



ENVIRONMENTAL STATEMENT – VOLUME 1 – CHAPTER 10 HERITAGE

Drax Bioenergy with Carbon Capture and Storage

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations, 2009 – Regulation 5(2)(a)

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AUTHOR: M. Jackson

APPROVER: N. Powers

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10. HERITAGE

10.1. INTRODUCTION

- 10.1.1. This chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme on Heritage.
- 10.1.2. Impacts during the construction phase, operational phase and decommissioning of the Proposed Scheme are assessed. A full description of the Proposed Scheme is described in **Chapter 2 (Site and Project Description)** of this ES (document reference 6.1.2).
- 10.1.3. This chapter and its associated figures (**Volume 2**) and appendices (**Volume 3**) is intended to be read as part of the wider ES and in conjunction with the **Historic Environment Desk-Based Assessment (HEDBA) (Appendix 10.1 of Volume 3)** (document reference 6.3.10.1).
- 10.1.4. This chapter:
- a. Summarises the legislative and policy framework;
 - b. Describes consultation undertaken to date;
 - c. Describes the methodology followed for the assessment;
 - d. Identifies the potential impacts as a result of the Proposed Scheme;
 - e. Details the design, mitigation and enhancement measures that have been identified;
 - f. Reports the assessment of the significant effects of the Proposed Scheme; and
 - g. Details the monitoring that should be carried out for the Proposed Scheme.
- 10.1.5. The Proposed Scheme has the potential to affect Heritage as a result of:
- a. During the construction phase / decommissioning:
 - i. Ground disturbance as the result of preliminary ground works, site strip / topsoil removal, remediation, landscaping, planting, excavation for services, drainage and lighting, or any other activities, could impact upon buried Heritage Assets (HAs);
 - ii. Ground disturbance as the result of ecological works, specifically within the Off-site Habitat Provision Area, Habitat Provision Area, such as landscaping, creating ponds, planting and hedge bolstering could impact upon buried HAs and
 - iii. As all impacts upon buried HAs would have taken place during the construction phase there are no anticipated significant effects within the decommissioning phase.
 - b. During operation:
 - i. All impacts upon buried HAs would take place during the construction phase. There would be no significant effects during Operational Phase.

OPTIONALITY

- 10.1.6. For the purposes of this assessment the options, as described in **Chapter 2 (Site and Project Description)**, **para 2.3.4** do not affect the assessment. It is assumed that optionality of the construction programme is irrelevant with regard to impacts to HAs.

10.2. LEGISLATIVE AND POLICY FRAMEWORK

LEGISLATIVE FRAMEWORK

- 10.2.1. The applicable legislative framework is summarised as follows.

National

Ancient Monuments and Archaeological Areas Act 1979.

- 10.2.2. Nationally important archaeological sites (both above ground and buried remains) may be identified and protected under the Ancient Monuments and Archaeological Areas Act 1979. An application to the Secretary of State is ordinarily required for any works affecting a Scheduled Monument, for a Scheduled Monument Consent (SMC) for works physically affecting a Scheduled Monument. However, the requirement for that consent is disapplied by the Development Consent Order pursuant to the Planning Act 2008.
- 10.2.3. Development affecting the setting of a Scheduled Monument is dealt with wholly under the planning system and does not require SMC.
- #### **Infrastructure Planning (Decisions) Regulations 2010.**
- 10.2.4. The regulations set out the legal requirements for the control of development and alterations which affect buildings, including those which are Listed or in Conservation Areas. Buildings which are listed, or which lie within a Conservation Area are protected by law. Grade I Listed Buildings of exceptional interest. Grade II* are particularly significant buildings of more than special interest. Grade II are buildings of special interest, which warrant every effort being made to preserve them.
- 10.2.5. The Infrastructure Planning (Decisions) Regulations 2010 sets out the duties of the Secretary of State in the DCO process which include having regard to the desirability of: preserving listed buildings, their setting or any features of special architectural or historic interest which they possess; preserving or enhancing the character or appearance of conservation areas; and preserving scheduled monuments and their settings.

