

REPORT TO INFORM HABITATS REGULATIONS ASSESSMENT: Stage 1 Screening

Twycross Zoo, Burton Road, Atherstone

A Report To: Baker Mallett LLP
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Quality Assurance

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Declaration of Compliance

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

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Contents

1. Introduction	4
1.1 Project Background	4
1.2 Habitats Regulations Assessment	4
2. Methodology	6
2.1 Stages of Habitat Regulations Assessment	6
2.2 The 'Precautionary Principle'	7
3. Stage 1: Site Description and Proposed Development.....	9
3.1 Current Land Use	9
3.2 Summary of Development Proposals.....	9
3.3 Documentation Provided	10
4. Stage 1: Relevant European Sites	11
4.1 Identification of European Sites at Risk	11
4.2 River Mease SAC	13
5. Stage 1: Screening – Initial Assessment of Impacts and Effects	16
5.1 Potential Impacts and Effects Arising as a Result of the Proposals	16
5.2 Operational Phase Water Pollution: Surface Water Run-off into the SAC	16
5.3 Operational Phase Water Pollution: Foul Water Discharge into the SAC	18
5.4 In-Combination Assessment	19
5.5 Summary of Screening Assessment	21
6. Conclusions and Recommendations.....	22
6.1 Conclusions	22
6.2 Recommendations.....	22
7. Drawings.....	23

1. Introduction

1.1 Project Background

In September 2023, Baker Mallett LLP commissioned Middlemarch to complete a Shadow Habitats Regulations Assessment associated with a proposed development at Twycross Zoo, Atherstone. It is understood that a full planning application will be submitted to Hinckley & Bosworth Borough Council for the demolition of the lemur house, removal of several animal enclosures and clearance of trees and vegetation to make way for the construction of a National Science Conservation Centre.

Middlemarch has previously carried out the following assessments at this site:

- Preliminary Ecological Appraisal, Report RT-MME-159277-04;
- Preliminary Arboricultural Assessment, Report RT-MME-159277-01;
- Arboricultural Impact Assessment, Report RT-MME-159277-02; and
- Preliminary Bat Roost Assessment, Report RT-MME-159277-05.

In addition, Middlemarch has also been commissioned to undertake the following assessments:

- Updated Preliminary Ecological Appraisal;
- Updated Preliminary Bat Roost Assessment of Structures and Trees;
- Dusk Emergence and Dawn Re-entry Bat Surveys;
- Great Crested Newt Habitat Suitability Index Assessment;
- Construction Ecological Management Plan (CEMP); and
- Landscape and Ecological Management Plan (LEMP).

Middlemarch Environmental Ltd was commissioned to prepare this shadow HRA in order to provide a robust evidence base to support the Competent Authority (Hinckley & Bosworth Borough Council) in undertaking the Stage 1 (Screening) of their Habitats Regulations Assessment.

This assessment is required due to the proximity of the Site to the designated River Mease Special Area of Conservation.

1.2 Habitats Regulations Assessment

The need for projects with the potential to affect European designated sites to be assessed is stated in Article 6 of the European Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (hereafter 'the Habitats Directive'). Articles 6(3) and 6(4) of the Habitats Directive state that an 'Appropriate Assessment' is required for any plan or project that is considered likely to have a significant effect on a European site, either individually or in combination with other plans or projects. The land and marine aspects of the Habitats Directive, as well as certain elements of the Wild Birds Directive (Directive 2009/147/EC) (known collectively as the Nature Directives) are transposed into English and Welsh law through the Conservation of Habitats and Species Regulations 2017 as amended ('the Habitats Regulations 2017').

Regulations 63, 64, 65 and 66 of the Habitat Regulations 2017 incorporate the requirements of Articles 6(3) and 6(4) of the Habitats Directive, as regards a competent authority deciding to

undertake, or give any consent, permission, or other authorisation for, a plan or project. Additionally, regulations 75, 76, 77 and 78 of the Habitats Regulations 2017 incorporate the requirements of Articles 6(3) and 6(4) of the Habitats Directive, regarding the competent authority's granting of a planning permission by a general development order (permitted development). The requirements of Articles 6(3) and 6(4) of the Habitats Directive are further incorporated into regulations 105 and 106 of the Habitats Regulations 2017 regarding the requirements of a competent authority (plan-making authority) to undertake an appropriate assessment of implications of any land use plan before the plan is given effect.

Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1st January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant. The obligations of a competent authority in the 2017 Regulations for the protection of sites or species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

The Habitats Regulations 2019 have created a National Site Network on land and at sea, including both the inshore and offshore marine areas in the UK. The National Site Network includes:

- Existing Special Areas of Conservation (SACs), which are designated due to their importance to the habitats and species listed in Annexes I and II of the Habitats Directive;
- Existing Special Protection Areas (SPAs), which are designated due to their importance for wild birds in accordance with the Wild Birds Directive; and
- New SACs and SPAs designated under these Regulations.

SACs and SPAs in the UK no longer form part of the European Union's Natura 2000 ecological network. Any references to Natura 2000 in the 2017 Regulations and in guidance now refers to the new National Site Network. However, guidance provided by Freeths (2020a)¹ recommends that existing SACs and SPAs in the UK can continue to be referred to as 'European sites' and 'European marine sites'.

Designated Wetlands of International Importance (known as Ramsar sites) do not form part of the National Site Network. Many Ramsar sites overlap with SACs and SPAs and may be designated for the same or different species and habitats. All Ramsar sites remain protected in the same way as SACs and SPAs and are treated, for planning purposes, as European sites.

Under the Habitats Regulations, the competent authority (Hinckley & Bosworth Borough Council) may only agree to the proposed development after having ascertained that it will not adversely affect the integrity of any European site alone or in-combination with other plans and projects. Where adverse impacts are anticipated, the proposed development may only be permitted where there are no alternative solutions, and the proposed development is considered to be of overriding public interest. In such instances, appropriate compensatory measures are required to ensure that the overall coherence of the National Site Network is protected.

¹ Freeths. (2020a). *The Habitats Regulations Assessment regime after 31 December 2020 – how will it look?* 22nd October 2020. Available at: <https://www.freeths.co.uk/2020/10/22/the-habitats-regulations-assessment-regime-after-31-december-2020-how-will-it-look/?cmpredirect>

2. Methodology

2.1 Stages of Habitat Regulations Assessment

The following assessment is based on the best practice for Habitats Regulations Assessment as outlined in The Habitats Regulations Handbook (DTA Publications, 2013² and subsequent updates). This document expands upon previous guidance published by the Impacts Assessment Unit at Oxford Brookes University (2001)³ and the Department for Communities and Local Government (2006)⁴.

