a feature of importance at one level would be likely to trigger related planning policies and, if permitted, generate the need for development control mechanisms as described in those policies.

4.13. Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with the guidance derived from policies applied at the scale relevant to the feature or resource.

4.14. Effects are unlikely to be significant where features of local importance or sensitivity are subject to small scale or short-term effects. However, where there are a number of small

scale effects that are not significant alone, it may be that, cumulatively, these may result in an overall significant effect.

4.15. The assessment of effects uses the terminology described above. However, to provide consistency with the terminology throughout the ES, potential and residual effects (positive or negative) are also described using the terms set out in **Table 5.3.**

Impact Prediction Confidence

4.16. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 5.4: Confidence Levels

Assumptions / Limitations

4.17. Limitations with respect to specific protected species are provided in **Appendices 5.1** to **5.4**. No other assumptions/limitations were identified during the preparation of this assessment.

5. Baseline Information

Protected Sites

5.1. A desk study was undertaken in September 2019. The data search has been undertaken for a 10km radius around the Site for international statutory sites and a 2km radius for national statutory and non-statutory sites. An updated data search for protected/notable species records was considered unnecessary given the volume of existing ecological data which exists for the site and immediate vicinity, gathered as part of the original Outline and subsequent applications associated with both the wider Airfields site and adjacent former Corus City Garden City development sites.

5.2. The Site is not covered by any statutory or non-statutory site designations. **Tables 5.5** and **5.6** below outline the international and national statutory and non-statutory sites identified within the Zone of Influences mentioned above.

5.3. SAC, SPA and Ramsar sites are of international importance for nature conservation and are legally protected in the UK by the Habitat Regulations. Sites of Special Scientific Interest are of national importance and are protected through both National and Local Planning Policy. Local Wildlife Sites and other non-statutory sites are of county importance and are not afforded any specific legal protection. All protected sites are considered under Local Planning Policy WB2, WB3 and WB4.

Site Name	Designation	Distance / Direction from Site	Reason for Designation
River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid	Special Area of Conservation	Near to southern boundary of site	The primary reasons for the selection of this site as an SAC are that it is an Annex I habitat (code 3260 – water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-batrachion* vegetation) and that is supports the Annex II species Atlantic salmon *Salmo salmar* and floating water-plantain *Luronium natans*. Other Annex II species which are a qualifying feature (but not a primary reason for selection) are sea lamprey *Petromyzon marinus*, brook lamprey *Lampetra planeri,* river lamprey *Lampetra fluviatalis*, bullhead *Cottus gobio* and otter *Lutra lutra.*
River Dee / Afon Dyfrdwy	Site of Special Scientific Interest	Near to southern boundary of site	River Dee is of special interest for its fluvial geomorphology, Carboniferous geology, range of river habitat types, saltmarsh transition habitats, populations of floating water plantain, slender hare's-ear, sea barley, hard-grass, otter, salmon, bullhead, brook lamprey, river lamprey, sea lamprey, club-tailed dragonfly and other aquatic invertebrates. The features for which the SSSIs are notified, in particular migratory fish, depend upon the whole river ecosystem. Salmon, otter, club-tailed dragonfly, and fluvial geomorphology are of special interest.

Dee Estuary SAC	Special Area of Conservation	500m to NW	The Dee Estuary SAC site possesses the following habitats that are considered to be some of the best areas in the United Kingdom for their type: • Mudflats and sandflats not covered by seawater at low tide; • Salicornia and other annuals colonising mud and sand; • Atlantic salt meadows; • Estuaries; • Annual vegetation of drift lines; • Vegetated sea cliffs of the Atlantic and Baltic coasts; • Embryonic shifting dunes; • Humid dune slacks; • Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'); and • Fixed dunes with herbaceous vegetation ("grey dunes"). The site is also known to support petalwort, river lamprey and sea lamprey, for which the area is considered to support a significant presence.
Dee Estuary SPA	Special Protection Area	500m NW	The Dee Estuary SPA supports bird populations of European importance including Annex I species: common tern, little tern, bar-tailed godwit and sandwich tern, and Annex II species: dunlin, curlew, grey plover, oystercatcher, pintail, red knot, redshank, shelduck and teal. The site also supports a wetland bird assemblage of international importance.
Dee Estuary Ramsar	Ramsar	500m NW	The Dee Estuary Ramsar site is designated as it supports extensive intertidal mud and sand flats (20 km x 9 km) with large expanses of saltmarsh towards the head of the estuary. The site supports the Annex I habitats listed under the SAC information above. In addition, the site supports bird assemblages of international importance and bird populations of international importance of the following species: Shelduck, oystercatcher, curlew, redshank, teal, Northern pintail, grey plover, red knot, dunlin, black-tailed godwit, bar-tailed godwit and ruddy turnstone. The site also supports the following noteworthy flora: Rock sea-lavender (endemic); Portland spurge; and, common cordgrass (invasive non-native species).
Dee Estuary SSSI	Site of Special Scientific Interest	500m to NW	The Dee Estuary SSSI is of special interest for its total populations of internationally important wintering waterfowl; its populations of individual waterfowl and tern species whose numbers reach national and in some cases, internationally important levels; its intertidal mud and sandflats, saltmarsh and transitional habitats; hard rocky sandstone cliffs with their cliff vegetation and maritime heathland and grassland; its assemblage of nationally scarce plants; and its populations of sandhill rustic moth.

Deeside and Buckley Newt Sites SAC	Special Area of Conservation	1.7km to SW	This area comprises the following Sites of Special Scientific Interest: Buckley Claypits, Connah's Quay Ponds and Woodlands, and Maes y Grug. The site is designated for its great crested newt populations for which it is considered to be one of the best areas in the United Kingdom. In addition, the area also possesses old sessile oak woods with *Ilex* and *Blechnum* for which the area is considered to support a significant presence.
Connah's Quay Ponds and Woodlands SSSI	Site of Special Scientific Interest	2.0 km to SW	The Connah's Quay Ponds and Woodlands is a composite site located on the coastal slopes of the Dee Estuary and is designated as a SSSI due to its population of great crested newts, its assemblage of widespread amphibian species, and for its semi-natural broadleaved woodland. Waterbodies within the designated area support one of the largest known breeding populations of great crested newt in Great Britain. In addition, the ecological interest of the site is enhanced by the presence of several social groups of badger.
Shotton Lagoons and Reedbeds SSSI	Site of Special Scientific Interest	2.3 km to W	The Shotton Lagoons and Reedbeds are of special interest for their breeding population of common tern and their reedswamp vegetation characterised by common reed. The common tern population is of European importance. A variety of other breeding birds also occur, and the site supports a large number of wintering waterfowl. Reedbeds are uncommon in North Wales and the area at Shotton represents one of the largest in North-east Wales. Two nationally scarce plants occur at this site – variegated horsetail occurs in its only known coastal site in North-east Wales, whilst white mullein grows on basic slag around some of the wetland features. Additionally, a wide range of locally uncommon plant species also occur and a number of notable insects have been recorded.

Table 5.5: Statutory Designated Sites Within the Study Area

5.4. Sites with international conservation designations (SAC, SPA, Ramsar) are considered to be of international ecological importance because fauna, flora and habitats within these designations have been recognized as being of importance in maintaining populations beyond UK borders and or contain significant proportions of world populations.

5.5. Sites with national designations contain habitats and or species which have been recognized as being of national ecological importance.

Site Name	Designation	Distance / Direction from Site	Reason for Designation
The River Dee LWS	Local Wildlife Site	Adjacent to site	This Flintshire Wildlife Site has been partially superseded by the statutory designation of the River Dee SAC / SSSI. This elongated and narrow site comprises of banks of the River Dee between the county boundary at Saltney and the Dee Estuary SSSI boundary at Connah's Quay Power Station. The site is designated for its mudflats, coastal and floodplain grazing marsh, coastal saltmarsh and for its ornithological interest.
Shotton Bank 1 and 2	Local Wildlife Site	600 and 700m to SE	Two small sites located on the southern bank of the River Dee either side of the A494 crossing point.

Engineer Park 1 and 2	Local Wildlife Site	2km SE	This site is 1.44ha in extent and is part of the old River Dee Wildlife Site and comprises semi-improved neutral grassland with scrub and saltmarsh grading onto intertidal mud.
Wepre Wood	Local Wildlife Site	2km SW	Although designated as a Flintshire Wildlife Site, Wepre Wood is also largely a part of Buckley and Deeside Newt Sites (SAC). The site extends to 2.18 ha and comprises semi-natural broad-leaved woodland and scrub with a diverse woodland field layer including moschatel, woodruff, bluebell and wood anemone. Common twayblade is also known to occur.
Shotton Steelworks	Local Wildlife Site	2.3 km NW	No data provided.

Table 5.6: Non-Statutory Designated Sites Within the Study Area.

5.6. Sites with LWS designations contain habitats and or species which have been recognised as being of **county ecological importance** or are considered restorable to that level of ecological value.

Habitats

5.7. The Extended Phase 1 Habitat Survey identified the following habitats within the Site (listed in alphabetical order):

- Arable land;
- Bare ground;
- Grassland (amenity)
- Grassland (poor semi-improved);
- Hedgerow (intact species poor);
- Marginal vegetation;
- Tall ruderal;
- Watercourse (the River Dee)
- Woodland (broadleaved plantation);

5.8. For ease of reference, each habitat type has been described alphabetically below. The distribution of these habitat types within the site is illustrated on the Habitat Features Plan **14150 / P01** (**Figure 5.1**).

Arable land

5.9. This habitat type is the dominant coverage, on land being used for the Welsh Government Commercial Spine Road, the corridor of which is also included within the Application Site as it is being used for the pipework and infrastructure for discharge of water resulting from the paper production process.

5.10. Photograph **5.1**, below. The habitat type is intrinsically of **negligible ecological importance** supporting crops. However, they do provide resources for breeding and wintering birds, which are discussed separately under the '*Protected Species'* sub-heading of this section. For ease of reference, each field was prescribed a field number, which are all illustrated on the accompanying habitat features plan **14150 / P01** (**Figure 5.1**).

5.11. At the time of the survey the arable fields (F2 and F3) a maize crop was being cultivated (photograph **5.1** below).

5.12. Margins of these fields support a range of common frobs and grasses typical of arable field margins including; creeping cinquefoil *Potentilla reptans*, vetch *Vicia sp.*, cock's-foot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus*, common nettle *Urtica dioica*, ragwort *Senecio jacobaea*, dock *Rumex sp.* and *Poa* sp.

Photograph 5.1 – Maize fields within site

Bare ground

5.13. There are areas of bare ground in the northeastern most part of the Site where works are currently underway in relation to storage of excavated material associated with the other parts of the Deeside Airfields development and Welsh Government Spine Road. Areas of the bare ground are subject to seasonal inundation associated with the ongoing works described above (photograph **5.2**). This habitat is considered to be **of negligible** ecological importance

Photograph 5.1 – Bare ground within site

Grassland (amenity)

5.14. There is an area of amenity grassland adjacent to the cycle way along the River Dee photograph **5.3**). The grassland is short-mown and comprises common and widespread species. As the grassland sward supports only a small range of grasses and commons forbs and is close mown providing no cover for wildlife it is of **negligible ecological importance.**

Photograph **5.3** – Amenity grassland on site.

Grassland (poor semi-improved)

5.15. This habitat dominates the Site. The species composition is dominated by a typical range of common forbs and grasses including; red fescue *Festuca rubr*a, with frequent ribwort plantain *Plantago lanceolata*, Yorkshire fog, common sorrel *Rumex acetosa*, creeping cinquefoil, cocksfoot and lesser trefoil *Trifolium dubium*. Other species present within the grassland include ragwort Senecio Jacobaea, *dandelion Taraxacum officinale* yarrow *Achillea millefolium*, common mouse-ear *Cerastium fontanum*, birdsfoot trefoil *Lotus corniculatus*, wild

carrot *Daucus carota*, white campion *Silene latifolia* and perennial rye grass *Lolium perenne* (photograph **5.4**). The habitat itself is considered intrinsically to be of **negligible ecological importance** but does provide habitat for a range of species including farmland birds and small mammals.

Photograph **5.4** – poor semi-improved grassland

Hedgerow

5.16. A species-poor intact-hedge (H1) which delineates the boundary between the Airfields site and former Corus Garden City Northern Gateway development sites is bisected by the Welsh Government commercial Spine Road (photograph **5.5**). The hedge is dominated by hawthorn *Crataegus monogyna*, with occasional elder *Sambucus nigra*, and is approximately 3.5m wide x 3.5m high, with no evidence of recent management. The hedge is considered to be **of local ecological importance** as it provides a habitat connection between two watercourses; Shotwick Brook and Garden City Drain.

Photograph 5.5 – Intact species poor hedgerow on site

Marginal vegetation

5.17. The proposed land for pipework and infrastructure for discharge of water resulting from the paper production process included a short section of the bank of the River Dee. The bank in this part of the site is heavily modified and has been seeded with a grass mixture as evidenced by a high proportion of perennial rye grass and other forbs atypical of estuarine riverbank such as red clover, black knapweed, common catsear and lesser trefoil. Only at the waters' edge is there any growth of estuarine grass, such as Spartina sp. (photograph **5.6**). Given the modified nature of the habitat in this section of the riverbank it is considered to be of **negligible ecological importance.**

Photograph 5.6 – Marginal vegetation next to River Dee

Tall Ruderal

5.18. There were areas of tall ruderal vegetation along field margins associated with Shotwick Brook and Northern Drain and along the margins of fields affected by the Welsh Government Commercial Spine Road and pipework for discharge of water from the paper mill and are typically dominated by common nettle (Photograph **5.7**), with hogweed, common dock and rosebay willowherb *Chamerion angustifolium* also present.