POLICY FRAMEWORK

10.2.6. The applicable policy framework is summarised as follows:

National

Overarching National Policy Statement for Energy (EN-1) (Department of Energy and Climate Change , 2011)

10.2.7. The National Policy Statement (NPS) sets out national policy for energy infrastructure. The Applicant is aware that the Government is currently updating the Energy NPSs and it is anticipated that these will be published in 2022. Section 5.8 relates to the Historic Environment and covers applicants' assessments, Secretary of State decision making and recording. The NPS states the applicant should ensure that the extent of the impact of the proposed development on the significance of heritage assets. This is shown **sections 10.8, 10.9 and 10.10** of this chapter and detailed in the HEDBA presented in **Appendix 10.1**.

10.2.8. EN-1 is currently in the process of being updated, with the Draft Overarching National Policy Statement for Energy (EN-1) ((Department for Business, Energy and Industrial Strategy, 2021)) currently out for consultation. Section 5.9 expands on the existing approach towards the historic environment documented in the existing Overarching NPS, with an additional focus on opportunities for enhancement of heritage assets and proposals that create a positive contribution to the historic environment.

National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2021)

10.2.9. The National Planning Policy for "*Conserving and Enhancing the Historic Environment*" is found in section 16, paragraphs 189–209. The section is split into two main considerations "*Proposals affecting Heritage Assets*" and "*Considering potential impacts*".

Local

Selby District Local Plan (adopted February 2005)

10.2.10. Policies ENV22, ENV25, ENV27 and ENV28 outline the policies relevant to the historic environment (full details are provided in section 2 of the **HEDBA (Appendix 10.1)**).

The Selby District Core Strategy Local Plan (2013).

10.2.11. The policy in the strategic local plan relevant to the Proposed Scheme is Policy SP18 Protecting and Enhancing the Environment (full details are provided in section 2 of the **HEDBA (Appendix 10.1)**).

10.2.12. An assessment of the relevant policies is detailed further in the **Planning Statement** (document reference 5.2)

10.3. CONSULTATION

- 10.3.1. Over the duration of the project there have been ongoing refinements to the Order Limits. As a result, study areas have been updated and the number of HAs in this have also therefore been refined.
- 10.3.2. **Table 10.1** provides a summary of the consultation undertaken in support of the preparation of this assessment.

Table 10.1 - Consultation Summary Table

Date and Method of Consultation	Consultee	Summary of Key Topics discussed and Key Outcomes
16 March 2021 (Microsoft Teams)	Historic England (HE)	<p>The Upgraded Drax Jetty is not the preferred option and there is a presumption it will be removed from the scheme design; however, the Applicant will begin to examine the potential effects in order to keep to the programme for delivery.</p> <p>The Applicant to contact HE Regional Science Advisor.</p> <p>The Applicant confirmed that community engagement is being considered, for the Proposed Scheme as a whole.</p>
19 April 2021 (email)	HE	<p>The Upgraded Drax Jetty and associated road have been confirmed as having been removed from the Proposed Scheme. As such the possible paleoenvironmental impacts discussed in Section 1.6 are no longer a concern to the Applicant.</p>
25 March 2021 (Microsoft Teams)	NYCC	<p>Previous archaeological investigations have been completed around Drax Power Station, including geophysical surveys around the scheduled monument Drax Abbey. These cover most of the Order Limits.</p> <p>NYCC queried if any extant buildings of potential heritage value will be demolished in the Drax Power Station. It was confirmed that none would be.</p> <p>NYCC stated that impacts on archaeological remains would potentially occur outside of the Drax Power Station. The Applicant confirmed that the environmental mitigation works are unlikely to impact on archaeological remains as no farmland will be altered, and works will involve increasing the density of existing hedgerows and existing wooded areas (but not agricultural land). Potential for some impacts in laydown areas and temporary compounds, assessment will need to consider ground treatment and construction methods.</p>
7 December 2021 (Email)	NYCC	<p>Following review of the draft Historic Environment Desk-Based Assessment (HEDBA) the Applicant queried the change of requirement from Drax Repower from watching brief to strip map and sample.</p> <p>NYCC have reviewed the ClfA standards for an archaeological watching brief and agreed that this would be the appropriate standard to implement in this case.</p> <p>NYCC agreed with the scope of the HEDBA, the results of which have informed this ES.</p>
10 December 2021	<p>Letter - S42 consultation response to non-technical summary and the Heritage chapter within the PEIR.</p> <p>SDC Conservation officer and NYCC</p>	<p>SDC noted the presence of a Scheduled Monument, Drax Augustinian Priory, a Grade I Listed Building (12th Century Church of St Peter and St Paul), a Grade II Listed Building and Hemingbrough Conservation Area within 1 km of the Site, and nine non-designated Heritage Assets within 500 m. They also confirmed that the below ground assets need to be assessed by the Archaeology team at NYCC. It was considered likely that non-designated HAs that have not been formally identified by SDC are present in the area and required a review of historic maps and walk around to determine potential for non-designated HAs.</p> <p>NYCC advised that the study should include assessment of available aerial photographs and LIDAR particularly aimed at identifying former water channels and drainage to the west of Drax Abbey</p> <p>NYCC agreed that the current operational area of Drax Power Station is unlikely to include below ground HA.</p> <p>It was advised that the term 'Non-Designated Heritage Asset' should only be used for sites or buildings that have a specifically defined level of interest, e.g., inclusion on a local list.</p>