Best practice guidance identifies that the Habitats Regulations Assessment process is broadly divisible into four stages, with the need to complete each stage determined by the results of the previous stage. In summary, these stages are:

- **Stage 1: Evidence Gathering and Screening**

This stage is associated with collecting evidence regarding those parts of the National Site Network (SACs and SPAs) that have the potential to be impacted by a project or plan, either alone or in combination with other projects or plans. Where no significant effects are perceived, sites may be screened out of the need for further assessment during Stage 2.

The April 2018 decision by the Court of Justice of the European Union (CJEU) in the case of *People Over Wind and Sweetman v Coillte Teoranta* (C-323/17) means that measures intended to avoid or reduce the harmful effects of a proposed project on a European site, may no longer be taken into account by competent authorities at the Habitats Regulations Assessment 'screening stage' when judging whether a proposed plan or project is likely to have a significant effect on the integrity of a European site. This is a reversal of a previously settled principle in English and Welsh law. As such, where a proposed development is proximate to a SAC or SPA and could give rise to significant effects, even if these effects can be mitigated for, an Appropriate Assessment (Stage 2) is required.

Regarding CJEU judgments given prior to 31st December 2020, reference to *Freeths* (2020b)⁵ and the Ministry of Justice (2020)⁶, confirms that the courts in the UK, with the exception of the UK Supreme Court; the Court of Appeal in England and Wales; the Court of Appeal in Northern Ireland; the High Court of Justiciary in Scotland, when sitting as a court of appeal in relation to a compatibility issue with EU law or a devolution issue; the Inner House of the Court of Session; the Lands Valuation Appeal Court; and the Registration Appeal Court, will continue to be bound by judgments handed down by the CJEU and by domestic courts prior to 31st December 2020, when interpreting retained EU

² DTA Publications. (2013 and subsequent updates). *The Habitat Regulations Assessment Handbook*. DTA Publications, Nottingham.

³ Oxford Brookes University. (2001). *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC*. European Commission DG Environment.

⁴ Department for Communities and Local Government. (2006). *Planning for the Protection of European Sites: Appropriate Assessment. Guidance for Regional Spatial Strategies and Local Development Documents*.

⁵ Freeths. (2020b). *Environmental Law after 31 December 2020*. 5th November 2020. Available at: <https://www.freeths.co.uk/2020/11/05/environmental-law-after-31-december-2020/>

⁶ Ministry of Justice. (2020). *Government response to consultation. Response to the consultation on the departure from retained EU case law by UK courts and tribunals*. October 2020. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/926811/departure-eu-case-law-uk-courts-tribunals-consultation-response.pdf

law. This is the case as long as the relevant piece of legislation remains unmodified by Parliament.

Under these regulations, the courts named above as exceptions, will not be bound by (and therefore can choose to depart from) any CJEU judgments given prior to 31st December 2020 (including those relating to environmental law matters), except, in so far as “there is post-transition case law which modifies or applies that retained EU case law and which is binding on the relevant court”.

- **Stage 2: Appropriate Assessment of Significant Impacts**

Where it is considered that a European site may experience significant effects from a project or plan, either alone or in combination with other projects or plans, a detailed assessment of likelihood and severity of the perceived impact, on the integrity of the European site and the National Site Network is undertaken. This assessment is based on a detailed review of the project or plan in conjunction with the structure, function and conservation objectives of the European site. This stage may also include a preliminary assessment regarding the potential for the identified impacts to be mitigated.

- **Stage 3: Assessment of Alternative Solutions**

Where impacts on the integrity of the European site and the National Site Network are perceived, this stage examines alternative ways of achieving the objectives of the project or plan in order to avoid these impacts.

- **Stage 4: Imperative Reasons of Overriding Public Interest and Compensation Measures**

Where the potential for adverse impacts remains, and where it is deemed that a project or plan should proceed for Imperative Reasons of Overriding Public Interest (IROPI), an investigation of appropriate compensatory measures is undertaken.

This report focuses on Stage 1 of the Habitats Regulations Assessment process.

2.2. The 'Precautionary Principle'

Oxford Brooks (2001) Methodological Guidance on Art 6(3) and 6(4) Habitats Directive states that “*Implicit in the habitats directive is the application of the **precautionary principle**, which requires that the conservation objectives of Natura 2000 should prevail where there is uncertainty*”. The European Commission’s Final Communication from the Commission on the Precautionary Principle (European Commission, 2000a⁷) states that the use of the precautionary principle presupposes:

- Identification of potentially negative effects resulting from a phenomenon, product or procedure
- A scientific evaluation of the risks which because of the insufficiency of the data, their inconclusive or imprecise nature, makes it impossible to determine with sufficient certainty the risk in question (CEC, 2000).

According to best practice guidance, this means that the emphasis for assessment should be on objectively demonstrating, with supporting evidence, that there will be no significant effects on a

⁷ European Commission. (2000a). *Final Communication from the Commission on the Precautionary Principle*.

European site. The publication 'Managing Natura 2000 Sites: The Provision of Article 6 of the 'Habitats' Directive 92/43/EEC' (European Commission, 2000b⁸) provides explanatory guidance regarding this point, which is paraphrased below.

It is clear from the context and from the purpose of the directive that the 'integrity of the site' relates to the site's conservation objectives. For example, it is possible that a plan or project will adversely affect the integrity of a site only in a visual sense or only habitat types or species other than those listed in Annex I or Annex II. In such cases, the effects do not amount to an adverse effect for the purposes of Article 6(3), provided that the coherence of the network is not affected.

The expression 'integrity of the site' shows that focus is here on the specific site. Thus, it is not allowed to destroy a site or part of it on the basis that the conservation status of the habitat types and species it hosts will anyway remain favourable within the European territory of the Member State.

As regards the connotation or meaning of 'integrity', this can be considered as a quality or condition of being whole or complete. In a dynamic ecological context, it can also be considered as having the sense of resilience and ability to evolve in ways that are favourable to conservation. The 'integrity of the site' has been usefully defined as 'the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or levels of populations of the species for which it was classified' (IEEM, 2006).

The integrity of the site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives.

Conservation objectives for the European sites considered in this assessment are presented in Chapter 4.

⁸ European Commission. (2000b). *Managing Natura 2000 Sites: The Provision of Article 6 of the 'Habitats' Directive 92/43/EEC*.

3. Stage 1: Site Description and Proposed Development

3.1 Current Land Use

Table 3.1 provides a brief summary of the site and its surroundings.