5.19. This habitat type is ubiquitous on roadside banks and verges and whilst it can provide habitat for a range of small mammals, amphibians, reptiles and invertebrates (discussed under the '*Protected Species'* sub-heading below) it is intrinsically of **negligible ecological importance.**

Photograph 5.7 – Tall ruderal vegetation along arable field boundary

Watercourses

5.20. The point of discharge for pipework and infrastructure taking water resulting from the paper production process includes a short section of the bank of the River Dee, which at the point of discharge is an engineered estuarine channel with exposed mudflats at low tide (photograph **5.8)**. The river at this point lies within the River Dee SAC and is therefore considered to be of **international ecological importance.**

Photograph 5.8 – Showing River Dee Channel at point of discharge

Woodland (broadleaved plantation)

5.21. A belt of broadleaved plantation (W1) lies near the southern boundary of proposed route for the pipeline for discharge of water from the paper production and infrastructure. It consists of a double avenue of Lombardy poplars *Populus nigra var italica* as well as other species including; sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior*, hawthorn *Crataegus monogyna*

and alder *Alnus glutinosa* (photograph **5.9**). This habitat feature is considered to be of **local ecological importance** as it forms a woodland corridor along the river linking to another woodland belt near to the John Summers building complex on the former Corus Garden City Northern Gateway site.

Photograph 5.9 – Scattered trees on site. (A) a line of poplars along the southern boundary, and (B) mature ash at northern boundary.

Habitats on Adjacent Land

5.22. Shotwick Brook' runs north-south at a distance of approximately 21m to the west of the Site boundary and is a partially tidal watercourse due to its connectivity to the River Dee estuary. It is terminated by a sluice gate at its southern extent (before connecting to the River Dee) but continues at its northern extent beneath a large road bridge off-site to the north. The eastern bank of the brook closest to the Site boundary comprises dense grasses, reeds and other tall herbs and ruderals (photograph **5.10).**

Photograph 5.10 Shotwick Brook

5.23. Northern Drain borders the site to the north as at a distance of approximately 8m to the Site boundary and supports similar habitat to that described along Shotwick Brook although the channel is much overgrown and sections dry out in the summer months during periods of low rainfall.

Photograph 5.11 Northern Drain

5.24. Between the watercourses (described above) and northern and western boundaries of the site there is a strip of land subject to Plot C enabling works consisting of the excavation of flood alleviation areas which are covered by a separate reserved matters consent. This area is currently under construction but once complete the areas are to be restored to provide a mixture of tussocky grassland, scrub and reptile refuges and where appropriate hedges to screen the site from adjacent development.

5.25. The eastern boundary of the site is bordered by land which will become part of the Welsh Government commercial Spine Road and land to the south consists of poor semi-improved grassland forming Plot D of the Airfields development.

Protected and Priority Species

5.26. **Table 5.7** below summarises the findings of the detailed surveys undertaken for protected species within the site.

Species	Description	Importance	Appendix
Badger	Main sett recorded off site to the west beyond Shotwick Brook – details provided in **confidential** appendix.	Negligible[2] (population is ubiquitous) and protection is for animal welfare reasons	Appendix 5.1
Birds	Breeding bird surveys and over-wintering bird surveys conducted as part of the outline application and noted populations of bird species of conservation concern nesting within and adjacent to the site consisting of: Breeding bird species red listed: 1 territory of song thrush *Turdus philomelos* and 1 linnet *Linaria cannabina*, amber listed 1 territory of reed bunting *Emberiza schoeniclus*, 1 willow warbler *Phylloscopus trochilus* and 2 dunnock *Prunella modularis*. together with a range of greening listed species consisting of common woodland birds, mallard *Anas platyrhynchos* and moorhen *Gallinula chloropus*. Over-wintering bird species recorded within the site in the most recent surveys completed in 2016/2017 comprised red listed lapwing *Vanellus vanellus*, skylark *Alauda arvensis*, fieldfare *Turdus pilaris*, redwing *Turdus Iliacus*, starling *Sturnus vulgaris*, song thrush and linnet (which are also priority species) together with amber listed snipe *Gallinago gallinago* and meadow pipit *Anthus pratensis*. The section of the River Dee adjacent to the site was found to be used by redshank *Tringa totanus*, lapwing, herring gull *Larus argentatus*, black-headed gull *Larus ridibundus*, little egret *Egretta garzetta* grey heron Ardea cinerea and cormorant *Phalacrocorax carbo*.	Local	N/A

[2] For the purposes of EIA terminology and assessing impacts, badgers are considered to be of **negligible ecological importance.** This is due to the fact that their population distribution is ubiquitous and expanding in some areas so they are not of conservation concern. Their protection relates to the protection of individual badgers and their setts rather than the Favourable Conservation Status

Great Crested Newt (GCN) and other amphibians	Previous surveys confirmed the likely absence of GCN from the application site (see previous Framework Ecological Mitigation Strategy) but other species of amphibian not protected under the Conservation of Habitats and Species regulations (common toad *Bufo bufo* and common frog *Rana temporaria*) likely to be present within the site.	Site (GCN absent from site)	N/A
Mink	Known to be present in surrounding landscape, with some evidence of presence along Shotwick brook and Garden City drain recorded during water vole surveys	Negligible	Appendix 5.3
Otter	No evidence of otter was found along Shotwick Brook during survey conducted in July 2021. Limited evidence of this species during surveys conducted in 2019.	Local	Appendix 5.3
Reptiles	Small population of common lizard *Zootoca vivipara* and single grass snake *Natrix natrix* recorded along Shotwick Brook adjacent to site.	County	Appendix 5.2
Water vole	Population of water vole along Shotwick Brook. Highest densities of population are towards the southern end of Shotwick Brook to the south of the Site (before it enters culvert under the former Shotton Steelworks site).	County	Appendix 5.3

Table 5.7 – Summary of Protected Species

Future Baseline

5.27. In accordance with Schedule 4 (3) of the EIA Regulations, the likely evolution of the environment without implementation of the development is considered to be as follows:

5.28. The Site would continue to be dominated by poor semi-improved grassland. It is likely that areas of hawthorn/elder/bramble scrub along the bund which runs parallel to Shotwick Brook would eventually succeed into the areas of grassland along this bund.

5.29. Shotwick Brook is subject to dredging and maintenance so the condition of this water feature is not expected to alter in the future. It is also likely that the row of Lombardy poplars along the southern boundary of the site may come to the end of their useful life in the near future and would need selective removal.

5.30. It is considered that in the absence of any development, the site would continue to support a similar assemblage of protected and notable fauna. It is possible that the value of the site for reptiles may decline over time with the succession of scrub across the areas of grassland, where the existing reptile population is currently most prevalent.

5.31. The wintering bird surveys completed to date by Middlemarch and Tyler Grange Group Ltd. showed variable usage by wintering birds across the development site and wider outline site. This is likely due to changes in crop regimes within the site and wider area so it is not possible to accurately predict the future baseline of the site relating to over-wintering birds.

5.32. It is also noted that in the absence of any development or conservation efforts for water vole, the presence of mink in the vicinity is very likely to have a significant adverse impact on the population of water vole that is present along Shotwick Brook.

5.33. The evolution in this baseline prediction is based on the availability of environmental information and scientific knowledge.

6. Alternatives Considered

6.1. Previous proposals for the ICT Paper Mill were centered on land to the east of the John Summers Building and on land to the west of the southern end of Shotwick Brook, on land forming part of the former Corus Garden City Northern Gateway site which grants outline approval for a mix of uses including residential and industrial development on the Site and the diversion of Shotwick Brook.

6.2. The Site which is the subject of this planning application on Plot C of the Airfields Site does not affect Shotwick Brook and is therefore much less ecologically intrusive and avoids issues relating to protected species such as the need to relocate water vole populations present in the southern end of Shotwick Brook and the need to move a main badger sett.

6.3. It was confirmed through discussions with Welsh Water that the local sewer network would not have sufficient capacity to accommodate the proposed volumes of discharge so a discharge into the river will be necessary.

6.4. Following ongoing dialogue with NRW, conditions to permit discharge to the River will be agreed through the Environmental Permit to ensure the constituents of the treated water, its temperature and flow are at an acceptable level so as to not result in any residual adverse impacts on the qualifying features of the River See SAC or Dee Estuary SAC.

6.5. As part of ICT UK Ltd.'s site selection for a Proposed Paper Mill, a number of sites across the UK were considered. This development site was chosen due to market needs and available employment land. In the local area, the River Dee SAC is the only watercourse of sufficient volume and size to accommodate the required amounts of water discharge. So, any development of this nature in the area would result in the same impacts on the qualifying features of the River Dee. Further upstream would also result in potential impacts on other and more qualifying features of the River Dee SAC than the proposed site location would.

7. Potential Environmental Effects

Construction Phase

7.1. The potential effects on sites, habitats and species identified in the ecological assessment are described below. The construction phase of the Proposed Development in this instance is considered to include all works associated with site clearance within Plot C of the Airfields Deeside Site and the construction corridor for the Welsh Government commercial Spine Road also taking pipework from the tissue factory site to the outfall on the River Dee (as shown on the plans attached to **Appendix 9** of the ES Part 1 Report).

7.2. Enabling works associated with Plot C and have been assessed separately as part of the ecological assessment to discharge condition 19 of the outline consent (See Tyler Grange Report 11071_R11a). Enabling works were granted permission in July 2021 (planning reference 061986).

7.3. The significance of the effect on each feature is assigned an importance (in accordance with CIEEM Guidelines for Ecological Assessment) and presented in **Table 5.8.**

Protected Sites

Statutory Sites

7.4. The potential for impacts to European Nature Conservation Designations were considered in the Environmental Statement (ES) which accompanied the 2013 Outline Planning Application for the wider Airfields site and set out in detail the potential effects arising for the overall development proposals for the Airfields site on each of the qualifying features for: the River Dee & Lake Bala SAC and the Dee Estuary SAC, SPA and Ramsar and Deeside and Buckley Newt Sites (SAC). This also included an Appropriate Assessment (AA) Report (appendix D1 of the ES Chapter), which examined the potential for effects on the above Natura 2000 sites.

7.1. The potential for impacts to European Nature Conservation Designations were also considered in the subsequent Ecological Assessment Report covering the discharge of planning condition 19 for plots C and D enabling works for the Airfields Deeside site (TG report 11071_R011a). These were deemed to be **neutral** provided pollution control measures are implemented as per the enabling works Construction Ecological Management Plan (CEMP) (see TG report 11071_R12 D).

7.5. A further Appropriate Assessment which deals with the specific details of the Proposed Development contained within this ES is to be submitted to Flintshire Council during the course of the application determination process. This will set out in further detail the potential effects on European Conservation Designations arising from the Proposed Development and any subsequent mitigation that may be required to render any residual effects insignificant.

7.6. **Table 5.8** overleaf summarises the potential effects identified from the previous ES Technical Papers and Column 3 of the table provides commentary on the likelihood of impacts relating to the development of this specific Application Site and Proposed Development.

Designation	Nature of Impact	Relevance to development on Application Site
River Dee & Lake Bala SAC (International) and SSSI (National) The Dee Estuary SAC, SPA, Ramsar (International) and SSSI (National)	Adverse changes to water quality within the River Dee which subsequently impacts on qualifying criteria.	In the absence of appropriate pollution control measures there is a risk of pollution. This is mainly associated with the proposed construction of an outfall from a pipeline link from the tissue factory to the River Dee.
	Disturbance to migrating salmon as a result of sheet piling works associated with flood defence works.	Apart from construction of an outfall into the River Dee no bankside works are proposed. Noise and vibration arising from this construction would be limited and unlikely to affect migratory fish.
	Localized disturbance to riverbanks used by otters	The construction of the outfall into the River Dee could temporarily disrupt
	moving along the River Dee	Dispersal pathways of otter which use the River Dee.
The Dee Estuary SAC, SPA, Ramsar (International) and SSSI (National)	Noise disturbance to concentrations of qualifying bird species using known feeding, roosting or breeding areas resulting in reduced feeding / breeding from bird populations.	In the absence of mitigation there is the risk of disturbance to qualifying bird species of the Dee Estuary SPA as small numbers of birds use the exposed mud along the section of River adjacent to the site at low tide.
Deeside and Buckley Newt Sites SAC	None predicted due to distance between the site and the SSSI (1.7km)	None
Connah's Quay Ponds and Woodlands SSSI	None predicted due to distance between the site and the SSSI (1.7km)	None
Shotton Lagoons and Reedbeds SSSI (also part of the Dee Estuary RAMSAR and SPA)	None predicted due to distance between the site and the SSSI (2.3km)	None

Table 5.8 Summary of Potential Effects on Statutory Nature Conservation Designations during Construction

Non-Statutory Sites

7.7. The potential for effects arising from development of the wider Airfields site on non-statutory nature conservation designations have also been considered in the ES Paper for the Outline Planning Application in 2013 and subsequent Ecological Assessment Report covering the discharge of planning condition 19 for plots C and D of the Airfields site (TG report 11071_R011a).

7.8. Table 5.9 overleaf summarises the potential effects identified from the previous ES Technical Paper and Column 3 of the table provides commentary on the likelihood of impacts relating to the development of this specific Application Site and Proposed Development.

Designation	Nature of Impact	Relevance to development on Application Site
River Dee Wildlife Site (County)	Adverse changes to water quality within the River Dee which subsequently impacts on features within the wildlife site.	In the absence of appropriate pollution control measures there is a risk of pollution. This is mainly associated with the proposed construction of an outfall into the River Dee. There is also the potential for contaminated runoff entering the River from development area which lie adjacent to it.
	Disturbance to migrating salmon as a result of sheet piling works associated with	Apart from construction of an outfall into the River Dee no bankside works are proposed.
	Flood defence works.	Noise and vibration arising from this construction would be limited and unlikely to affect migratory fish.
	Noise disturbance to birds forming the ornithological interest of the site	In the absence of mitigation there is the risk of disturbance to small numbers of birds using the exposed mud along the section of River adjacent to the site at low tide.
Shotton Bank (1 and 2) Wildlife Sites (County)	Changes to habitats and species within the Wildlife Site as a result of dust and NO_x deposition altering the nature of the habitats.	In the absence of dust suppression measures adjacent habitats within the Wildlife Site could be contaminated.
Engineer Park 1 and 2	None predicted due to distance of site to LWS boundary (2km)	None
Wepre Wood	None predicted due to distance of site to LWS boundary (2km)	None
Shotton Steelworks	None predicted due to distance of site to LWS boundary (2.3km)	None

Table 5.9 Summary of Potential Effects on non- Statutory Nature Conservation Designations during Construction

Habitats

7.13. The majority of the Site comprises poor semi-improved and arable habitat, which intrinsically has **negligible ecological importance.** There are also areas of bare ground, modified marginal vegetation (associated with the engineered banks of the River Dee) and areas of tall ruderal vegetation also assessed as being of **negligible ecological importance**. There is no specific requirement for mitigation regarding the loss of these habitats. However, mitigation for general habitat losses as a result of the wider Airfields development are included within the Framework Ecological Mitigation Strategy (FEMS) (Middlemarch Report RTMME-112447) which was submitted to discharge planning condition 24 of the outline consent for the wider Deeside Airfields site and are referenced in the mitigation section of this ES Technical Paper.