Date and Method of Consultation	Consultee	Summary of Key Topics discussed and Key Outcomes
		<p>NYCC advised that the medieval fishponds at Drax Abbey (MNY10071) are of high value and potentially of equivalent significance to a Scheduled Monument.</p> <p>NYCC stated that the proposed 'watching brief' should be carried out according to the guidance set out by the Chartered Institute for Archaeologists.</p>
10 December 2021	<p>Letter</p> <p>Historic England - John Stonard Team Leader, Development Advice, Regions North East and Yorkshire</p>	<p>Response to Statutory Consultation, including PEIR.</p> <p>Historic England welcomed acknowledgement that targeted site-based archaeological investigations may be required and noted that a worst-case approach has been assumed in the interim. Historic England also stated that they would be happy to consult further and to help develop a programme of mitigation.</p>
25 January 2022	HE	<p>The Applicant updated Historic England on the Biodiversity Net Gain proposals to place new or enhanced hedgerows in proximity to Drax Abbey.</p>
31 January 2022	HE	<p>The Applicant is considering the introduction of new or enhanced hedgerows along existing and historic boundaries to the north of, and bounding, the Scheduled Monument of Drax Abbey.</p> <p>Historic England asked if the proposals had reinstated historic boundaries. The Applicant confirmed that historic aerial imagery had been examined. Historic England confirmed that they had no objection to the proposals or to the location of the proposed hedgerows, as they were avoiding the known assets and the planting methods were minimally intrusive. They commented that the changes were in keeping with the evolution of the post-Dissolution landscape.</p>
1 April 2022	HE	<p>The Applicant updated Historic England on the changes to the Order Limits to include a trackway within Drax Abbey scheduled monument. No changes to the track are proposed and so there will be no impacts to the scheduled monument.</p>

10.3.3. An EIA Scoping Opinion was received by the Applicant from the Planning Inspectorate (PINS) on behalf of the Secretary of State (SoS) on 26 February 2021, including formal responses from Statutory Consultees. The responses from PINS in relation to Heritage and how these requirements are addressed by the Applicant are set out in **Appendix 4.2 (Scoping Opinion Responses)** (document reference 6.3.4.2).

10.4. SCOPE OF THE ASSESSMENT

10.4.1. The scope of this assessment has been established through an ongoing Scoping process. Further information can be found in **Chapter 4 (EIA Methodology)** (document reference 6.1.4) of this ES.

10.4.2. This section provides an update to the scope of the assessment and re-iterates the evidence base for scoping out elements following further iterative assessment.