Table 3.1: Summary of Site and Surroundings

Attribute	Description
Site Location	Twycross Zoo, Burton Road, Atherstone
National Grid Reference	SK 31559 06068
Site Area	1.63ha
Topography	Generally flat, slightly sloping to the south.
Land Cover (on site)	The site forms the south-west corner of the larger site of Twycross Zoo and a stretch of land immediately south of the current zoo boundary. Approximately one third of the site is composed of semi-improved grassland with scattered scrub. The remaining land comprises a mosaic of dense scrub, amenity grass, conifer plantation, broad-leaved woodland, scattered and groups of planted trees, hedgerow, pond, hardstanding paths and animal enclosures, the latter mainly containing bark chippings and grasses.
Land Cover (site surrounds)	Twycross Zoo dominates the landscape to the north/north-east of the proposed development area with the wider area comprising intensively managed arable farmland dotted with small farmsteads and residential properties. The M42 lies approximately 3km to the west.

3.2 Summary of Development Proposals

The proposal involves the construction of a National Science and Conservation Centre (NSCC). The Centre will comprise two buildings including an orangutan enclosure and visitor centre, and a higher education campus building with educational, research and ancillary residential facilities. The existing orangutan enclosure is currently located to the centre of the Zoo and is surrounded on all sides by other buildings and enclosures, limiting the opportunities for its expansion and redevelopment. To enable the NSCC to come forward the enclosure needs to be located adjacent to a higher education campus to allow students and researchers the optimum opportunity to study the animals directly.

The higher education facilities include research and breakout rooms, labs, classrooms and a c.200-seater lecture theatre/ conference centre. In addition to the educational facilities, the campus building will provide c.23 en-suite bedrooms with shared social space and kitchen and utilities facilities to accommodate students and researchers visiting the centre. These facilities will all be contained within a two-storey building. In addition to these facilities, there will be six on-site lodges that would also support overnight stays for academics where required.

3.3 Documentation Provided

Documentation made available by the client is listed in Table 3.2.

Table 3.2: Documentation Provided by Client

Document / Drawing Number	Author
Overall Site Plan - Proposed Ground Floor / 15721-A0752	Weedon Architects
Combined Landscape Masterplan P22009-00-001-DZ-0110-02	Dearadh Zú
Soft Landscape Strategy P22009-00-001-DZ-400-00	Dearadh Zú
Proposed Site Plan / TWZ-HLM-00-00-DR-L-00001	HLM Architects
Proposed Soft Landscape (Draft) / TWZ-HLM-00-00-DR-L-45001	HLM Architects
Flood Risk Assessment and Drainage Strategy / 21440-CCL-XX-XX-RP-C-001-REV-0	Clancy Consulting Ltd

4. Stage 1: Relevant European Sites

4.1 Identification of European Sites at Risk

A search for European statutory nature conservation sites within a 5km radius of the application site has been completed using Natural England's Multi-Agency Geographic Information for the Countryside (MAGIC) website. A single European site was identified; the River Mease Special Area of Conservation (SAC).

The relative distance of the site from the application site boundary and the justification for scoping the site into or out of further assessment is provided in Table 4.1.

Table 4.1: Summary of European Site (Continues)

European Site	Distance from Application Site	Justification for Scoping In/Out of Further Assessment
River Mease SAC	4.4km	The River Mease SAC is designated for supporting good examples of water plants from the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation. The SAC is also designated for its populations of four Annex II species, comprising white-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i>, spined loach <i>Cobitis taenia</i>, bullhead <i>Cottus gobio</i> and otter <i>Lutra lutra</i>. No habitat within the development area can be utilised by the qualifying species of the SAC for foraging, shelter or breeding. This makes any direct impact to the qualifying species improbable. This impact pathway can therefore be scoped out of further consideration. The proposed development lies 13m outside of the fluvial catchment of the River Mease (see drawing C160474-02) and 360m from the nearest field ditch within the fluvial catchment of the River Mease, with the ditch being further separated from the development site by the A444. Instead, water originating from the development site drains south into the River Sense and from there the River Anker and River Tame. Therefore, it can be concluded that the site (in its current state) is hydrologically unconnected to the River Mease SAC and that it is improbable that any surface water run-off originating within this area would reach the SAC. During the construction phase of the development (prior to the installation and operation of new drainage infrastructure) the direction of surface water run-off would not alter, and the site would remain hydrologically unconnected to the River Mease SAC. It is therefore not possible for water born pollutants (chemicals, dust or debris) to be transported from the construction site and deposited into the River Mease SAC. This impact pathway can therefore be scoped out of further consideration.

Table 4.1: Summary of European Site

European Site	Distance from Application Site	Justification for Scoping In/Out of Further Assessment
River Mease SAC	4.4km	Given the distance between the proposed development site, the SAC and the nearest field drainage ditch within the fluvial catchment of the SAC (i.e., 360m) it is considered highly unlikely that air-born pollution arising during the construction phase (fine dust) could be transported and deposited within the SAC to such a level as to have any impact upon the sites water quality. This impact pathway can therefore be scoped out of further consideration. The River Mease SAC contains dissolved Phosphate in exceedance of its determined critical levels. Nutrient enrichment results in both direct harm to the sites qualifying habitats, and habitats upon which the sites qualifying species rely. This harm occurs via eutrophication of the water course (resulting in changes in flora and fauna composition) which in-turn can result in anoxic conditions. Any development that would result in further increase in Phosphate discharging into the River Mease is therefore likely to result in a significant in-combination impact to the SAC. Due to the development's geographic proximity to the fluvial catchment of the River Mease SAC (i.e., with it lying 13m north of the development boundary) it is considered that during the developments operational phase, there is the potential for impacts to the SAC. These could arise from either an engineered alteration of the direction of flow (and potential final destination) of surface water run-off and / or the generation and disposal of increased levels of foul water, should the foul water flow to a Waste Water Treatment Works (WWTW) within the fluvial catchment of the River Mease. As there is a potential that the development could result in and increase in operational phase nutrient enrichment of the River Mease SAC; this issue is considered further within this assessment.

The location of River Mease SAC in relation to the application site is shown on Drawing C160474-01 in Chapter 7.

The designation criteria, conservation objectives and known areas of vulnerability for the SAC are detailed in Section 4.2 below.

4.2 River Mease SAC

The following information is taken from the Joint Nature Conservation Committee (JNCC) site description⁹ and accompanying Nature 2000 data sheet¹⁰.