7.14. It should be noted, however, that some of these habitats offer suitable habitat for a range of protected and notable species, which is discussed separately in the relevant 'Protected Species' sections.

7.15. Partial/complete habitat loss relating to other habitats of **local ecological importance** or greater within the site comprises:

Hedgerows

7.16. Approximately 50m of species-poor defunct hawthorn hedgerow is proposed for removal, as part of the Welsh Government commercial spine road (also accommodating the proposed pipeline and infrastructure from the tissue factory). This loss is already mitigated through:

a) provision of new hedge planting associated with the enabling works currently underway in relation to plots C and D of the wider Airfields Deeside development; and

b) Landscaping associated with the Welsh Government commercial Spine Road.

7.17. It should be noted, however, that this impact relates only to the Welsh Government commercial spine road and is not connected to the Proposed Development.

7.18. The Proposed Development could also result in damage to roots to adjacent hedgerow compaction and in the absence of any mitigation this would result in a **permanent** but **minor adverse impact**.

7.19. The landscaping scheme for the Proposed Development (see drawings 2187-21-02 to 03 produced by Barry Chinn Associates) indicates the provision of 'thicket mix planting' along the Shotwick brook corridor, along with native hedgerow planting and small areas of close-mown grass areas, wildflower grass seed areas and tree planting.

7.20. Whilst this planting matures to offer any meaningful ecological function, there would be a **temporary minor adverse impact** on habitats as a result of development. Once mature, however, this would result in an overall **minor beneficial impact** in respect of habitats.

Watercourses

7.21. As previously stated in tables 5.8 and 5.9 above, construction works, particularly the outfall to the River Dee for the pipeline and infrastructure discharging water from the Paper Mill Manufacturing Facility could (in the absence of suitable pollution control measures) result in a pollution incident affecting a River of international ecological importance. Such an impact would be **significant adverse** but temporary in nature.

7.22. Impacts arising from loss of a small section of bankside habitat (approximately 60m) for construction of the outfall would be **negligible** as the marginal vegetation along the riverbank where the outfall is proposed is heavily modified and of negligible ecological importance.

Woodland (broadleaved plantation)

7.23. A tree loss plan prepared by Barry Chinn Associates as part of the Landscape and Visual Impact Assessment (LVIA) for the site indicates the removal of 14 trees in woodland W1 near the southern boundary of proposed route for the pipeline for discharge of water from the paper production. Trees within the site are considered to be of **local ecological importance**. In the absence of any mitigation, this would result in a **permanent, minor adverse** impact.

7.24. The proposed construction phase also poses the risk of damaging roots of retained trees adjacent to the works due to plant movement and materials storage etc. In the absence of any mitigation, this would result in a **permanent** but **minor adverse impact**.

Habitats on Adjacent Land

7.25. The potential impacts of development and proposals for mitigation in relation to both Northern Drain and Shotwick Brook have been assessed separately as part of the enabling works for plots C and D of the Airfields development which are currently under construction.

7.26. The proximity of construction works in relation to Shotwick Brook and Northern Drain could (in the absence of suitable pollution control measures) result in incidental pollution in the event of spillages, especially during construction of surface water drainage connections to the swale (constructed as part of the part of the Plot C /D enabling works) and which ultimately indirectly (via the flood attenuation area adjacent to the western boundary of the site) connects to Shotwick Brook. Such an impact would result in a **temporary minor adverse impact.**

7.27. However, new habitats being created within the enabling works area surrounding Plot C where the paper mill facility is proposed, could (in the absence of suitable control measures) be at risk of disturbance during the construction phase of the Proposed Development. This would equate to a **temporary minor adverse impact.**

Protected and Priority species

7.28. In the absence of mitigation, the Proposed Development would result in the loss of habitats supporting protected and priority species. Construction activities also pose additional risks of disturbance/killing/injury. A description of the potential impacts on each species as a result of the construction phase is outlined below.

Badger

The boundary of the Site lies some 420m to the northeast of the nearest active badger sett and therefore a no impacts to badger setts are predicted. There will be loss of approximately 21ha of poor semi-improved grassland likely to provide foraging habitat for badger but due to mitigation for general habitat losses as a result of the wider Airfields development included within the FEMS, this impact is predicted to be **negligible.**

Bats

7.29. No potential bat roosts were identified in trees within W1 which lie within and adjacent to the proposed works. No other buildings or tree with the potential to support bat roosts were identified.

7.30. Habitat loss and disturbance to bat foraging routes arising as a result of enabling works affecting foraging routes for bats along Shotwick Brook and Northern Drain have been assessed separately as part of the enabling works for Plots C and D of the Airfields development which are currently under construction.

7.31. Bats are likely to use Shotwick Brook, Northern Drain and Hedge H1 for foraging and commuting purposes. Given the distance of Shotwick Brook to the Plot C site (approximately 21m) disturbance to bats foraging and commuting along Shtowick Brook as a result of construction work is highly unlikely. However, due to the proximity of construction work of the Proposed Development it is possible that (in the absence of appropriate noise and lighting control measures at night) construction works could result in the temporary disruption of foraging routes along Northern drain and along hedge H1which would result in a **temporary minor adverse impact.**

Birds

7.32. Potential impacts relating to qualifying bird species of the Dee Estuary SPA are to be addressed via the Appropriate Assessment.

7.33. Development proposals are likely to result in the loss of approximately 21 ha of poor semi-improved grassland providing breeding habitat for small numbers of red listed / priority species and a range of wintering birds which also include red listed / priority species (mainly farmland birds): See **Table 5.7** for details. In the absence of mitigation, the impact arising from habitat loss would be **permanent** and **minor adverse.**

7.34. In addition to habitat loss there is the potential for disturbance to both breeding and wintering birds arising from visual and noise sources during construction works, along with damage to/destruction of active nests. In the absence of mitigation, the impact arising from habitat loss would be **temporary** and **minor adverse.**

7.35. The potential for habitat loss and disturbance to breeding birds arising as a result of enabling works affecting Shotwick Brook and Northern Drain have been assessed separately as part of the enabling works for plots C and D of the Airfields development which are currently under construction and mitigation is being implemented as per the enabling works Construction Ecological Management Plan (CEMP) (see TG report 11071_R12 D).

Otter

7.36. Potential impacts relating to otter as one of the qualifying criteria for the River Dee SAC of the Dee Estuary SPA are to be addressed via the Appropriate Assessment.

7.37. The section of the River Dee where the outfall to the River from the pipework and infrastructure taking water from the Proposed Development is proposed is an engineered riverbank (see photograph 5.8) and would not provide suitable habitat for otter holts or lay up sites, though otters may transit along this section of River and its banks, its use however is likely to be infrequent and at night considering the amount of public traffic along the cycle path at the top of the bank.

7.38. The site itself does not contain any watercourses or other features likely to be used by otters However, two watercourses Shotwick Brook and Northern Drain lie in close proximity to the Site boundary.

7.39. No evidence of otters using either Shotwick Brook or Northern Drain were recorded during the most recent survey in July 2021, though otter spraints have been found during previous surveys of Shotwick Brook / Northern Drain. It is highly unlikely that either watercourse is used as a holt or lay-up site but are more likely to act dispersal routes for otter through the landscape.

7.40. The potential for habitat loss and disturbance to dispersal routes used by otters arises as a result of enabling works affecting Shotwick Brook and Northern Drain and has been assessed separately as part of the enabling works for plots C and D of the Airfields development which are currently under construction and mitigation is being implemented as per the enabling works Construction Ecological Management Plan (CEMP) (see TG report 11071_R12 D).

7.41. In summary no impact to otters arising from construction of the tissue factory in plot C are likely and therefore it is assessed as a **negligible impact.**

Reptiles

7.42. A small population of common lizard and a single grass snake was recorded within the Plot C / D enabling works area adjacent to the Site. Most of the population is centered on within grassland and scrub present offsite on an earth bund on the western side of Shotwick Brook, however a small number of reptiles were found on the eastern side of the Brook within dense tussocky grassland within the enabling works area adjacent to the Site. The Site itself is unlikely to support reptiles as the vegetation cover in the poor semi-improved grassland has been subject to regular cutting over recent years and does not reflect the tussocky grassland found along the margins of Shotwick Brook or Northern Drain used by reptiles.

7.43. The potential for habitat loss and disturbance to reptiles arises as a result of enabling works affecting Shotwick Brook and Northern Drain and this has been assessed separately as part of the enabling works for plots C and D of the Airfields development which are currently under construction and mitigation is being implemented as per the enabling works Construction Ecological Management Plan (CEMP) (see TG report 11071_R12 D).

7.44. Provided habitat for reptiles (which will be re-established following completion of the enabling works) can remain undisturbed during construction of the Proposed Development, no impacts to reptiles arising from construction are predicted and therefore are assessed as a **negligible impact.**

Water vole

7.45. The section of the River Dee where the outfall to the River from the pipework and infrastructure taking water from the Proposed Development is an engineered riverbank (see photograph 5.8) and does not provide suitable habitat for water voles.

7.46. The Site itself does not contain any watercourses or other features likely to be used by water voles. However, two watercourses Shotwick Brook and Northern Drain lie in close proximity to the Site boundary.

7.47. The potential for habitat loss and disturbance to water voles arises as a result of enabling works affecting Shotwick Brook and Northern Drain and this has been assessed separately as part of the enabling works for Plots C and D of the Airfields development which are currently under construction and mitigation is being implemented as per the enabling works Construction Ecological Management Plan (CEMP) (see TG report 11071_R12 D).

7.48. In summary no impact to water voles arising from construction of the Proposed Development are likely and therefore it is assessed as a **negligible impact.**

7.49. Table **5.10** overleaf summaries the potential ecological impacts arising from the construction phase of the Proposed Development.

Feature / Nature of Impact	Receptor Importance	Environmental Impact	Significance of Effect	Confidence Level
Protected Sites				
River Dee and Bala Lake SAC, SSSI and Dee Estuary SAC/SPA/Ramsar Risk of pollution. This is mainly associated with the proposed construction of an outfall from the pipeline link from the tissue factory to the River Dee. Risk of disturbance during construction of outfall from the pipeline link from the tissue factory to the River Dee. to small numbers of qualifying bird species of the Dee Estuary SPA, Potential impact on salmon and lamprey species through degradation of water quality through pollution.	River Dee and Bala Lake SAC – International and SSSI – National Dee Estuary SAC/SPA/Ramsar – International and SSSI – National	Major negative	Temporary substantial adverse	High
Deeside and Buckley Newt Sites SAC	International	None	Neutral	High
Connah's Quay Ponds and Woodlands SSSI	National	None	Neutral	High
Shotton Lagoons and Reedbeds SSSI (also part of the Dee Estuary RAMSAR and SPA)	International	None	Neutral	High
River Dee Wildlife Site disturbance of birds which form the ornithological interest of the Wildlife Site during construction of outfall to the from the pipeline link from the tissue factory to the River Dee.	County	Moderate negative	Temporary moderate adverse	High
Shotton Bank Wildlife Sites 1 and 2 – pollution through dust deposition. during construction of outfall to the from the pipeline link from the tissue factory to the River Dee.	County	Moderate negative	Temporary moderate adverse	High
Engineer Park 1 and 2	County	None	Neutral	High
Wepre Wood	County	None	Neutral	High
Shotton Steelworks	County	None	Neutral	High
Habitats				
Arable land partial loss	Negligible	Negligible	Negligible	High

Bare ground complete loss	Negligible	Negligible	Negligible	High
Amenity grassland partial loss	Negligible	Negligible	Negligible	High
Poor semi-improved grassland complete, permanent loss	Negligible	Negligible	Negligible	High
Hedgerow partial loss	Local	Minor negative	Temporary minor adverse	High
Hedgerow – root compaction	Local	Minor negative	Permanent minor adverse	High
Tall ruderal vegetation – permanent loss	Negligible	Negligible	Negligible	High
Watercourse River Dee – pollution risk	International	Major negative	Temporary substantial adverse	High
Watercourses Shotwick Brook and Northern Drain – pollution risk	Local	Minor negative	Temporary minor adverse	High
Woodland (broadleaved plantation	Local	Minor negative	Permanent minor adverse	High
Species				
Badger - temporary loss of foraging habitat.	Negligible	Negligible	Negligible	High
Bats – temporary disturbance of foraging and commuting corridors during construction	Local	Minor negative	Temporary minor adverse	High
Birds – loss of amount of breeding habitat available and destruction of/damage to active bird nests through site clearance activities	Local	Minor negative	Permanent minor adverse	High
Birds – disturbance to over-wintering birds (non-SPA species) utilising adjacent land	Local	Minor negative	Temporary minor adverse	Low[3]
Otter – temporary disturbance of riverbank along the River Dee	Local	Negligible	Negligible	High

[3] The likelihood of impacts on over-wintering birds is considered to be low given the survey data gathered to date has not revealed any 'significant' populations of over-wintering birds either within or adjacent to the site

Reptiles – potential disturbance of newly forming habitat in enabling works land	County	Negligible	Negligible	High
Water vole potential for temporary disturbance of habitat near to watercourses where water vole occur	County	Negligible	Negligible	High

Table 5.10: Significance of Effects - Construction Phase

Operational Phase

Protected Sites

Statutory Sites

7.50. Potential effects on the River Dee SAC/SSSI and Dee Estuary SAC/SSSI centre around the volume and temperature of water to be discharged from the Paper Mill Facility into the River Dee as it is assumed that the water would be free from any pollutants, these having been filtered out in the paper production and waste treatment process. This will be agreed through an Environmental Permit.