ELEMENTS SCOPED OUT OF THE ASSESSMENT

10.4.3. The elements shown in **Table 10.2** are not considered to give rise to likely significant effects as a result of the Proposed Scheme and have therefore not been considered within this assessment.

Table 10.2 - Elements Scoped Out of the Assessment

Element scoped out	Justification
All operational impacts upon buried HAs	All impacts upon buried HAs would take place during the construction phase. There would be no significant effects during Operational Phase, and this has therefore been scoped out of the operational assessment as shown in table 11.1 of the Scoping Report.

Elements Scoped into the Assessment

Construction Phase and Decommissioning

10.4.4. The following elements are considered to have the potential to give rise to significant effects during the construction phase of the Proposed Scheme and have therefore been considered within this assessment:

- a. Unknown buried HAs.

Operational Phase

- 10.4.5. It is not anticipated that there would be significant effects for Heritage during operation.

10.5. ASSESSMENT METHODOLOGY

- 10.5.1. The assessment has been carried out in accordance with the requirements of the National Planning Policy Framework (NPPF) (2021), The Overarching Statement for Energy (EN-1) (2011) and to standards and guidance specified by the Chartered Institute for Archaeologists (2014) (2020), and Historic England (HE) (2017). The methodology also adheres to the guidance for environmental assessment and reporting as outlined in Highways England Design Manual for Roads and Bridges (DMRB) (2019) (2020). Whilst DMRB is intended for use on road schemes it provides a robust assessment methodology with regard to the historic environment, hence its application here. The assessment methodology presented below has been agreed with the relevant consultees as detailed in **Table 10.1**.

ASSESSMENT OF SIGNIFICANCE

Assessing Heritage Value

- 10.5.2. Value lies in the Significance of a HA to this and future generations because of its heritage interest, which may be historic, archaeological, architectural or artistic. Known and potential HAs within the Order Limits, the 500 m and 10 km study areas have been identified from national and local designations, Historic Environment Record (HER) data and professional experience. Throughout this report the term value has been used. The determination of the value of these assets is based on statutory designation and / or professional judgement against the following values referred to in the NPPF:
- a. **Historic Interest:** the ways in which the asset can illustrate the story of past events, people and aspects of life (illustrative value or interest). This can hold communal value when associated with the identity of the current community. Historical interest considers whether the asset is the first, only, or best surviving example of an innovation of consequence, whether related to design, artistry, technology or social organisation. It also considers an asset's integrity (completeness), current use / original purpose, Significance in place making, associative value with a notable person, event, or movement.
 - b. **Archaeological Interest:** the potential of the physical remains to yield evidence of past human activity and the interest in carrying out an expert investigation at some point in the future and may apply to standing buildings or structures as well as buried remains. This includes above-ground structures and landscapes, earthworks and buried or submerged remains, palaeoenvironmental deposits, and takes into account date; rarity; state of preservation; diversity / complexity; contribution to published priorities (research value); supporting documentation; collective value and comparative potential, and sensitivity to change.
 - c. **Architectural and Artistic Interest:** derive from a contemporary appreciation of an asset's aesthetics. The former is associated with the art or science of design, construction, craftsmanship and decoration of buildings and structures. The latter

is derived from creative expression which might use, represent or influence historic places or buildings through art (contributing to their value through their association with art), as well as the meaning, skill and emotional impact of works of art that are either part of HAs or assets in their own right.

- 10.5.3. These values encompass the criteria that HE are obliged to consider when statutorily designating HAs. There is no single defining criterion that dictates the overall asset value; each asset has to be evaluated against the range of criteria listed above on a case-by-case basis. Unless the nature and exact extent of buried archaeological remains within any given area has been determined through prior investigation, Significance is often uncertain.
- 10.5.4. The value of a HA will be assessed on a six-point scale. The assessment of the value of HAs is based on professional judgment and guided by the criteria set out in Table 10.3 which is based on Table 3.2N within LA 104 Environmental assessment and monitoring (Highways England, 2020).