Country:	England
Administrative Region:	Derbyshire and Nottinghamshire, Leicestershire, Rutland and Northamptonshire, Shropshire and Staffordshire
Latitude:	52.69972222
Longitude:	-1.615555556
Site Code:	UK0030258
Area (ha):	23.03

The River Mease arises in north-west Leicestershire and flows westwards through Derbyshire and Staffordshire for around 25km across a largely rural and agricultural landscape to its confluence with the Trent at Croxall. It is a small tributary of the River Trent system and represents a relatively unmodified lowland river with a diverse range of in-channel features, including riffles, pools, shoals, vegetated channel margins and bank side tree cover.

4.2.1 Qualifying Features

The site qualifies under the Habitats Directive (92/43/EEC) by supporting a habitat of European importance listed on Annex I of the Directive. Water courses of plain to montane levels with the *Ranunculon fluitantis* and *Callitricho-Batrachion* vegetation are present as a qualifying feature but are not a primary reason for site selection.

The site qualifies under Directive (79/409/EEC) by supporting populations of European importance listed on Annex II of the Directive. Populations of spined loach *Cobitis taenia* and bullhead *Cottus gobio* constitute primary reasons for the selection of the SAC. Populations of white-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* and otter *Lutra lutra* are also present but are not primary reasons for selection.

4.3.2 Conservation Objectives

Conservation objectives for the River Mease SAC as detailed by Natural England (2016) are as follows:

“With regard to the SAC and the natural habitats and/or species for which the site has been classified (the ‘Qualifying Features’ listed below), and subject to natural change; ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of qualifying natural habitats and habitats of qualifying species;*

⁹ Available at: <https://sac.jncc.gov.uk/site/UK0030258>

¹⁰ JNCC (2015). *River Mease Special Areas of Conservation Standard Data Form*. Available at: <https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0030258.pdf>

- *The structure and function (including typical species) of qualifying natural habitats;*
- *The structure and function of the habitats of qualifying species;*
- *The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;*
- *The populations of qualifying species; and*
- *The distribution of qualifying species within the site.”*

4.3.3 Factors affecting the Qualifying Features

The issues to which River Mease SAC is vulnerable are highlighted in Table 4.1 This information has been collated from sources including JNCC SAC citation the Site Improvement Plan for River Mease SAC (Natural England, 2014) and the European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features (2016).

Table 4.1: Summary of Vulnerability of River Mease SAC

Issue	Detail
Water Pollution	Elevated levels of phosphate contribute to eutrophication leading to increased algal growth and the decline in abundance and/or diversity of characteristic plant and freshwater species and habitats of the SAC. A large proportion of phosphate is associated with the high number of sewage treatment works (STWs) and more diffuse septic tank discharges.
Drainage	Cumulatively drains, field under drainage and other discharges within the catchment affect the naturalised flow pattern. As a consequence the river appears more 'flashy' with water levels rising and falling with increased rapidity.
Inappropriate weirs dams and other structures	The modified physical condition of the river, such as the presence of multiple weirs affects the condition of the SAC features and can restrict their population size and distribution.
Invasive species	Himalayan balsam and Japanese knotweed are found along the banks of the river. American signal crayfish have recently been found in the lower reaches of the river. Signal crayfish out compete native species for available food and habitat and carry the crayfish plague which our native crayfish has no resistance to
Siltation	High levels of siltation smother gravel beds which are the required spawning habitat of bullhead and can also cover areas of fine sand which are used as spawning habitat by spined loach.
Water abstraction	Water abstraction changes the naturalised flow pattern from low to high flows and all flow ranges are important for different life stages of the SAC species. There are a number of regulated agricultural related abstractions along the River Mease and a permitted transfer of ground water to the Ashby Canal. However, there are 11 sewage treatment works with in the catchment providing a net surplus of water to the system overall. The water balance for the catchment and how this affects the flow pattern and ecology is still to be better understood.

It is recognised that not all of these issues will be impacted by the proposed development. Where the proposed works have the potential to interact with and/or exacerbate the pressures/threats listed

(e.g. through damage, disturbance or pollution of qualifying habitats and decline in habitat for qualifying species), this is discussed further in Chapter 5.

5. Stage 1: Screening – Initial Assessment of Impacts and Effects

5.1 Potential Impacts and Effects Arising as a Result of the Proposals

Following a review of the proposed development and consideration of the wider issues which are recognised as affecting the River Mease SAC the following potential impact pathways have been identified:

Operational Phase

- Water pollution, as a result of surface water run-off into the SAC, and
- Water pollution, as a result of increase foul water discharge into the SAC.

The qualifying habitats and the habitats upon which the qualifying species of the River Mease SAC rely are recognised as being sensitive to water pollution, especially nutrient enrichment. The Site Improvement Plan for the SAC¹¹ details that elevated levels of phosphate contribute to eutrophication leading to increased algal growth, anoxic conditions and the decline in abundance and/or diversity of characteristic plant and freshwater species and habitats of the SAC.

The site is currently in excess of its critical level for dissolved phosphates with Natural England's 2022 evidence pack (TIN200¹²) detailing that a reduction in dissolved phosphate of between 69% to 78% is needed to allow for the delivery of the site's conservation objectives.

In the Conservation Objectives Supplementary Advice for the River Mease SAC¹³ it states that the current objectives are:

“[to] restore a natural nutrient regime to the River Mease, with any anthropogenic enrichment above natural/background concentrations limited to levels at which adverse effects on characteristic biodiversity are unlikely”.

The two impact pathways by which the development could result in further anthropogenic enrichment of the SAC during its operational phase (increase surface water run-off and foul water discharge) are discussed further in Sections 5.2 and 5.3.

5.2 Operational Phase Water Pollution: Surface Water Run-off into the SAC

A Flood Risk Assessment and Drainage Strategy (See Report 21440-CCL-XX-XX-RP-C-001-REV-0, Clancy Consulting Ltd, 2023,) has been prepared as part of the proposed development scheme. It considers the potential impacts of increased surface water run-off and foul water discharges, likely to occur as a result of the proposed development, and details appropriate remediation against

¹¹ Natural England, 2014, Site Improvement Plan, River Mease SAC, Available at: <https://publications.naturalengland.org.uk/publication/6640857448972288>

¹² Natural England, 2022, River Mease Special Area of Conservation - Evidence Pack (TIN200), Available at: <https://publications.naturalengland.org.uk/publication/5254733043597312>

¹³ Natural England, 2018, River Mease Special Area of Conservation, Supplementary Advice, Available at: <https://publications.naturalengland.org.uk/publication/6217720043405312>

the potential for harmful environmental effects which have then been incorporated into the design of the scheme.