7.51. It has been concluded through the H1 Environmental Risk Assessment prepared separately by Arcadis, and appended to the Water Quality and Drainage ES Technical Paper 3, that the temperature of the discharge would *'not cause an increase in temperature in the Dee that would constitute a failure of 'Good' status under the Water Framework Directive, and so would not constitute a 'significant' effect under the EIA Regulations.'* The H1 assessment does not, however, take into account potential impacts on other receptors associated with the River Dee, such as impacts on its status as an SAC. The H1 assessment also details discharge parameters taken from a proxy ICT site in France. The use of this proxy site to inform the H1 assessment was agreed in consultation with Natural Resource Wales. Over the course of a year (2018), monthly temperature monitoring revealed a mean temperature discharge of 12.9°C and a maximum of 23.9°C (recorded in January 2018); data regarding the plume of the discharge is unavailable at this point.

7.52. The discharge will be subject to an Environmental Installation Permit which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its

dispersal into the water present in the river at the point of discharge. Factors which would most obviously affect dispersal of the plume would be the volume and rate of flow of water in the channel (influenced by tidal flow and rainfall) and the ambient temperature of the water in the channel, which will vary throughout the year. If necessary modelling will be undertaken to understand the effect of the plume on the river water throughout the year and at all stages of the tidal cycle. The rate and or temperature of the discharge will need to ensure that the discharge plume does not adversely affect any of the qualifying features of the SAC, these being migratory fish such as Atlantic salmon, river lamprey and sea lamprey and other qualifying species which rely on these fish for food (otter) or to act as a larval host (freshwater pearl mussel).

7.53. In the absence of any controls secured through mitigation or via the environmental installation permit to discharge into the river, the potential to adversely impact Atlantic salmon, river lamprey and sea lamprey through altering the water conditions of their migratory route could affect migration to and from spawning grounds upstream. This would result in a **permanent major adverse** impact on these qualifying features.

7.54. The potential for adverse effects arising from changes in air quality during operation of the development on nature conservation designations within the potential zone of influence for air quality impacts (within 15 km of the development) has been considered in paragraph 7.37 of the Air Quality, Odour & Dust Technical Paper 8 of this ES. The maximum change relative to the air quality objective (AQO) is 1% for receptors within the River Dee nature conservation designations and also well below the 6% significance threshold for all other ecological receptors.

7.55. Therefore, the potential for adverse impacts to ecological features arising from changes in air quality are deemed to be negligible.

7.56. Otters are unlikely to be directly adversely impacted in terms of loss of habitat or disturbance events by the proposed discharge into the River Dee, their food sources (i.e. fish) could be impacted, but given the wide ranging habitat of otters and catholic nature of their diet comprising a range of food sources other than fish, it is unlikely that any impact would be significant and therefore it is considered that the likely impact on otters forming the population for which the SAC is designated would be **negligible**.

7.57. Impacts to other qualifying features of the SAC, such as *Ranunculion fluitantis* and *Callitricho-batrachion* vegetation) and floating water-plantain, are unlikely as these lie sufficiently further upstream of the proposed point of discharge. Brook lamprey and bullhead are also unlikely to be affected as these fish species are non-migratory.

River Dee SSSI

7.58. Many of the SSSI components of the River Dee are covered under the SAC designation of this site, impacts on which are discussed above. Qualifying features of the SSSI not covered by the SAC are: '*carboniferous geology*', '*saltmarsh transition habitats*', '*slender hare's ear, sea barley and hard grass*' and '*club-tailed dragonfly and other aquatic invertebrates*' none of which occur in the locality of the site or within any potential zone of influence of any emissions either air or waterbourne. Impacts on these components of the SSSI are therefore, considered to be **negligible.**

Dee Estuary SAC/Ramsar/SSSI

7.59. The only criteria of the Dee Estuary SAC/Ramsar/SSSI applicable to the operational phase of the Proposed Development are river and sea lamprey; the other qualifying criteria would be unlikely to be affected by an increase in water temperature in the River Dee caused by the discharge of water. Impacts on river and sea lamprey are as previously discussed with regard to the River Dee SAC. In the absence of mitigation, the proposed development has the potential to have a **permanent substantial adverse effect** on these fish species; there would be no adverse impacts on the other qualifying criteria of this SAC/Ramsar/SSSI.

Dee Estuary SPA

7.60. The Proposed Development does not contain any residential elements so would not in itself result in any increased recreational pressure on the SPA component of the Dee Estuary SPA, which is the only identified pathway from the operational phase of the proposed works. Potential impacts are, therefore, considered to be **negligible.**

Deeside and Buckley Newt Sites SAC, Connah's Quay Ponds and Woodland and Shotton Lagoons SSSI

7.61. The Proposed Development does not contain any residential elements so would not in itself result in any increased recreational pressure on these designations , which is the only identified

pathway from the Proposed Development given its distance from the above designations. Potential impacts on are, therefore, considered to be **neutral**.

Non-statutory Sites

7.62. Apart from the River Dee Wildlife Site, all of the local wildlife sites identified within the zone of influence around the site are considered to be sufficiently distant from the Proposed Development (or impacts superseded by the SSSI/SAC designations of the sites) to avoid adverse impacts as a result of the operational phase of the proposed works. Impacts on these sites are therefore considered to be **neutral**.

7.63. Movement of vehicles into and from the Proposed Development are likely to increase road traffic locally including the A494 over the bridge over the River Dee which is located close to the River Dee Wildlife Site, but the increase is unlikely to result in any significant change in air quality that could affect habitat within the River Dee Wildlife Site or in disturbance to bird populations using the Wildlife Site. Impacts are therefore assessed as likely to be **negligible**.

Habitats

7.64. During operation of the Proposed Development, impacts on retained/created habitats could consist of:

- Degradation of Northern Drain which lies close to the northern site boundary) and associated new habitats created as part of the Plot C / D enabling works undertaken separately by CHEL, through pollution, or lack of management to maintain the wildlife value of the channel and increased disturbance due to increased human activity, traffic, noise and increased levels of lighting. (**temporary, minor adverse effect**);
- Degradation of retained trees, hedges, and scrub through root compaction/dust pollution or lack of management to maintain the wildlife value of woodland habitats (**permanent minor adverse effect**); and
- Degradation of tree planting and landscaping within the site (**temporary, minor adverse effect**);

Protected and Priority Species

The main impact arising from the operational phase of the Proposed Development is displacement as a result of disturbance due to increased human activity, traffic, noise and increased levels of lighting. The species most likely to be affected would be bats and potentially breeding birds which could (in the absence of appropriate measures) be affected by nighttime lighting of the site. This is further explored in the following '*Bat*' section, which confirms through a Light Spill assessment prepared by Cundall that there would be no significant impact on the key ecological features within the site for bats.

Badgers

7.65. There is a risk of incidental killing/injury of badgers through road traffic collisions via increased traffic around the Site and disruption of foraging/commuting activity through noise/human presence and light pollution. This is considered to result in a **permanent** and **minor negative impact** but, overall would result in an impact of **negligible significance** on this receptor given its **negligible ecological importance**.

Bats

7.66. During the operational phase of the Proposed Development, there is potential for foraging/commuting bats to be deterred from utilising favoured foraging habitat and dispersal corridors such as tree lines hedges and watercourses through increased levels of light. This would result in a minor negative impact resulting in a **permanent, minor adverse effect** as this may result in partial severance of known commuting routes and disturb bats in a manner which would affect their ability to migrate, rear young and feed.

7.67. The light spill assessment produced by Cundall and presented in Drawing *PMF-CDL-ZZ-XX-DR-LG-63803-P01* identifies several key ecological light receptors within the site:

- Row of poplar trees along southern boundary of site;
- Shotton point trees (off-site);
- Shotwick Brook; and
- Dense scrub bushes

7.68. For the majority of these receptors, light spill would remain <1 lux on each and therefore resulting in a **negligible ecological impact** on bats in these locations.

7.69. The only ecological area where light spill has shown to be >1 lux is a small region along Northern Drain adjacent to the proposed Welsh Government Commercial Spine Road and where the Welsh Government spine road bisects the hedgerow in the south of the site. In both of these locations, the areas which would be subject to >1 lux are small and not considered to result in a significant impact which could affect the local bat populations' ability to disperse or migrate through the landscape. For this reason, it is considered that overall there would be a **negligible ecological impact** on bats as a result of the light design for the site.

Birds

7.70. In the absence of any mitigation, there is potential for nesting birds in retained habitat to be disturbed through increased noise levels and human presence around the site. There is also some potential for the value of retained/created habitats for breeding birds to be degraded in quality and quantity over time in the absence of suitable management. This would be a **permanent, minor adverse effect**.

Otters

7.71. As the main dispersal route identified for otters is Shotwick Brook which is located over 20m from the Site boundary it is unlikely that movement of otters will be disrupted during operation of the development and any impact would be likely to be **neutral**.

Reptiles

7.72. Reptiles are unlikely to occur in within the tissue factory site, but may transit occasionally due to presence in adjacent habitats. **Negligible** impacts are predicted.

7.73. Mitigation for reptiles occurring on adjacent land has been provided in relation to the enabling works for Plot C and D which are currently under construction.

Water voles

7.74. Water voles are highly unlikely to occur in within the tissue factory site as there are no watercourses within the site. Therefore, **a neutral** impact is predicted.

7.75. Mitigation for water vole occurring on adjacent land within Shotwick Brook has been provided in relation to the enabling works for Plot C and D which are currently under construction.

7.76. Table **5.11** overleaf summaries the potential ecological impacts arising from the operational phase of the Proposed Development.

Feature / Nature of Impact				
Protected Sites				
River Dee and Bala Lake SAC, SSSI – adverse impacts on migrating route for salmon, river lamprey and sea lamprey through changes in water temperature	River Dee and Bala Lake SAC – International and SSSI – National	Major negative	Permanent substantial adverse	High
River Dee and Bala Lake SAC, SSSI – adverse impacts on freshwater pearl mussel due to reduction in migratory salmon numbers through changes in water temperature	River Dee and Bala Lake SAC – International and SSSI – National	Major negative	Permanent substantial adverse	High
River Dee and Bala Lake, SAC, SSSI – reduction in food resources for local population of otter through changes in water temperature	International	Negligible	Negligible	High
Dee Estuary SAC/Ramsar/SSSI – adverse impact on migrating routes for river and sea lamprey through changes in water temperature	International	Major negative	Permanent substantial adverse	High
River Dee Wildlife Site and all other non-statutory nature conservation designations.	County	Negligible	Negligible	High
Habitats				
Degradation of Northern Drain	Local	Minor negative	Temporary minor adverse	High

Degradation of retained trees, hedges, and scrub through root compaction/dust pollution or lack of management	Local	Minor negative	Permanent minor adverse	High
Degradation of tree planting and landscaping within the site	Local	Minor negative	Temporary minor adverse	High
Species				
Badger – increased likelihood of road traffic collisions and disturbance to retained foraging and sett habitat	Negligible	Minor negative	Negligible	High
Bats – potential for bats to be deterred from favoured foraging habitat and dispersal corridors	Local	Negligible	Negligible	High
Birds – disturbance to nesting birds in retained habitat through increased lighting, noise and human presence, habitat degradation through lack of management	Local	Minor negative	Permanent minor adverse	High
Otter - no impact predicted	Local	None	Neutral	High
Reptiles - unlikely to occur in completed site, may transit occasionally due to presence in adjacent habitats	County	Negligible	Negligible	High
Water vole – no impact predicted	Local	None	Neutral	High

Table 5.11: Significance of Effects - Operational Phase

8. Proposed Mitigation

8.1. The Framework Ecological Mitigation Strategy (FEMS) of the wider Airfields Outline Application site, which was granted approval, set out a range of mitigation measures for the construction and operational phase of the proposed outline development. Mitigation Measures contained in the FEMS relevant to the Proposed Development will be carried forward as part of the mitigation approved with this Application. Relevant measures of the FEMS are reproduced in **Appendix 5.5.** The following section makes reference to the FEMS where appropriate – where more recent surveys have identified a change in the baseline data which the FEMS was based on, alternative mitigation strategies have been proposed.

Construction Phase

Statutory sites

8.2. It is considered that adverse impacts from pollution on the River Dee SAC/SSSI and Dee Estuary SAC/SSSI / SPA can be controlled through the development and implementation of a Construction and Environmental Management Plan (CEMP), to be completed and approved prior to any works commencing on site. The CEMP will detail best-practice pollution prevention guidance specific to the site and also the current best-practice mitigation associated with water resource pollution prevention.

8.3. No 'significant' numbers of over-wintering birds linked with the Dee Estuary SPA/SSSI were recorded within the site during wintering bird surveys completed as part of the original former Corus Garden City Northern Gateway Outline planning permission or subsequent Section 73 application (which covers the land where the proposed outfall to the River Dee is proposed). As such no specific mitigation is required. However, recommendations to prevent disturbance to wintering birds is provided under the 'Birds' sub-heading of this section.

8.4. Small numbers of otter from the River Dee are known to use Shotwick Brook as a dispersal corridor. Mitigation for this species is considered further under the 'Otter' heading of this section.

Non-statutory sites

8.5. River Dee Wildlife Site – recommendations to prevent disturbance to wintering birds is provided under the 'Birds' sub-heading of this section and will ensure that construction works do not impact bird population which form part of the Wildlife Site designation.

8.6. Shotton Bank Wildlife Sites 1 and 2 – to mitigate for potential pollution impacts through dust deposition, the CEMP for the site will need to detail adequate dust suppression methods (i.e. daily watering in dry spells).

Habitats

8.7. Construction of the separate Plot C enabling works adjacent to the Application Site to the west and Plot D to the south is currently underway and includes the creation of new habitats which are in line with the FEMS submitted with the extant outline planning consent for the Airfields Deeside site).

8.8. The element relevant to Plot C surrounding the Site consists of structured landscaping of Shotwick Brook and Northern Drain, along with the reptile mitigation area in the north and ecological mitigation area in Plot C. The reptile mitigation area will comprise re-seeding the existing grassland with seed mix Emorsgate EM10 'tussock' mixture, along with the creation of four reptile refugia (See reptile section) and creation of small 'bunds' to create an uneven surface favoured by basking reptiles. The EM10 mix of grassland will then run along the length of Shotwick Brook to the C/D swale.

8.9. A strip of bramble and general scrub planting will also be installed along the top of the bank of Shotwick brook and Northern Drain to create a screen to these water features and to also provide a corridor for reptile and other fauna dispersal.

8.10. In addition to the above the landscape planting proposed within the landscape plan for the Proposed Development will contain;

- Thicket mix planting;
- Native hedgerow planting;
- Close mown grass;

- Wildflower grass; and
- Tree planting

8.11. These habitats will augment and where appropriate become contiguous with new habitats becoming established around Plot C.