Table 10.3 - Criteria to Assess the Value of Heritage Assets

Heritage asset description	Value
World Heritage Sites	Very High
Scheduled monuments Grade I Listed Buildings Grade II* Listed Buildings Grade II Listed Buildings which can be shown to have exceptional qualities in their fabric or historical associations, or which are clearly associated with HAs of high, national Significance Conservation Areas containing buildings of great importance Undesignated structures of clear national importance Undesignated below ground HAs of clear national importance	High
Grade II Listed Buildings which can be shown to have qualities in their fabric or historical association of regional importance only Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations Conservation Areas containing buildings that contribute significantly to its historic character Historic Townscape or built-up areas with important historic integrity in their buildings, or built settings Known buried HAs of regional importance	Medium
Locally Listed Buildings	Low

Heritage asset description	Value
Historic (unlisted) buildings of modest quality in their fabric or historical association. Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings Known buried HAs of local importance	
Buildings of no architectural or historical note; buildings of intrusive character	Negligible
Buildings with some hidden (i.e., inaccessible) potential for historical Significance Unknown buried HAs	Uncertain

Magnitude of Impact

- 10.5.5. The assessment of the magnitude of impact (i.e., change) is the identification of the degree of the effect of the development on the HAs. There is no standard scale of comparison against which the level of harm on HAs may be judged, because of the great variety of resources and assets. The assignment of a magnitude of impact draws on a combination of professional judgement and the guidance included in Table 3.4N within LA 104 Environmental Assessment and Monitoring (Highways England, 2020); this is summarised in Table 10.4.

Table 10.4 - Magnitude of Impact Criteria

Impact	Description
Major	Change to most or all key archaeological materials or key historic building elements, such that the resource is totally altered Comprehensive changes to setting
Moderate	Changes to many key archaeological materials or key historic building elements, such that the resource is clearly modified Considerable changes to setting that affect the character of the asset
Minor	Changes to key archaeological materials or key historic building elements, such that the asset is slightly altered Slight changes to setting
Negligible	Very minor changes to archaeological materials or historic building elements, or setting
No Change	No change

Significance Criteria

10.5.6. The Significance of Effect on designated HAs and non-designated HAs (NDHAs) has been derived from a consideration of the value of the Receptor and the magnitude of the impact upon it, as illustrated by the matrix presented in Table 10.5 which is based on Table 3.81 within LA 104 Environmental Assessment and Monitoring (Highways England, 2020).

Table 10.5 - Matrix for Determining Significance of Effect

		Magnitude of Impact				
		No Change	Negligible	Minor	Moderate	Major
Environmental Value (sensitivity)	Very High	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

10.5.7. The following terms have been used to define the Significance of the Effects identified:

- a. Very Large Effect: where the Proposed Scheme could be expected to have a considerable effect (either positive or negative) on HAs (Receptors). For the historic environment, in terms of the NPS and NPPF, this equates to substantial harm to, or loss of, significance of an asset of very high, high or medium heritage significance, as a result of changes to its physical form or setting;
- b. Moderate Effect: where the Proposed Scheme could be expected to have a noticeable effect (either positive or negative) on HAs (Receptors). For the historic environment this equates to less than substantial harm to the significance of an asset of very high, high, medium or low heritage significance, as a result of changes to its physical form or setting;
- c. Slight Effect: where the Proposed Scheme could be expected to result in a small, barely noticeable effect (either positive or negative) on HAs (Receptors). For the historic environment this equates to limited harm to the significance of an asset of very high, high or medium heritage significance, as a result of changes to its physical form or setting, or substantial harm to, or the loss of, significance of an asset of low heritage significance; and
- d. Neutral: where no discernible effect is expected as a result of the Proposed Scheme on HAs (Receptors).