The measures detailed within the Flood Risk Assessment and Drainage Strategy are considered integral to the development scheme (i.e., they would be undertaken even if there was no potential for harm upon a European site). Paragraph 65-007-20190722 of the Planning Practice Guidance¹⁴ ('PPG') confirms that features that are integral to the design or physical characteristics of a project that is being assessed, may be considered at the screening stage. As such, the effects on the likely impacts of the development scheme as a result of the Flood Risk Assessment and Drainage Strategy should be considered at Stage 1 of Habitats Regulations Assessment (Screening), rather than Stage 2 (Appropriate Assessment).

Regarding the attenuation and discharge, of surface water during the developments operational phase, Section 6.2.1 (page 29) of the 2023 Clancy Consulting Ltd FRA &DS states:

"It is proposed to separate foul and surface water networks within the development."

Sections 6.3.4 and 6.3.8 (page 30) clarify:

"In following the standard hierarchy of drainage solutions, consideration should firstly be given to the discharge of surface water run-off by sustainable methods such as infiltration."

"Where possible it is proposed to discharge surface water to ground via infiltration. The proposed southern part of the car park presents opportunity to use this method, receiving flows solely from the catchment area it receives [i.e., the Sence Anker and Bourne Rivers and Lakes Operational Catchment]."

In addition to management of surface water run-off via infiltration into soils, attenuation and discharge of surface water into existing watercourses to the south of the development area also form part of the 2023 Clancy Consulting Ltd FRA & DS.

Sections 6.3.11 - 6.3.13 (page 31) state:

"To the southwest of the site, an existing ditch/watercourse is located south of the existing/proposed access road into the site. This would be a practical location to discharge the proposed sites surface water flows, given the naturally topography of the land falls in this direction [away from the fluvial catchment of the Reiver Mease SAC], therefore likely already received greenfield runoff from the site."

"Given the proximity of this drainage feature, discharging flows from this site to this location is proposed..."

"The site will therefore discharge surface water flows using a hybrid drainage system of part infiltration (System 1) and part discharge to watercourse (System 2)."

The route surface water run-off will travel across the site and its infiltration into surface soils or discharge at the southwest corner of the development boundary is clearly depicted on the sites Water Catchment Plan, Drainage Strategy Plan and Flood Exceedance Plan (see Chapter 7). It is

¹⁴ Gov.uk, Guidance on the use of Habitats Regulations Assessment, (2019), Available at: <https://www.gov.uk/guidance/appropriate-assessment>

clear that all surface water run-off generated via the development will flow (broadly) south from the site and into the River Sense and from there the River Anker and River Tame.

The 2023 FRA & DS clearly displays that the development will not result in any engineered changes in the direction and eventual destination of surface water run-off from the site. As such, (post-development) there remains no hydrological connection between the sites surface water run-off and the River Mease SAC. There is no possibility that the development could impact upon the site's qualifying habitats or species, or habitats which the qualifying species rely.

It is considered that this potential impact pathway can be screened-out by the Competent Authority at Stage 1 of their HRA, being concluded as having no effect on the River Mease SAC.

5.3 Operational Phase Water Pollution: Foul Water Discharge into the SAC

In the developments operational phase, the site will comprise research and laboratory facilities, a lecture theatre, conference centre and c.23 new ensuite bedrooms and six lodges. Periodic overnight stays from groups using / visiting the new research facility are to be expected, with an increase in the sites foul-water generation occurring in tandem.

As noted in Section 5.2 of this report a Flood Risk Assessment and Drainage Strategy (See Report 21440-CCL-XX-XX-RP-C-001-REV-0 Clancy Consulting Ltd, 2023,) has been prepared as part of the proposed development scheme. Also as previously noted in Section 5.2, the measures detailed within the Flood Risk Assessment and Drainage Strategy are considered integral to the development scheme and so may be considered at the screening stage.

Regarding the attenuation, onsite filtration and treatment and subsequent discharge of additional foul-water generated during the developments operational phase the Section 6.2.2, 6.2.3 and 6.2.10 (page 29) of the 2023 Clancy Consulting Ltd FRA & DS state:

"Foul water from the proposed development is to discharge via a new foul water private drainage system."

"No foul or combined public sewers have been identified within the vicinity of the site, it is therefore proposed to incorporate a sewage treatment plant (STP), within the site prior to discharge."

"In addition to the STP, a phosphate and ammonia reduction chamber is proposed..."

Regarding the operation and maintenance of the STP, Sections 6.2.13 and 6.2.14 (page 30) specify:

"It is not anticipated that any animal foul waste will be discharged to the proposed foul sewage treatment plant and is assumed that all animal waste will be disposed of as part of the existing zoo waste management plan. Wash down facilities in the Orangutan living quarter will be required. It is anticipated that this can be discharged into the proposed foul water system. The Architect/Zoo specialist is to confirm otherwise."

"There are no proposals for foul water drainage to be adopted at this stage however the sewage treatment plant should be managed and maintained in accordance with the manufacture's guidance."

Additionally, the Clancy Consulting Ltd. Drainage Strategy (See Drawings Chapter 7) details that all foul-water will undertake a four-step filtration process utilising a Marsh Industries Ultra Polylos STP¹⁵ (which contains a three separation-chamber system) followed by a Marsh Gem Aerated Precipitation System¹⁶. As noted in the 2023 FRA and DS, prior to the site entering into operation, the Environment Agency (EA) will be notified of both the treated solution levels and discharge rates and permits/consent of treatment will need to be attained.

The Drainage Strategy also clearly details that, after treatment, all new foul-water generated by the development will discharge into the same existing ditch as the surface water run-off. This ditch is located in the Southwest corner of the development, flowing southwards from the site into the River Sense, and from there the River Anker and subsequently the River Tame.

It is clear from the 2023 FRA and DS that all operational phase foul-water generation will be attenuated and treated onsite before been discharged (under permit) into a separate fluvial catchment from the River Mease SAC. It is considered that there is no possibility that the development could impact upon the site's qualifying habitats or species, or habitats which the qualifying species rely, due to additional nutrient enrichment caused by foul-water discharges.

It is considered that this potential impact pathway can be screened-out by the Competent Authority at Stage 1 of their HRA, being concluded as having no effect on the River Mease SAC.