8.1. The newly created habitats within Plot C and existing retained adjacent habitat features such as the hedge H1, woodland W1 and riverbank beyond the construction zone for the pipeline would be protected by suitable fencing which, where applicable to areas containing trees, will be detailed in Arboricultural Method Statement.

8.2. The above habitats will be maintained through the adoption of an Ecological Management Plan (EcMP) which would set out the management tasks required to maintain and enhance their wildlife value.

8.3. No additional mitigation in respect of habitat loss is required in relation to the current application for the Paper Mill Facility.

Protected and Priority Species

8.4. The following mitigation for protected species will be implemented. As previously stated, neutral or negligible impacts during the construction phase have been identified with respect to badgers, otters, reptiles and water voles and no specific mitigation in respect of these species is required.

Bats

8.5. Best-practice measures relating to lighting restrictions will be implemented around habitat features likely to be used by bats such as watercourses, tree lines and hedges. As part of the lighting mitigation measures put forward by Cundall in their lighting assessment, the following has been proposed:

> *"To minimise the disturbance to wildlife, construction should only take place during daylight hours and exterior lighting such as street and security lights in the vicinity of hedgerows, trees and the wildlife corridor should be avoided, or if absolutely necessary, should be of a type that has a minimum impact on the use of these areas by bats"…*
> *"During the site set up and mobilisation period, the lighting installation should be*

inspected to ensure the aiming of all floodlights is appropriate and no lighting is being directed towards the residential properties or wildlife habitats."

Birds

8.6. Mitigation for the loss of habitat for birds has been agreed within the FEMS submitted to discharge condition 22 of the outline consent for the wider Airfields Development and is included within the proposed green infrastructure and landscaping areas currently under construction within the enabling works area surrounding the Application Site and is also detailed in the Ecological Assessment covering the reserved matters application for the enabling works area surrounding Plots C and D (see TG report 11071_ R10).

8.7. To mitigate for potential disturbance impacts, monthly monitoring of land adjacent to the site should be undertaken to assess the presence of over-wintering birds. Remedial mitigation measures may then be necessary as part of the CEMP to mitigate for potential disturbance impacts, through the installation of heras fencing with hessian screening around selected boundaries of the site.

8.8. To mitigate for the potential destruction of/damage to active bird nests through site clearance activities, it is recommended that all site clearance/vegetation clearance works is conducted outside of the bird nesting season (which is accepted to run March – August inclusive). Where this is not possible, all areas of vegetation will need to be checked by a suitably qualified ecologist prior to commencing. Should any active nests be encountered, a suitable 'no-work' buffer zone will need to be implemented around the nest commensurate with the species concerned, stage of nesting and types of works proposed. Works will then only be able to resume in the no-work zone when the ecologist has confirmed that the nest is no longer active (i.e. abandoned/failed or chicks fledged).

General

8.9. The general measures outlined below are proposed as best-practice working methods to avoid adverse impacts on mammals badgers, rabbits, foxes Etc.) and herptiles (i.e. reptiles, frogs and toads) and will need to be incorporated within the CEMP.

- All excavations to be ramped over-night to allow any animals that fall in the chance to escape;

- All pipework to be capped overnight to prevent animals from entering pipes and becoming stuck or otherwise injured;
- All site materials to be stored in skips and/or off the ground on pallets to prevent amphibians/reptiles from seeking refuge within;
- All stockpiles to be compacted and monitored to reduce the risk of rabbits, foxes or badgers excavating burrows/setts;
- All chemicals to be stored in secure compounds; and
- All vegetation arisings to be removed from the site immediately to prevent amphibians and/or reptiles from seeking shelter within
- No night-time works to be allowed unless otherwise agreed with Flintshire Council and taking into account potential impacts on protected species not currently addressed in this Technical Paper;
- Dust-suppression methods to be employed at all times comprising daily watering of the site in dry periods
- Noise-suppression methods to be employed at all times, including; compressors to be silenced and pneumatic tools to be fitted with silencers.

8.10. Measures for the control of dust and construction noise will also be included in the CEMP.

- Where necessary measures to protect areas of retained habitat will be implemented including:
- Fencing off hedge along southern boundary of Plot D as per a Tree Protection Plan provided in the arboricultural assessment;
- Fencing off adjacent areas of woodland W1 which are not subject to the pipeline installation works; and
- Fencing off any sections of watercourse which are not subject to restoration works;
- Implementation of pollution control measures in respect of watercourses; and
- Delineation of the limits of the development site with fencing to avoid incidental disturbance of adjacent habitats.

Operational Phase

Protected Sites

Statutory sites

8.11. Mitigation for potential impacts on the River Dee and Bala Lake SAC/SSSI and the Dee Estuary SAC/SSSI as a result of discharge of operational waste water effluent to the River Dee will be controlled in accordance with the conditions of a bespoke Environmental Permit, granted by NRW.

8.12. Adherence to the conditions of this Permit and any mitigation will safeguard the water quality of the River Dee and ensure that any potential impacts on the River Dee and qualifying features of the nature conservation designations for which the River is designated will be **negligible**. This Permit will be informed by the results of initial H1 pollution risk screening assessments (see Appendix 3.2 of the Water Environment ES Technical Paper 2), and any further detailed water quality modelling required and that will be and approved by NRW

8.13. It is expected that the permit application will consider all the factors which could affect water quality, other conditions (such as temperature) and the qualifying features of the nature conservation designations for which the River Dee is designated.

8.14. Once details of the Environmental Permit have been agreed with NRW, these will be considered within the Appropriate Assessment for the Proposed Development which will accompany the planning application.

Habitats

8.15. Degradation of habitats as a result of human activity once development the Proposed Development is operational will be mitigated for through the preparation and implementation of an Ecological Management Plan (EcMP). The EcMP would cover both retained and created habitats associated with the Application Site and surrounding enabling works area and should be implemented for a minimum of 10 years, to be secured via planning condition.

8.16. The inclusion of attenuation areas and swales offsite within the enabling works areas adjacent to the Application Site will ensure that there are **negligible impacts** on retained habitats (most notably Shotwick Brook) due to pollution from surface water run-off. Compliance with the relevant Environment Agency guidelines on pollution prevention will also contribute towards the prevention of pollution from surface-water run off before the water can reach SUDs features and created ponds/watercourses.

8.17. As a general guide, the management prescriptions outlined below in **Table 5.12** would be included within the EcMP. **Table 5.12** also outlines for which ecological receptor the habitat management would serve as mitigation for. Where detailed, species-specific management is necessary this has been detailed in the relevant species section.

8.18. The light spill assessment prepared by Cundall (see **Appendix 17** of ES Part I) shows that the most sensitive habitats (i.e. those which are known to currently support or will receive protected/notable species) will remain unlit and at a lux level of <1. Therefore, no mitigation regarding lighting is considered necessary.

Management prescription	Receptor
Periodic grass cutting (twice yearly) within the created grassland areas (non-reptile specific)	Reptiles, breeding birds
Period clearance of scrub (every two years) to maintain grassland habitats in reptile mitigation habitat	Reptiles
Cutting of hedgerows in winter on a rotational basis to allow fruits to develop to provide a food source for birds and invertebrates; will also avoid nesting season	Breeding birds
Annual clearing of gulley pots	Amphibians, general flood risk management
Annual monitoring of any invasive species treatment/eradication as necessary	Japanese knotweed and *Cotoneaster*
Any necessary dredging of Shotwick brook (required as flood risk prevention) to be conducted in a manner sympathetic to water voles/otter/nesting birds	Water vole, otter, nesting birds
Annual clearance of inundation vegetation in attenuation areas (SUDs) and created waterbodies to maintain areas of open water; conducted in winter to avoid nesting bird season;	Invertebrates, breeding/foraging birds, water vole, otter

Table 5.12 – Outline of measures necessary within an Ecological Management Plan

8.19. Habitat features considered sensitive to human disturbance such as the watercourses (and associated riparian habitats) and retile mitigation areas containing reptile refuges will be protected from incidental human disturbance during operation of the Proposed Development by hedges which are already included within the landscape design of the enabling works areas for Plots C and D of the Airfields Deeside site.

Protected and Priority Species

Badgers

8.20. It is acknowledged that there will be a net loss in foraging habitat as a result of the Proposed Development and vehicle movement throughout the site also increases the risk of road traffic collisions with badgers along new roads. The FEMS for the wider Airfields development illustrated that badgers will still have access to foraging habitat in created 'ecological mitigation areas' and the submitted proposals are broadly in line with those proposed at the Outline stage. Therefore, possible impacts on badger are expected to be the same.

8.21. It is also recommended that speed restrictions are put in place around new roads within the Site to reduce the likelihood of incidental mortality through road traffic collisions.

Bats

8.22. To mitigate for potential disturbance impacts on foraging/commuting bats in retained and created habitats, a sensitive lighting scheme has been developed which ensures that the most sensitive areas of the site are not subject to lux levels greater than 1 (see Light Spill Assessment at **Appendix 17** of the ES Part 1).

8.23. The light pollution study prepared by Cundall *"no lighting will be installed within the proposed habitat mitigation areas in order to allow species to use the areas freely. As these areas aim to be light exclusion zones, the surrounding lighting will be dimmable in order to avoid light spill and glare."* It goes on to state: *"A further observation of light spill onto the wildlife habitat areas has been made, looking specifically at the West Perimeter, Shotton Point Trees and Shotwick Brook. However, each of these areas will attain a minimum amount of illuminance from the proposed site"*. In these areas, light spill will be below <1lux.

Birds

8.24. It is considered that speed limits around the Site would reduce vehicle noise levels and minimise disturbance to foraging and nesting birds. The lighting scheme developed will also ensure that areas of suitable bird breeding habitat are kept unlit. In addition, the EcMP would ensure that valuable breeding habitat for birds would be maintained at a high quality and only managed outside of the bird nesting season.

9. Potential Residual Effects

Tables **5.11** and **5.12** overleaf summarise the anticipated residual effects on each ecological receptor during the construction and operational phase of the Proposed Development, with mitigation taken into account. Overall, the residual effect of the Proposed Development will predominantly comprise the permanent loss poor semi-improved grassland, along with the permanent loss of a small number of trees and a section of hedge.

Summary of Residual Impacts – Statutory and Non-Statutory Sites

9.1. It is considered that potential construction phase impacts on statutory and non-statutory sites can be controlled through a CEMP, which would detail pollution-prevention measures, dust-suppression measures and general best-practice working methodologies. The successful implementation of such measures would result in **negligible residual impacts**.

9.2. Potential operational phase impacts will be controlled through the Environmental Permit, which will take into account the findings of the Appropriate Assessment to ensure that potential adverse impacts on the Natura 2000 sites are adequately mitigated for to a **negligible** level.

Summary of Residual Impacts - Habitats

9.3. In relation to the mitigation proposed specifically as part of the Proposed Development (in the process of being implemented in association with the Plot C enabling works or proposed as part of the Welsh Government Commercial Spine Road), there will be a temporary reduction in habitat value whilst the proposed habitats (thicket planting, hedgerows, trees, wildflower grassland) develops and matures. Once mature, however, there will be a residual **minor beneficial impact** with regard to habitats as a result of the construction phase.

9.4. Operational phase impacts on created/retained habitats will be secured through the implementation of an Ecological Management Plan (EcMP), which will detail how the habitats will be maintained. Residual impacts on habitats to this regard will be of a **minor beneficial significance**.

Summary of Residual Impacts – Protected/Notable Species

9.5. Potential construction phase impacts on protected species primarily relate to potential disturbance of breeding birds and bats which can be effectively mitigated for through implementation of avoidance measures which will be set out in the CEMP. Mitigation in respect of other protected species such as reptiles and water vole which are known to occur within the enabling works area surrounding the Application Site (Plot C) is already in progress as

9.6. Overall once complete, it is considered that there would be a **minor beneficial** impact on protected species using the site once the created habitats have matured.

9.7. The implementation of an EcMP and associated monitoring will result in a residual **minor beneficial** impact on protected species with regards to operational phase impacts

Potential Residual Effects – Construction Phase

9.8. The overall impact of the proposal in terms of ecological issues during the construction phase is highlighted in the table below:

Feature / Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Protected Sites						
River Dee and Bala Lake SAC, SSSI – adverse impacts on migrating route for salmon, river lamprey and sea lamprey	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)
River Dee and Bala Lake SAC, SSSI – degradation to quality of 'water courses of plain to montane levels'	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)
Dee Estuary SAC, Ramsar/SSSI – adverse impacts on migrating routes for river and sea lamprey	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)

Other statutory nature conservation designations (Deeside and Buckley Newt Sites SAC, Connah's Quay Ponds and Woodlands SSSI, Shotton Lagoons and Reedbeds SSSI (also part of the Dee Estuary RAMSAR and SPA)	International / national	None	Neutral	High	None required	Neutral
River Dee Wildlife Site – disturbance to 'ornithological interest'	County	Moderate negative	Temporary moderate adverse	High	Monthly monitoring over winter months, followed by remedial action in CEMP (i.e. installation of heras fencing with hessian screening)	Negligible
Shotton Bank Wildlife Sites 1 and 2 – pollution through dust deposition	County	Moderate negative	Temporary moderate adverse	High	Implementation of dust-suppression methods throughout all phases of construction; to be detailed in CEMP for site	Negligible
Other wildlife sites (Shotton Steel Works, Engineer Park 1 and 2, Were Wood, Shotton Steel Works	County	None	Neutral	High	None required	Neutral
Habitats						
Arable land, bare ground, amenity grassland, poor semi-improved grassland tall ruderal vegetation	Negligible	Total or partial loss	Negligible	High	No specific mitigation required habitat creation within enabling works area will compensate for losses.	Negligible
Hedgerow – partial loss	Local	Minor negative	Temporary minor adverse	High	Hedgerow planting, resulting in a net gain of native hedgerow length within the site	Minor beneficial