10.5.8. In EIA terms, a moderate or major effect is considered 'significant'.

ASSESSING THE CONTRIBUTION OF SETTING TO THE VALUE OF HERITAGE ASSETS

- 10.5.9. In relation to designated HAs, the assessment considers the contribution that setting makes to the overall value of the asset.
- 10.5.10. Setting is the way in which the asset is understood (evidential and historical values) and experienced (aesthetic and communal values). It is not an asset in itself. It differs from curtilage (the historic / present property boundary); context (association with other assets irrespective of distance) and historic character (the sum of all historic attributes, including setting, associations, and visual aspects).
- 10.5.11. Guidance produced by Historic England (2017) has been used to adopt a stepped approach for settings assessment, which is summarised below. This approach is in line with NPPF, and NPS (Sections 5.8.8 & 5.8.9) which details the requirement for proportionate approach to the assessment.
- a. **Step 1: asset identification.** The NPPF and NPS requires an approach that is proportional to the value of the asset, and for this reason only the settings of the most sensitive (i.e., designated) HAs are considered in this assessment. A Scoping exercise filters out those assets which would be unaffected, typically where there are no views to / from the Site.
 - b. **Step 2: assess the contribution of setting.** This stage assesses how setting contributes to the overall value of a designated asset.
 - c. **Step 3: assess change.** This considers the effect of the proposals on asset value. It is noted however that it can be difficult to quantify such change to the overall value of a designated HA (for example, value would rarely be downgraded from 'high' to 'medium' due to changes in setting). For this reason, the impact is reported in this assessment in terms of the extent to which the proposals would change how the asset is understood and experienced (i.e., substantial harm, less than substantial harm).
 - d. **Step 4: mitigation.** This explores the way to maximise enhancement and avoid or minimise harm. This is typically considered at the design stage (i.e., Embedded Design Mitigation).
 - e. **Step 5: reporting.** Making and documenting decisions and outcomes. This reports the assessment of effects.
- 10.5.12. The assessment has considered the physical surroundings of the asset, including topography and intervening development and vegetation. It also considers how the asset is currently experienced and understood through its setting, in particular the visual aspect of the asset along with any changes to the noise, air quality and light surrounding the asset. These attributes all contribute to the overall setting.

METHOD OF BASELINE DATA COLLECTION

Historic Environment Desk-Based Assessment

- 10.5.13. The HEBDA was compiled to fulfil the requirements of the NPPF and NPS and is presented in **Appendix 10.1**. The aim of the HEDBA was to assess the potential impact of the Proposed Scheme. This is achieved through five objectives, to:
- a. Identify the presence of any known or potential NDHAs and Designated HAs that may be affected by the Proposed Scheme;
 - b. Describe the sensitivity (value) of such assets considering factors which may have compromised asset survival;
 - c. Determine the contribution to which setting makes to the importance of any sensitive (i.e., designated) HAs;
 - d. Assess the likely impacts upon the importance of the assets arising from the proposals; and
 - e. Assess the impact of the Proposed Scheme on how designated HAs are understood and experienced through changes to their setting.

Site Visit

- 10.5.14. A Site visit was carried out on 18 March 2021 and 19 March 2021. The Site visit was undertaken to assess any potential for buried archaeology within the Proposed Scheme Order Limits and to assess nearby above ground HAs (both designated and non-designated), the setting of which may be impacted by the Proposed Scheme. Both static viewpoints and dynamic views were identified and assessed for potential impact to the setting of above ground heritage assets.

Guidance and Data

- 10.5.15. The following guidance documents and data sources in addition to those outlined in section 10.2 have been used during the preparation of this chapter:
- a. Standards and guidance for historic environment desk-based assessment (ClfA, 2020);
 - b. The setting of heritage assets. Historic Environment Good Practice Advice in Planning Note 3 (Historic England, 2017);
 - c. Conservation principles, policies, and guidance. Consultation Draft (Historic England, 2017);
 - d. Historic England, National Heritage List (NHL) with information on statutorily designated heritage assets (Scheduled Monuments; statutorily Listed Buildings; Registered Parks and Gardens; Historic Battlefields);
 - e. North Yorkshire County Council Historic Environment Record (HER). Primary repository of archaeological information. Includes information from past investigations, local knowledge, find spots, and documentary and cartographic sources and Conservation Areas;
 - f. National Library of Scotland LIDAR DTM (2019-2020) data for a high level review of topographical changes that could relate to archaeological features within the Proposed Scheme Order Limits;
 - g. British Geological Survey (BGS) for solid and drift geology digital map and online BGS geological borehole record data. Subsurface deposition, including buried

geology and topography, can provide an indication of potential for early human settlement, and potential depth of archaeological remains;

- h. Design Manual for Roads and Bridges, LA 104 and LA 106 (Highways England , 2019) (Highways England, 2020); and
- i. Historic England for high-resolution digital copies of historical vertical aerial photos from Historic England’s Archives.