5.4 In-Combination Assessment

5.4.1 Other Projects and Plans Considered In-Combination

In accordance with the legal requirement in the Habitats Regulations and best practice methodology, the potential for a project or plan to impact upon a European site must be considered '*either alone, or in combination with other projects or plans*'. As such, where a plan or project is considered to have an **insignificant impact in isolation**, it is necessary to consider the potential for the proposed development to impact upon the River Mease SAC, in combination with other plans and projects.

The scope of an in-combination assessment is restricted to plans and projects which are 'live' at the same time as the assessment being undertaken (Natural England, 2018)¹⁷. These types of plans include:

- The incomplete or non-implemented parts of plans or projects that have already commenced;
- Plans or projects given consent or given effect but not yet started;
- Plans or projects currently subject to an application for consent or proposed to be given effect;

¹⁵ Marsh Industries, 2023, Marsh Ultra Polylok commercial sewage treatment plants, product specifications available at: <https://marshindustries.co.uk/products/ultra-polylok-sewage-treatment-plants/>

¹⁶ Marsh Industries, 2023, Marsh Gem-APS, product specifications available at: <https://marshindustries.co.uk/products/gem-aps/>

¹⁷ Natural England. (2018). *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations*. Version 1.4. Available at: <http://publications.naturalengland.org.uk/publication/4720542048845824>

- Projects that are the subject of an outstanding appeal;
- Ongoing plans or projects that are the subject of regular review and renewal;
- Any draft plans being prepared by any public body; and
- Any proposed plans or projects that are reasonably foreseeable and/or published for consultation prior to application.

Additionally, the guidance from Natural England makes it clear that plans or projects deemed to cause significant impact within their own right (and so have either incorporated methods of avoidance or proportional mitigation within the proposed plan or scheme) should be dealt with in isolation within their own individual Habitats Regulations Assessment and not be considered in combination with other schemes where impacts (individually) were considered insignificant. Likewise, where a plan or project is considered to result in an insignificant impact in isolation it should not be considered in combination with plans or projects already determined to be significant.

The evidence available demonstrates that the proposed development can be deemed to result in **no impact** upon the qualifying species/habitats of the River Mease SAC, or habitats upon which the qualifying species rely. As such no in-combination assessment is required (or possible) to undertake, as irrespective of which other plans or projects are considered in combination with the development it will continue to have no impact.

5.5 Summary of Screening Assessment

Table 5.1 below provides a summary of the potential impacts and effects arising from the project, either alone or in-combination with other projects and plans.

Table 5.1: Assessment of Effects of Proposed Project on European Sites, Alone and In-Combination with Other Projects and Plans

European Site/s	Potential Impact Arising as a Result of the Project	Potential Effect on Designated Features	Likely Significant Impact in Isolation?	Potential for In-Combination Impact?	Appropriate Assessment Required?
Operational Phase					
River Mease SAC	Water pollution, as a result of surface water run-off	Impacts on the qualifying habitats/species and/or the structure and function (including typical species) of habitats which support the qualifying species.	No	No	No
	Water pollution, as a result of foul water discharge into the SAC	Impacts on the qualifying habitats/species and/or the structure and function (including typical species) of habitats which support the qualifying species.	No	No	No

6. Conclusions and Recommendations

6.1 Conclusions

Evidence has been collected and an assessment has been undertaken to assist the competent authority, Hinckley & Bosworth Borough Council, in conducting its Habitats Regulations Assessment as per the requirement placed upon it by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended). The evidence provided is deemed sufficiently robust (being determined by use of the best scientific evidence available) to allow the authority to determine if it can be certain that there will be no adverse effect on the integrity of any European sites as a result of the proposed development.

The potential impacts of the development on the River Mease SAC has been detailed and considered. It has been displayed, in a clear and robust manner, that the proposed development will not result in a likely significant impact upon qualifying habitats and species, supporting habitats upon which qualifying species rely, or the delivery of the conservation objectives of the European site under consideration.

It is considered that the Competent Authority has, at this time, been provided with sufficient evidence and information to allow it to fully screen-out any potential for the development to impact upon the River Mease SAC at Stage 1 of its Habitats Regulations Assessment.

6.2 Recommendations

R1 Re-Assessment if Material Change

All future material revisions to the development proposals should be subject to an updated screening to determine whether they could give rise to a likely significant effect on a European site, either alone or in-combination with other plans and projects.

7. Drawings

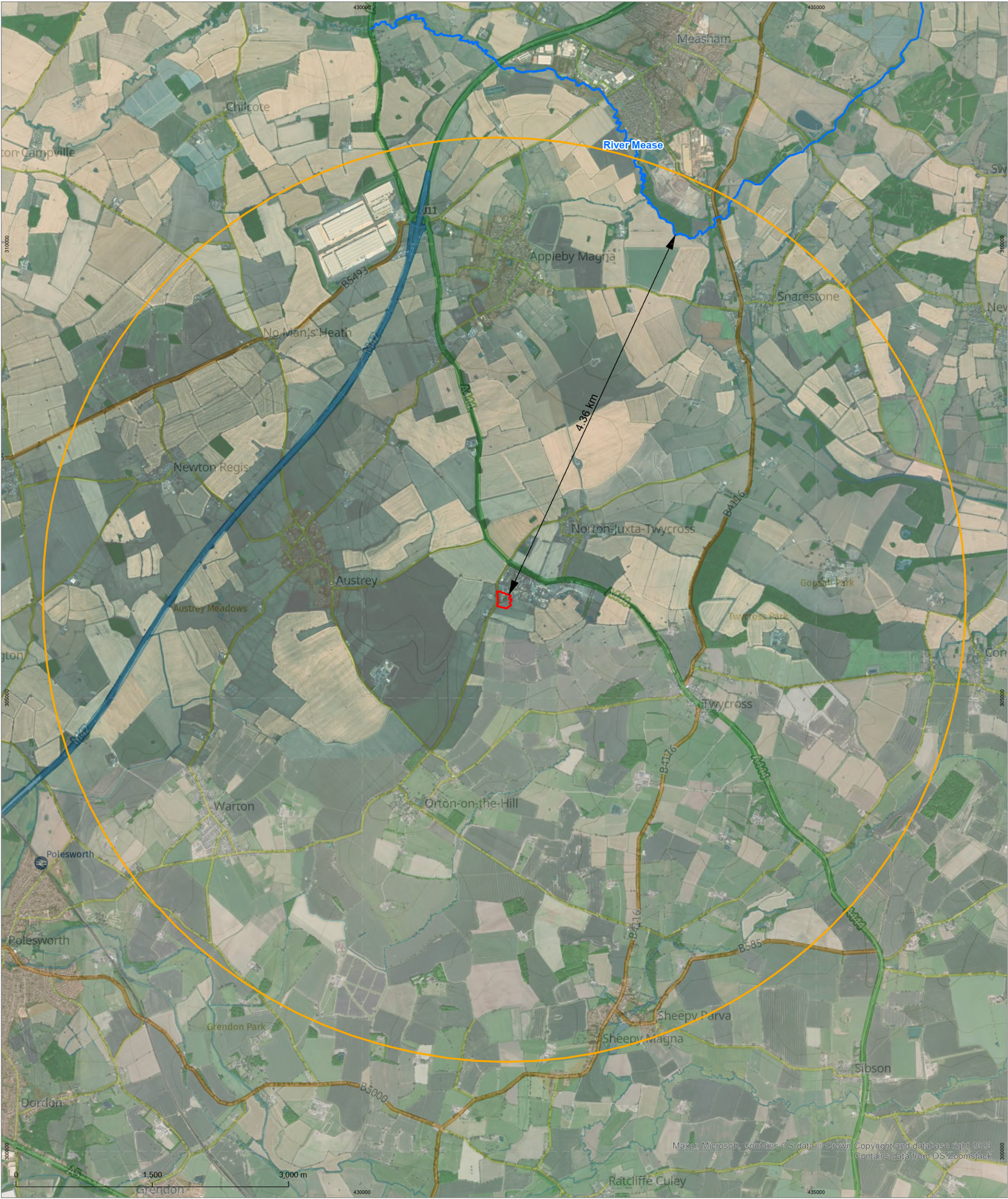
Middlemarch Drawing C160474-01-01 – European Site Location Plan