Hedgerow – root compaction	Local	Minor negative	Permanent minor adverse	High	Installation of root protection fencing around retained hedgerows;	Negligible
Poor semi-improved grassland permanent loss	Negligible	Negligible	Negligible	High	Creation of new grassland scrub mosaics in adjacent 'enabling works' area	Minor beneficial
Woodland (broadleaved plantation) – partial, permanent loss	Local	Minor negative	Temporary minor adverse	High	Replacement tree planting will result in net gain in number of trees within site; impact temporary whilst planted trees mature	Minor beneficial
Scattered trees and woodland – root compaction	Local	Minor negative	Permanent minor adverse	High	Installation of root protection fencing around retained trees/woodland	Negligible
Watercourses degradation of water quality through pollution	Local	Minor negative	Temporary minor adverse	High	Implementation of robust CEMP	Negligible
Species						
Badger – temporary loss of foraging habitat	Negligible	Negligible	Negligible	High	No specific mitigation required – measures to prevent accidental injury to badgers which may enter construction areas to be implemented via CEMP.	Negligible
Bats – disturbance of known dispersal corridors and foraging habitat	Local	Minor negative	Temporary minor adverse	High	General best-practice working methods during construction (including ban on night-time lighting);	Negligible

Birds – loss of amount of breeding habitat available and destruction of/damage to active bird nests through site clearance activities	Local	Minor negative	Permanent minor adverse	High	N/A – already agreed as part of S106 Legal Agreement on Former Corus Garden City site	Negligible
Birds – disturbance to over-wintering birds (non-SPA species) utilising adjacent land	Local	Minor negative	Temporary minor adverse	Low	Monthly monitoring over winter months, followed by remedial action in CEMP (i.e. installation of heras fencing with hessian screening)	Negligible
Otter – temporary disturbance of riverbank along the River Dee	Local	Negligible	Negligible	High	General best-practice working methods during construction (including ban on night-time lighting);	Negligible
Reptiles - potential disturbance of newly forming habitat in enabling works land and in development site	County	Negligible	Negligible	High	Fence off newly establishing habitat within 'enabling works' area	Negligible
Water vole - potential for temporary disturbance of habitat near to watercourses where water vole occur	County	Negligible	Negligible	High	Fence off newly establishing habitat within 'enabling works' area	Negligible

Table 5.13: Residual Significance of Effect - Construction Phase

Potential Residual Effects – Operational Phase

9.9. The overall impact of the proposal in terms of ecological issues during the operational phase is highlighted in the table below:

Feature / Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Protected Sites						
River Dee and Bala Lake SAC, SSSI – adverse impacts on migrating route for salmon, river lamprey and sea lamprey	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)
River Dee and Bala Lake SAC, SSSI – degradation to quality of 'water courses of plain to montane levels'	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)

River Dee and Bala Lake SAC, SSSI – adverse impacts on otter through reduction in food supply	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)
Dee Estuary SAC, Ramsar/SSSI – adverse impacts on migrating routes for river and sea lamprey	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)
River Dee and Bala Lake SAC, SSSI – adverse impacts on migrating route for salmon, river lamprey and sea lamprey	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)

River Dee and Bala Lake SAC, SSSI – degradation to quality of 'water courses of plain to montane levels'	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)
River Dee and Bala Lake SAC, SSSI – adverse impacts on otter through reduction in food supply	International	Major negative	Permanent substantial adverse	High	To be controlled through Environmental Permit and findings of Appropriate Assessment which will stipulate the conditions under which the discharge can occur and will consider the effect of the discharge plume into the River under all the different combinations of variables which would affect its dispersal into the water present in the river at the point of discharge.	Negligible (subject to mitigation put forward through Appropriate Assessment)
Other statutory nature conservation designations (Deeside and Buckley Newt Sites SAC, Connah's Quay Ponds and Woodlands SSSI, Shotton Lagoons and Reedbeds SSSI (also part of the Dee Estuary RAMSAR and SPA)	International / national	None	Neutral	High	None Required	Neutral
River Dee Wildlife Site – disturbance to 'ornithological interest'	County	Moderate negative	Temporary moderate adverse	High	Monthly monitoring over winter months, followed by remedial action in CEMP (i.e. installation of heras fencing with hessian screening)	Negligible
Shotton Bank Wildlife Sites 1 and 2 – pollution through dust deposition	County	Moderate negative	Temporary moderate adverse	High	Implementation of dust-suppression methods throughout all phases of construction; to be detailed in CEMP for site	Negligible

Other wildlife sites (Shotton Steel Works, Engineer Park 1 and 2, Were Wood, Shotton Steel Works – pollution through dust deposition	County	None	Neutral	High	None Required	Neutral
Habitats						
Degradation of retained trees/scrub through root compaction	Local	Minor negative	Permanent minor adverse	High	Implementation of EcMP	Negligible
Degradation of newly created and retained habitat due to lack of management and human disturbance	Local	Minor negative	Temporary minor adverse	High	Implementation of EcMP	Negligible
Species						
Badger – increased likelihood of road traffic collisions and disturbance to retained foraging and sett habitat	Negligible (but legislative requirement)	Negligible	Negligible	High	Speed restrictions around site	Negligible
Bats – potential for bats to be deterred from favoured foraging habitat and dispersal corridors	Local	Negligible	Negligible	High	Creation of 'dark corridors' around suitable habitat features within site (i.e. Shotwick Brook and Northern Drain corridor retained trees)	Negligible
Birds – disturbance to nesting birds in retained habitat through increased noise and human presence	Local	Minor negative	Permanent minor adverse	High	Speed restrictions around site; Sympathetic lighting scheme; Sensitive timing of vegetation management (i.e. in winter)	Negligible
Otter	Local	None	Neutral	High	None required	Neutral
Reptiles – disturbance to reptiles in retained habitat through increased noise and human presence; and habitat degradation	County	Negligible	Negligible	High	None required	Negligible

Water vole – disturbance to water voles whilst occupying a place of shelter through increased lighting, noise and human presence; and habitat degradation	Local	Negligible	Negligible	High	None required	Negligible

Table 5.14: Residual Significance of Effect – Operational Phase

10. Additive Impacts (Cumulative Impacts and their Effects)

10.1. For the purposes of this ES we define the additive cumulative effects as:

> ***'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself'***

10.2. The developments that are likely to have a cumulative impact when considered with the proposed development have been scoped with the Local Authority and Key Consultees during the preparation of this ES (a full list is included within Section 9 of the ES Part 1 Report). The following **Table 5.15** includes the agreed list of cumulative developments that have been assessed in respect of ecology. These are also shown geographically on the plan included at **Appendix 13** of the ES Part 1 Report.

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
1	Airfields (former RAF Sealand) Site (Northern Gateway) LPA ref: 049320 and last varied S73 application LPA ref: 061125. Applicant: Crag Hill Estates Ltd.	Outline application for the redevelopment of a strategic brownfield site for an employment led mixed use development with new accesses and associated infrastructure including flood defences and landscaping. The Net Cumulative Development associated with the Airfields site after deducting the floor space (124,344m²) taken up by the Proposed ICT Paper Mill Facility (B2, B8, ancillary B1a) and operational Amazon development (ref: 060222) is as follows: Development comprises: Residential (C3): 689 units Retail (A1): 4,646m² Office (B1a): 6,533m² B2 /B8 Employment: 60,044m²	LPA ref: 049320 Planning permission granted by Flintshire County Council in January 2013. The last varied S73 application was granted on the 26 April 2021 (ref: 061125) to remove conditions 26, 28, 30, 34 and 44 and vary condition 13. Development expected to come forward over the next 0-5 years.	**Include** Sufficiently close to site and designated sites to result in cumulative construction and operational effects, along with impacts on the dispersal of fauna around the landscape.

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
		Car Dealership (Sui generis): 7,779m² **Total Net floorspace: 689 units / 79,002m²**		
2	Former Corus Garden City Site (Northern Gateway) Applicant: PGNGL Outline (LPA ref: 054758) / S73 application (LPA ref: 059635)	Employment-led mixed-use development, incorporating Logistics and Technology Park (B1, B2, B8) with residential (C3), local retail centre (A1), hotel (C1), training and skills centre (C2, D1), new parkland; conversion of buildings, demolition of barns; and associated infrastructure comprising construction of accesses, roads, footpaths / cycle paths, earthworks and flood mitigation / drainage works at Northern Gateway, Land off Welsh Road, Deeside. Development comprises: Residential (C3): 770 units Retail (A1): 2500m² Office (B1a): 3300m² Light industrial uses (B1b, B1c): 7400m² Hotel Uses (C1): 3000m² Training and skills centre (C2, D1): 4000m² Logistics Park (B2, B8, ancillary B1a): 120000m² Total floorspace: 770 units / 140,200m²	Outline planning permission granted by Flintshire County Council in May 2014. The last permission to be granted under a S73 application was approved in June 2020 (ref: 059635) was for removal of conditions 6, 8, 11 and 32 and variation of conditions 7, 31, 36 and 44. Development expected to come forward over the next 0-10 years.	**Include** Sufficiently close to site and designated sites to result in cumulative construction and operational effects, along with impacts on the dispersal of fauna around the landscape.

Table 5.15: Cumulative Development

10.3. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed as follows:

Short Term

10.4. Development of the wider Airfields site is underway to the east/southeast of the site. Enabling works to facilitate future residential development on the former Corus Garden City Northern Gateway site is also underway. It is expected that the construction phases of the Airfields and former Corus Garden City Northern Gateway developments would continue over the next 10 years.

Statutory and Non-statutory Sites

10.5. With respect to potential effects on Statutory and Non-Statutory sites, all cumulative sites have a similar mix of industrial and residential development proposed and will have similar construction requirements. No other cumulative development in the short term at this stage would necessitate any direct construction phase impacts on the River Dee and Bala lake SAC/SSSI or any other Natura 2000 site. It is understood through the Outline Applications on both the Airfields and former Corus Garden City Northern Gateway site, however, that cumulative effects from the construction phase of each phase of development would be mitigated for through the implementation of respective CEMPs for each site and cumulative effects regarding the construction phase of each development would be **negligible**. The CEMP for each site will need to reference wider construction phase impacts that are present at the time and make adjustments accordingly. There are no impact pathways through recreational pressure identified through the proposed development so there are no cumulative impacts to this regard on those phases of the other developments which have residential elements.

Habitats

10.6. There are no notable habitats (in their own right) within the Site and the overarching FEMS for the wider Airfields Outline Application Site has incorporated the inclusion of specific ecological mitigation areas to increase the amount of **locally important** habitats and retained habitats to allow the continued movement of fauna through all sites. As with the proposed Site, each cumulative site as it comes forward into its construction phase over the next 10 years will need to include measures for the protection of retained hedges and trees through root protection fencing, along with pollution prevention measures, resulting in **negligible impacts** in this regard.

10.7. There are not, therefore, any foreseeable cumulative effects on habitats in the short term.

Protected and Notable Species

10.8. It is apparent from historical ecological survey work conducted across the wider Airfields Outline Application Site that protected and notable species move between all phases of the wider site. The FEMS for the Outline Application at the former Airfields site includes the retention and introduction of 'green' dispersal corridors associated with retained and new watercourses. Most notably, this has included the retention and enhancement of Shotwick Brook, which connect to the east of the site. In the short term, impacts on protected species would be **negligible.** The other sites considered would not have any cumulative effect on reptiles in the short term as the reptile populations associated with the Airfields site have already been relocated to a receptor area, forming a separate meta-population and not part of the meta-population recorded in the proposed site.

Medium Term

Statutory and Non-Statutory Sites

10.9. In the medium term, cumulative impacts are considered to be an extension of the short-term impacts as it is likely the outline site will be staggered in the respective construction phases over the next 10 years. Cumulative impacts to this regard will be **negligible**.

Habitats

10.10. In the medium term, it is expected that many of the created/retained/enhanced habitats across all phases of the wider Airfields development would be sufficiently mature to provide a **minor beneficial** impact to this regard.

Protected Species

10.11. It is considered that medium-term impacts on protected species would be **minor beneficial** as all impacts relating to protected species including mitigation for habitat losses would be complete and habitat would be sufficiently established to benefit these species. It is also expected that management plans for protected species would also start to be implemented in this time frame.

Long Term

Statutory and Non-Statutory Sites

10.12. In the long term, potential cumulative impacts on the majority of statutory and non-statutory sites would be **negligible**; any remaining construction activity would be dictated by CEMPs and any necessary mitigation for operational impacts would be dictated by the conclusions and mitigation within the Appropriate Assessment for each site.

Habitats

10.13. In the long term, Ecological Management Plans would be ongoing thus maintaining the value of the habitats (and their associated value to fauna) at a **locally important** scale, resulting in a **minor beneficial** impact.

Protected and Notable Species

10.14. The Ecological Management Plans for this site and other sites would largely be in progression and most phases of development would be complete, allowing fauna the opportunity to expand in their range and with their habitats appropriately maintained. This would result in a **minor beneficial** impact in the long term.

11. Conclusion

Statutory and Non-Statutory Sites

11.1. A total of eight statutory and nine non-statutory nature conservation sites were noted within the Zone of Influence around the Proposed Development Site, the closest of which being the River Dee and Bala Lake SAC/SSSI directly adjacent to the southern boundary of the Site, which only extends to the River Dee to allow discharge of waste water. An assessment relating to potential construction phase impacts on this and the other statutory sites and non-statutory sites identified that potential construction phase impacts could be mitigated through the production and implementation of a CEMP for the Site. Specific mitigation measures for this SAC and its qualifying features to be included within the CEMP will be informed by an Appropriate Assessment of the Proposed Development, which is being prepared in conjunction with the Environmental Statement.

11.2. Mitigation relating to the potential operational impacts on the River Dee SAC/SSSI and Dee Estuary SAC/SSSI will be controlled through the Environmental Permit for the discharge into the Dee, which will be informed through the findings of the Appropriate Assessment for the Proposed Development.

11.3. Mitigation regarding potential operational phase impacts on the River Dee and Bala lake SAC/SSSI relating to the temperature and volume of water discharge into the River Dee SAC/SSSI will need to ensure that the proposed effluent from the factory would not significantly alter the condition (including temperature) of the receiving river water throughout the year in to an extent that would adversely impact upon the aforementioned qualifying features. Details of this will be set out in the Environmental Permit for the discharge and considered in the Appropriate Assessment of the proposed development which will accompany the planning application.

Habitats

11.4. None of the habitats within the Site were considered to be of greater than **local ecological importance** and none are representative of habitats of conservation concern under national or local biodiversity action. The majority of habitat loss relates to poor semi-improved grassland and arable land of negligible ecological importance with some smaller scale losses of hedgerow and woodland habitat of local ecological importance. Habitat losses are mitigated

through the creation of new habitats (in accordance with the FEMS for the wider Deeside Airfields site) within the enabling works area currently under construction adjacent to the Application Site. These habitats would be the subject of an EcMP which will ensure habitats are managed and protected from incidental disturbance and habitat degradation due to lack of maintenance during operation of the Proposed Development. Overall a residual **minor beneficial impact** is predicted.

11.5. Potential construction phase impacts on retained habitats (i.e. root compaction on hedgerows/trees) and habitat degradation through dust pollution/surface water run off would be mitigated through the implementation of a CEMP and installation of root protection fencing around retained trees.

Protected and Notable Species

11.6. Effects relating to protected/notable species from development of the Application Site comprise, potential disturbance to commuting / foraging routes for bats and (depending on timing of works) damage, disturbance to nesting birds. A CEMP will detail measures for the protection of these species during construction works.

11.7. During operation of the Proposed Development, implementation of the EcMP will ensure habitats for protected species are maintained.

11.8. In summary, it has been assessed that overall, in the short-medium term there would be **negligible** impacts on all habitats and protected/notable species; all potential impacts on Natura 2000 sites (and consequently their SSSI components. Any potential impacts would be mitigated for/controlled through appropriate mitigation measures put forward as part of respective Appropriate Assessments for each phase of development.

11.9. In the long term, the site and wider development parcels would result in **minor beneficial impacts** for a range of protected species overall once habitats have matured and Ecological Management Plans implemented.

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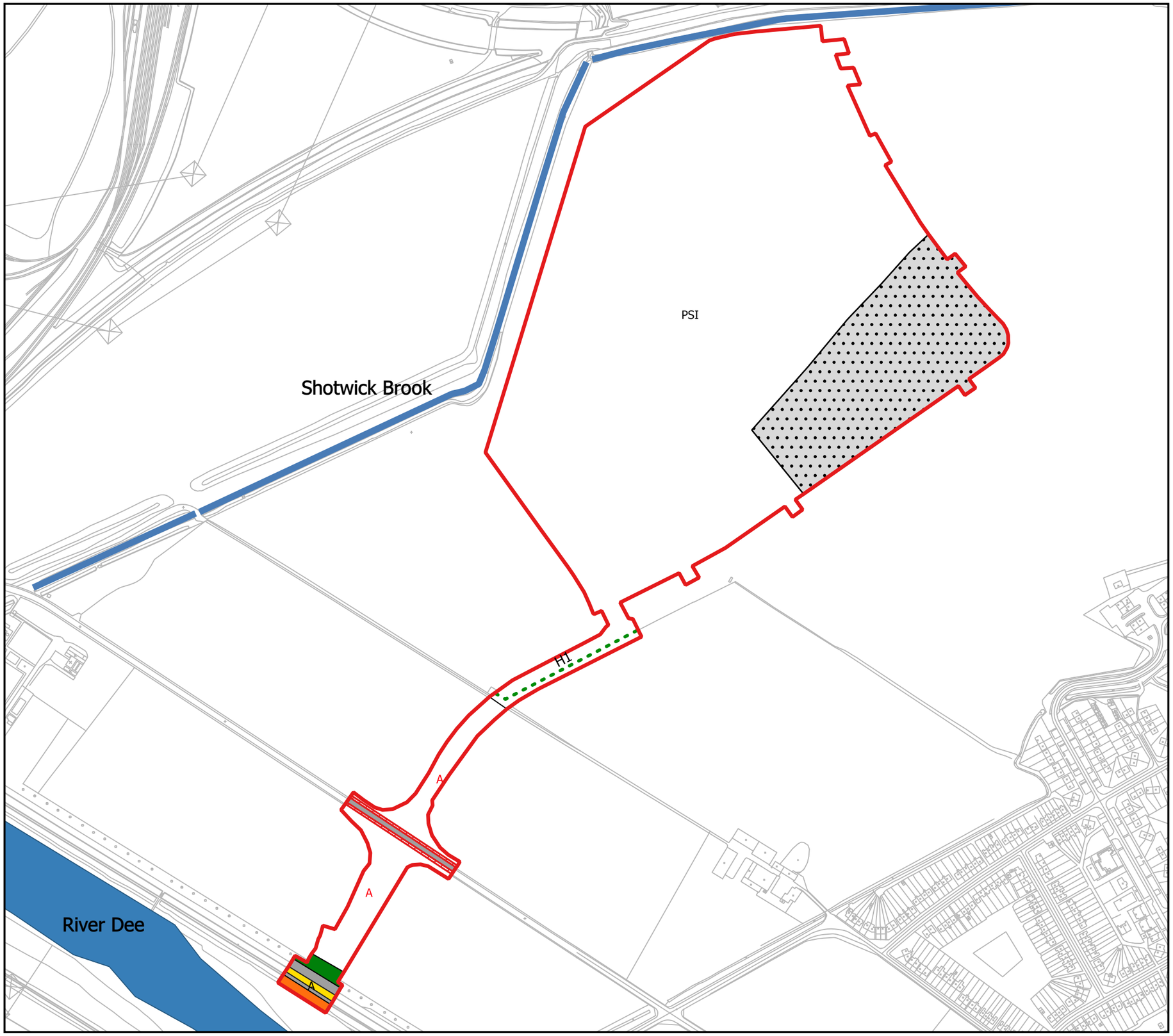
13. Figures:

Figure 5.1 – Habitat Features Plan

Figure 5.2 – Badger Sett Location Plan **(Excluded as Confidential Information)**

Figure 5.3 – Water Vole / Otter Survey Plan Figure 5.4 – Key Ecological Features Plan



Legend

- Site Boundary
- A — Amenity Grassland
- A — Arable
- Bare Ground
- Broad-leaved Plantation
- Hardstanding
- Marginal
- Native Hedgerow
- PSI — Poor Semi-improved Grassland
- Tall Ruderal

N

0 50 100 m

Project	Plot C Deeside ICT
Drawing Title	Habitat Features Plan
Scale	As Shown (Approximate)
Drawing No.	Figure 5.1 - 14150/P01
Date	September 2021
Checked	DP/DM

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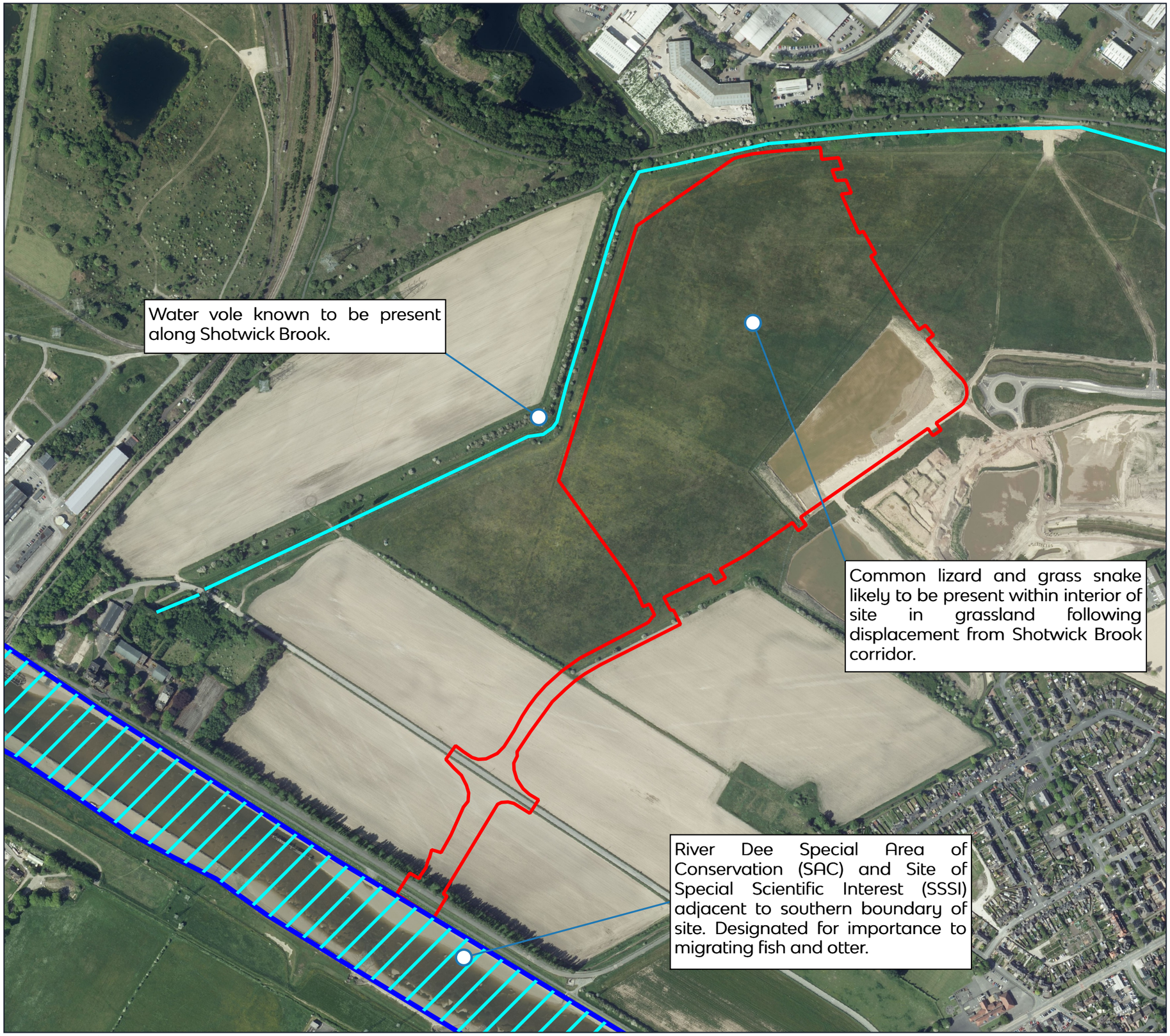

Site Boundary
Watercourse
River Dee

0 100 200 300 m

Project	Paper Mill Facility, Plot C
Drawing Title	Key Ecological Features
Scale	As Shown (Approximate)
Drawing No.	Figure 5.4 (14150_P02)
Date	September 2021
Checked	JD/JM

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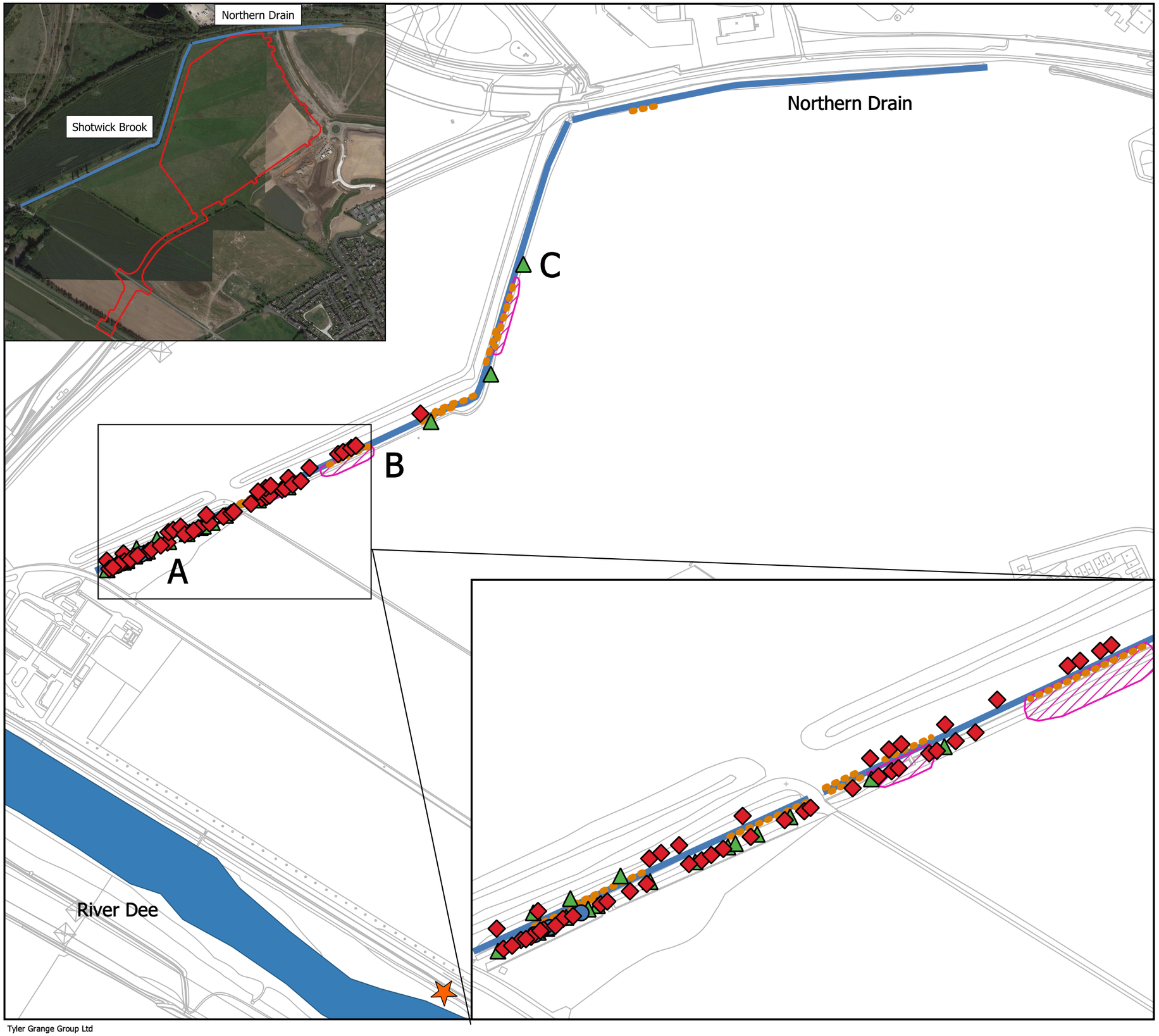

Legend

- Ditch
- Burrow
- Feeding Signs
- Latrine
- Otter Track
- Potential for Woven Burrows
- Prints

N

0 50 100 m

Project	Plot C Deeside ICT
Drawing Title	Water Vole Survey Results
Scale	As Shown (Approximate)
Drawing No.	Figure 5.3 - 14150/P04
Date	September 2021
Checked	DP/DM