Middlemarch Drawing C160474-01-02 – Location of the site in relation to the River Mease fluvial catchment

Clancy Consulting Ltd. Drawing - Water Catchment Plan

Clancy Consulting Ltd. Drawing - Drainage Strategy Plan

Clancy Consulting Ltd. Drawing - Flood Exceedance Plan



Legend

Site boundary

5km radius from site

Special Area of Conservation (SAC)

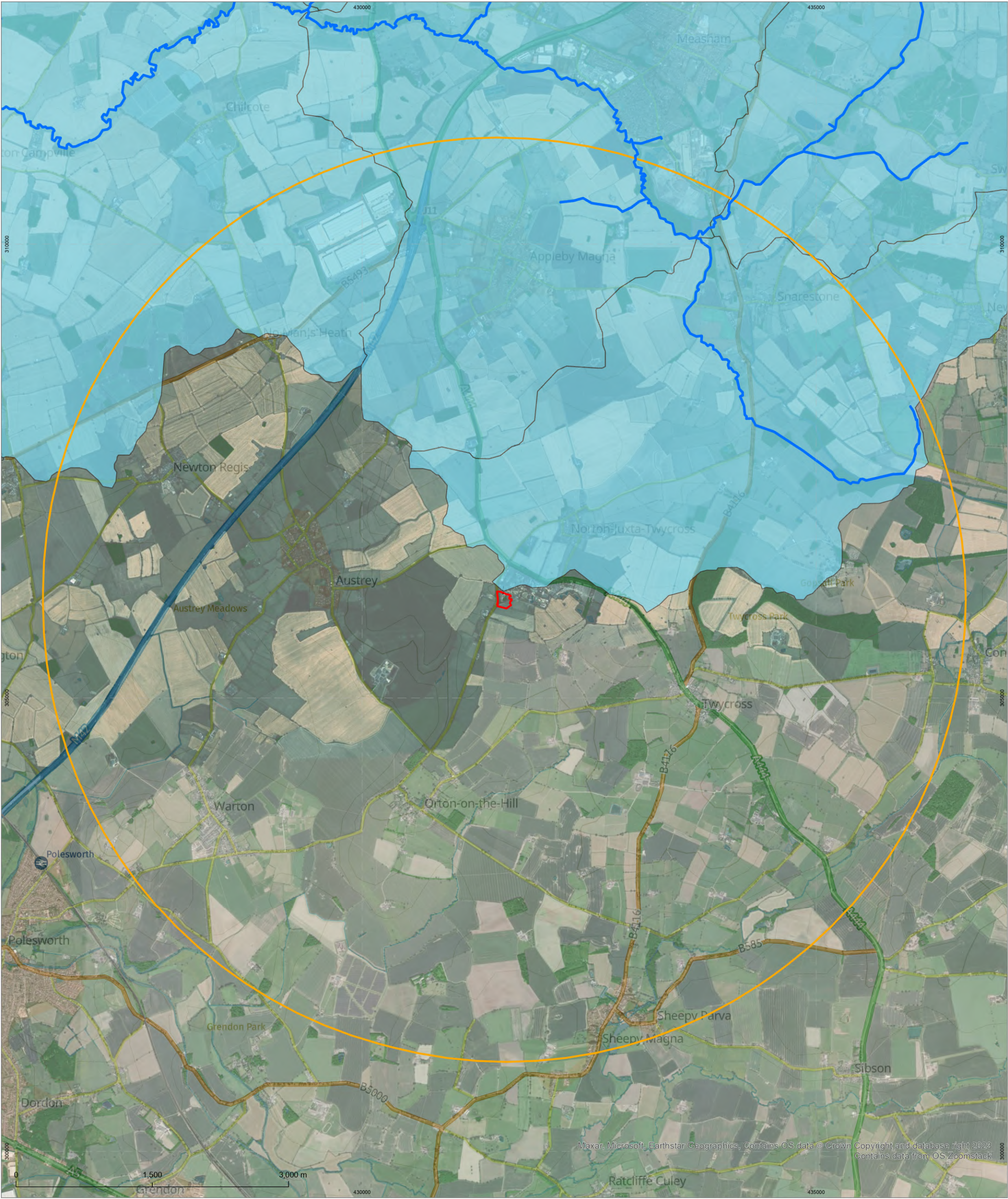
Project		Twycross Zoo	
Drawing		European Site Location Plan	
Client		Baker Mallett c/o Twycross Zoo	
Drawing Number	C160474-01-01	Revision	00
Scale @ A3	1:40,000	Date	September 2023
Approved By	LF	Drawn By	AW