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14. Appendices

Appendix 5.1 – Badger Survey **(Excluded as Confidential Information)**

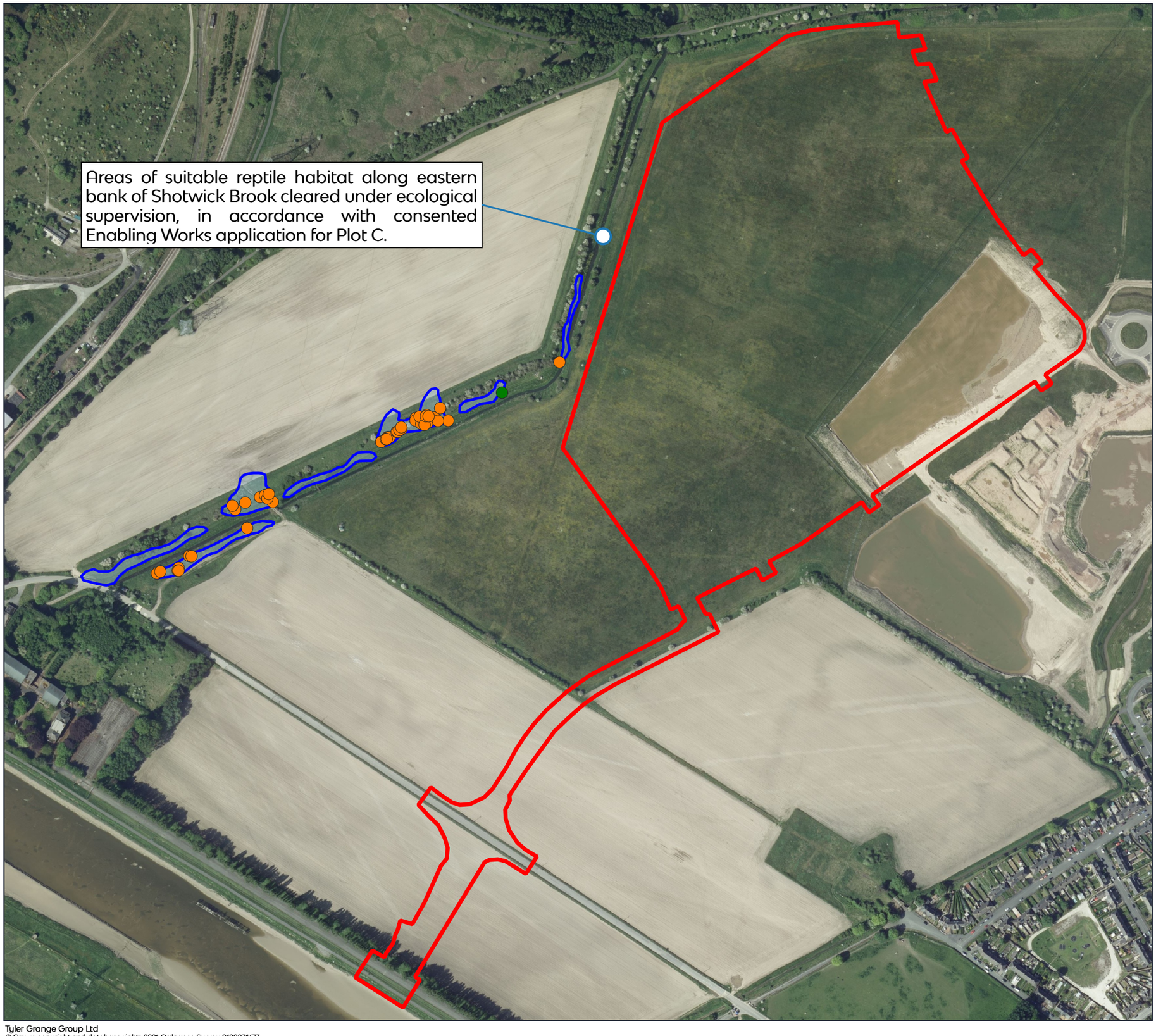
Appendix 5.2 – Reptile Surveys

Appendix 5.3 – Otter/Water Vole Surveys

Appendix 5.1 – Badger Survey

(Excluded as Confidential Information)

Appendix 5.2 – Reptile Surveys



Site Boundary

Reptiles

- Reptile Mats
- Common Lizard sightings
- Grass snake sightings
- Reptile Survey Area

N

0 100 200 m

Project	Paper Mill Facility, Plot C
Drawing Title	Reptile Survey Plan
Scale	As Shown (Approximate)
Drawing No.	Figure 5.5 (14150_P05)
Date	September 2021
Checked	JD/JM

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Appendix 5.3 – Water vole/Otter Surveys

Appendix 5.3: Water Vole / Otter Survey

Legislation and Conservation Status

A5.3.1 Water vole *Arvicola amphibius* are protected under the Wildlife and Countryside Act 1981 (as amended) (WCA). This includes protection from killing or taking by certain prohibited methods, and their breeding and resting places are also fully protected from destruction, damage or obstruction. It is also an offence to disturb them in these places.

A5.3.2 Otter *Lutra lutra* are fully protected under the Conservation of Habitats and Species Regulations 2017 as amended). This legislation includes protection from disturbance whilst occupying a place of shelter, killing, injury and damage/destruction of their places of shelter. They are also protected from disturbance whilst occupying places of shelter.

A5.3.3 Both water vole and otter are identified under Local Planning Guidance Note No.8: Nature Conservation and Development as being of 'particular relevance' locally to Flintshire.

Previous Records

A5.3.4 Shotwick brook and Northern Drain have been previously subject to surveys for water vole as part of wider outline planning applications in 2013, which is detailed in the Framework Ecological Mitigation Strategy for the outline site 'Northern Gateway' produced by Tyler Grange (reference *10647/R02a_FEMS_JM_LP_07.07.2017*. During these surveys, evidence of water vole was recorded in low quantities at the far southern extent of Shotwick Brook. 2019 Tyler Grange surveys were summarised in the ES Chapter Water Vole and Otter Appendices 12462/ Ap 5.1 WV Appendix. These 2019 surveys found increased levels of water vole population densities, particularly in the southern western sections of Shotwick brook. The evidence of water vole burrows had extended further along Shotwick Brook to the east, but not to the level of the high southern concentration.

A5.3.5 Otter evidence was observed in the southern extent of the Northern drains in the 2019 surveys with tracks and spraint recorded.

Survey Methodology

A5.3.6 Table **A5.3.1** below outlines the survey dates, surveyors and weather conditions of the water vole surveys conducted within the site. All lead surveyors are appropriately experienced in conducting this type of survey. The extent of the survey area is illustrated on plan **14150/P04.**

Table A5.3.1: Survey dates, surveyors and weather conditions of water vole/otter surveys along Shotwick brook and Northern Drain

Survey Visit	Date(s)	Weather Conditions	Lead Surveyor

1	17/06/21	19°C. Sunny, dry, bright, minimal cloud cover and wind 2Bf	Dale Mortiboys
2	09/09/21	15°C at start of survey increasing to 18°C. Overcast Minimal wind: 2Bf and cloud: 1/8	Nick Bell

A5.3.7 Water vole signs searched for included droppings, latrines, feeding stations, lawns, nests, footprints and runways in vegetation. The survey methods followed those detailed in the Water Vole Mitigation Handbook (third edition; 2016)[1], Water Vole Field Signs and Habitat Assessment (2021) [2] and standard otter survey methodologies.

A5.3.8 A search was made for field signs indicating the presence of otters including spraints, prints, runs/pathways, slides and holts. An inspection for this species was also made along the section of the River Dee which runs adjacent to the site.

A5.3.9 For the purposes of this report, one of the watercourses subject to survey, Shotwick Brook, was split into three sections; sections A, B, C– the extent of each section is highlighted on plan **14150/P04.** Northern Drain was also surveyed for water vole but not separated further due to uniform habitat and results.

Survey Limitations

A5.3.10 Both survey visits were completed during the optimal survey windows, and over two months apart as recommended in the guidelines.

A5.3.11 It should be noted that the eastern bank of Shotwick brook could not be accessed to survey completely due to the presence of dense bramble along the banks and heavy silt at the base of the brook, making access through wading unsafe. It was noted, however, that this bank was less suitable for water vole given the widespread presence of bramble and it this limitation is not expected to have altered the assessments or conclusions made in this report.

A5.3.12 During August 2021 supervised works on the site in relation to the approved enabling works associated with Plot C cleared much of the vegetation on the eastern bank of Shotwick Brook and the Southern bank of the Northern Drain, this subsequently allowed easier access to the banksides which were hard to access in July.

Survey Results

A5.3.13 A summary of the water vole survey results of Shotwick brook is provided in **Table A5.3.2** below, with full results and habitat suitability commentary presented in **Table A5.3.3** and shown on **Plan 14150/4.** Definitive evidence of water vole (burrows, latrines, feeding sign) was found along the south-western extents on both banks. The northern section past the slight bend in the water course had no burrows present but there was evidence water vole foraging in the form of latrines and feeding signs.

[1] *Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.*

[2] *Dean, M., (2021) The Water Vole Field Signs and Habitat Assessment. Pelagic Publishing, Exeter.*

Table A5.3.2: Summary of water vole survey results of Shotwick brook

Section	A		B		C	
Survey	V1	V2	V1	V2	V1	V2
No. Burrows	30	25	16	17	0	0
No. Feeding Stations	50	45	30	30	15	10
Total. No latrines	30	~20	12	8	3	2
Latrines per 100m	15	~10	~4	2	<1	<1
Estimated Population Density[3]	High	Medium	Medium	Low	Low	Low

A5.3.14 Small amounts evidence of water vole was recorded along Northern Drain during the July surveys completed within the site. Feeding evidence from large angular cut vegetation was recorded. No water vole sized burrows or latrines, however, were recorded. Small burrows and bank vole droppings, with very small feeding remains were recorded. A full summary with a detailed description of Northern Drain is provided in **Table A5.3.3.**

Otter

A5.3.15 The eastern bank of the River Dee had evidence of transient otter. Tracks and aged spraint were recorded during the July visit far to the south from the site boundary. No other evidence of this species was recorded elsewhere within the site.

[3] Population density was estimated based on the criteria provided in the water vole mitigation handbook, which is based on number of latrines recorded per 100m

Table A5.3.3: Water vole survey results and habitat suitability of Shotwick Brook

Watercourse	Photograph	Description	Water vole signs
Shotwick Brook – Section A	 (1a)  (1b)	Photo 1a taken 1st half of survey season – Photo 1b taken 2nd half of survey season. This section of Shotwick Brook is 190m in length and flows NE-SW, culverted at both ends. At the time of both surveys, the brook was approximately 1m in depth. Channel width approximately 4m and free of emergent vegetation. Runs in a virtually straight line. Flow of water slow-moderate on both surveys. Bank profile steep on western side and steep-moderate on eastern side; the eastern bank was stepped to provide a platform at the high-water mark. Both banks very well vegetated with grasses, rushes and sedges on first survey – vegetation noted to be removed on eastern bank from dredging activities at the time of second survey, with a c.1m margin of vegetation untouched at interface with water. Optimal water vole habitat.	 (1c) Numerous burrows, fresh latrines and fresh feeding stations (see Photograph 1c) recorded along entire length of section – see **Table A5.3.2** for numbers. Majority of evidence recorded at high water mark amongst dense grasses, rushes and tall ruderals. Conspicuous small mammal runs also noted along bank and into water.

Shotwick Brook – Section B	 (2a)  (2b)	Photo 2a taken 1st half of survey season – Photo 2b taken 2nd half of survey season. This section of Shotwick Brook is 340m in length and flows NE-SW, culverted at the southern end At the time of the first survey, the brook was approximately 1m-1.5m in depth but after dredging this dropped to <1m. Channel width approximately 4m and free of emergent vegetation. Runs in a virtually straight line. Flow of water slow-moderate on both surveys. Bank profile steep on western side and steep-moderate on eastern side; the eastern bank was stepped to provide a platform at the high-water mark. Both banks very well vegetated with grasses, rushes and sedges on first survey – vegetation noted to be removed on eastern bank from dredging activities at the time of second survey, with a c.1m margin of vegetation untouched at interface with water. During first survey, water level noted at the high-water mark but second survey water level noted to drop to below the platform, exposing a mud platform above the water level, concealed by a canopy of overhanging grasses. Optimal water vole habitat.	 Numerous burrows, fresh latrines and fresh feeding stations (see Photograph 2c) recorded along entire length of section – see **Table A5.3.2** for numbers. Majority of evidence recorded at high water mark amongst dense grasses, rushes and tall ruderals. Conspicuous small mammal runs also noted along bank and into water.

Shotwick Brook – Section C	 (3a)  (3b)	Photo 3a taken 1st half of survey season – Photo 3b taken 2nd half of survey season. This section of Shotwick Brook is 370m in length and flows N-S, with a bridge at the northern end where it joins Northern Drain. Runs in a virtually straight line. At the time of the first survey, the brook was approximately 1m-1.5m in depth but after dredging this dropped to <1m. Channel width approximately 4m and free of emergent vegetation. Flow of water slow-moderate on both surveys. Bank profile very steep on western side and steep-moderate on eastern side; the eastern bank was stepped to provide a platform at the high-water mark. Eastern bank very well vegetated with grasses, rushes and sedges on first survey – vegetation noted to be removed on eastern bank from dredging activities at the time of second survey, with a c.1m margin of vegetation untouched at interface with water. Western bank dominated by bramble. During first survey, water level noted at the high-water mark but second survey water level noted to drop to below the platform, exposing a steep mud bank	 (3c) Little evidence of water vole activity in comparison with Sections A and B.

Watercourse	Photograph	Description	Water vole signs
		without the mud platform identified in Section A and B. Optimal water vole habitat.	
River Dee	 (4)	Very large river, with a fast flow of water. Unsuitable for water vole. Track and spraint evidence of otter.	None.

Watercourse	Photograph	Description	Water vole signs
Northern Drain		Drain, c.500m in length. Water is c. 0.75m in depth and sits within a muddy channel. Channel itself is shallow and with muddy banks. Approximately 3m wide. Culverted at both ends. Sub-optimal water vole habitat.	 A single feeding station amongst the bankside reed vegetation.