MIDDLEMARCH

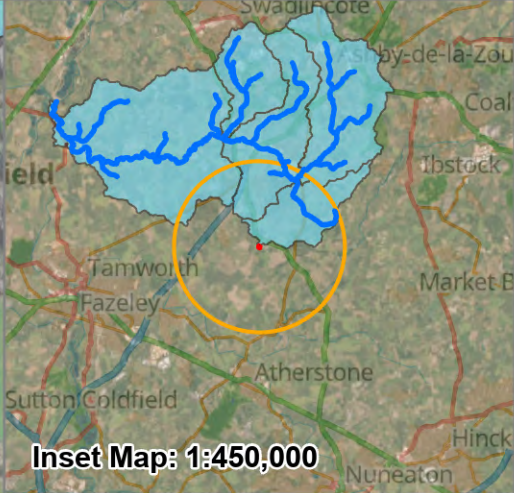
Triumph House, Birmingham Road, Allesley, Coventry CV5 9AZ
T: 01676 525880
E: admin@middlemarch-environmental.com

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C160474-01-01



- Legend**
- Site boundary
 - 5km radius from site
 - River Mease and tributaries
 - River Mease fluvial catchment area



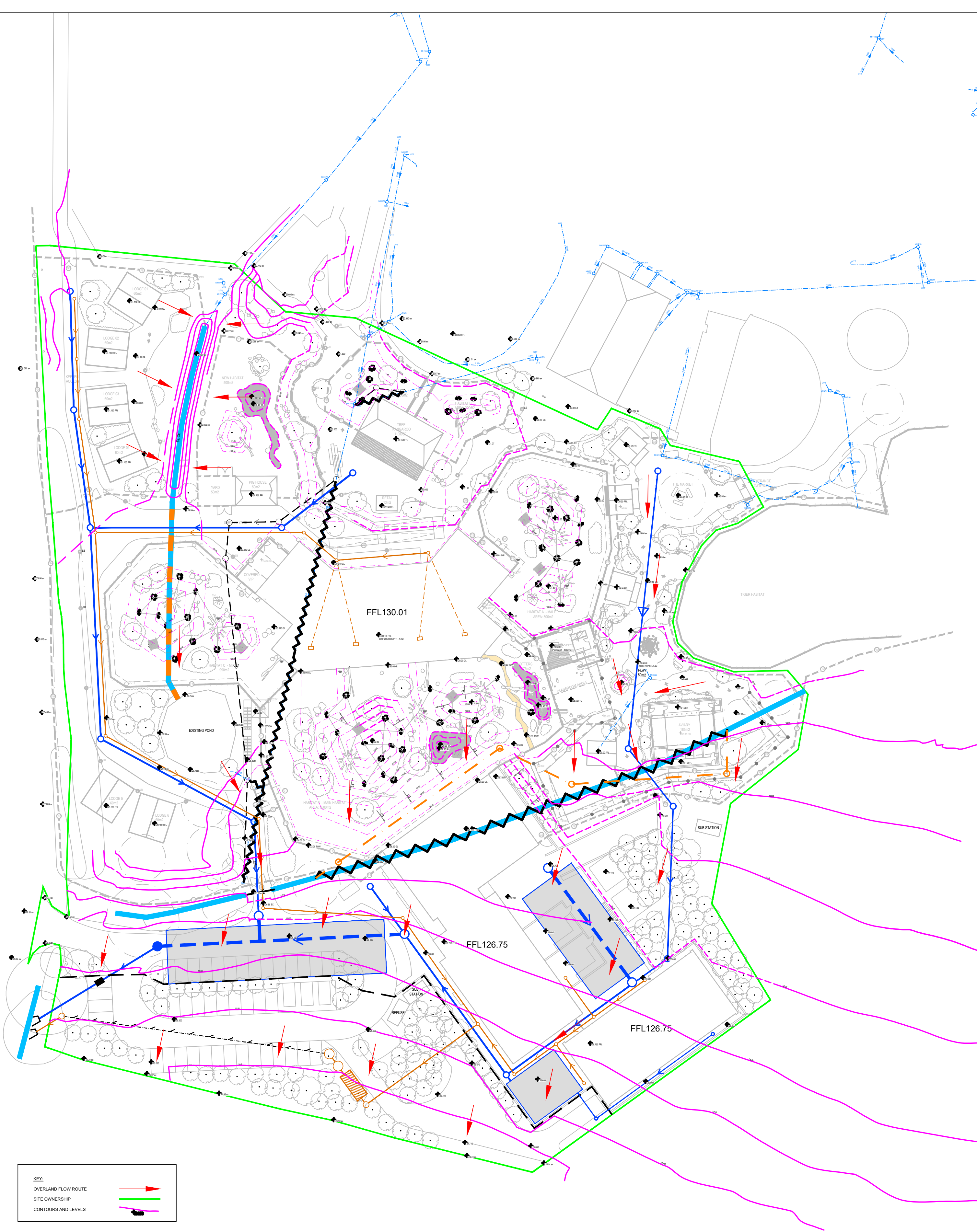
Project	Twycross Zoo
Drawing	Location of site in relation to the River Mease fluvial catchment
Client	Baker Mallett c/o Twycross Zoo
Drawing Number	C160474-01-02
Revision	00
Scale @ A3	1:40,000
Date	September 2023
Approved By	LF
Drawn By	AW
 MIDDLEMARCH	
Triumph House, Birmingham Road, Allesley, Coventry CV5 9AZ T: 01676 525880 E: admin@middlemarch-environmental.com	
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C160474-01-02

PROPOSED CATCHMENTS

SITE BOUNDARY		2.18ha
HARD STANDING AREA POSITIVELY DRAINED VIA GRAVITY		0.861ha
HARD STANDING AREA POSITIVELY DRAINED VIA PERMEABLE PAVING INFILTRATION SYSTEM		0.126ha
AREA NOT SHOWN HATCHED IS LANDSCAPED		1.193ha





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1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DESIGN BASED ON TOPOGRAPHICAL SURVEY AND INFORMATION AVAILABLE AT THE TIME OF DESIGN.
3. ALL EXISTING SEWERS, CONNECTIONS, PIPE SIZES AND INVERT LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS TO ENSURE CONNECTIVITY. ANY VARIANCE FROM THE INFORMATION SHOWN SHOULD BE REPORTED TO THE ENGINEER FOR REVIEW.
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Rev	Date	Description	By	Check	App.
P01	29.09.23	ISSUED FOR PLANNING	CD	CB	DS

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NSCC - TWYXCROSS ZOO

Project
NSCC PROJECT
TWYXCROSS ZOO

Office
ALTRINCHAM

Discipline
CIVIL AND STRUCTURAL

Title
OVERLAND FLOW PLAN

Scale @ A1
1-500

Status
PLANNING



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Job Number	Originator	Building/Zone	Level
1/21440	CCL	XX	XX
Type	Discipline	Drawing No.	Revision
DR	C	002	P01