Assessment Assumptions and Limitations

10.5.16. The following assumptions and limitations apply to this chapter:

Assumptions

- a. Due to previous ground disturbance, no impacts are anticipated for construction phase related works proposed within the curtilage of the Drax Power Station Site. It is assumed that any HAs within the Drax Power Station Site will have been previously removed by its construction;
- b. It is assumed that the belt of woodland screening the north of Drax Power Station is retained;
- c. It is assumed that no drainage works would be required within the Off-site Habitat Provision Area;
- d. It is assumed that no works are required to the access track within the area of Drax Augustinian Priory (NHL1016857);
- e. Detailed construction information is not yet available for the Proposed Scheme and this assessment therefore draws on the professional experience of the assessor of other similar projects; and
- f. As described in **Chapter 2 (Site and Project Description)**, the Applicant has full planning permission for the demolition of the redundant Flue Gas Desulphurisation (FGD) Plant and associated restoration works at Drax Power Station (2020/0994/FULM). The decommissioning and demolition works of Absorber Units 4, 5 and 6 are scheduled to take place prior to the start of the construction phase of the Proposed Scheme, which has therefore been considered as part of the baseline of the assessment, whilst the demolition of Absorber Units 1, 2 and 3 are assumed to take place following the completion of the Proposed Scheme. The demolition of Units 1, 2 and 3 are assessed in **Chapter 18 (Cumulative Effects)** (document reference 6.1.18).

Limitations

- a. This chapter has been prepared based on the information in **Chapter 2 (Site and Project Description)**;
- b. No intrusive surveys or paleoenvironmental assessment have been undertaken to support the ES, however the Order Limits have been extensively evaluated in the recent past through geophysical survey and trial trenching and a review of the resulting HER data from NYCC has been undertaken in the **HEDBA (Appendix 10.1)**. This approach was agreed with NYCC when commenting on the HEDBA; and
- c. The data provided by HERs is not a record of all surviving HAs, but a record of the discovery of a wide range of archaeological and historical components of the historic environment. There is a potential for the presence of further, unrecorded HAs and components of the historic environment.

10.6. STUDY AREA

- 10.6.1. A 10 km study area around the Order Limits and Off-site Habitat Provision Area was agreed during consultation with HE and NYCC and has been applied for the assessment of medium to high value designated HAs (**Figure 10.1 (Designated Heritage Assets)**) (document reference 6.2.10.1) (therefore only Grade I and II* Listed Buildings were considered). The 10 km study area was proposed following consultation with HE and NYCC due to the low-lying, flat topography of the landscape around the Proposed Scheme. A Zone of Theoretical Visibility (ZTV) produced by the landscape team was used to assist in the identification of HAs that required detailed assessment as they are located within the area's most at risk of impacts (e.g. change of setting) as a result of the Proposed Scheme.
- 10.6.2. Designated HAs of low value within a 1 km study area around the Order Limits and Off-site Habitat Provision Area were assessed to identify potential impacts to their setting (**Figure 10.1 (Designated Heritage Assets)**). The 1 km study area was identified due to the low-lying, flat topography of the landscape around the Proposed Scheme.
- 10.6.3. A 500 m inner study area has been applied for non-designated HAs and was used to establish the known historic environment context and the potential for hitherto unknown buried archaeological remains (**Figure 10.2 (Non-designated Heritage Assets)**) (document reference 6.2.10.2)). This was agreed with HE, NYCC and was considered adequate due to the amount of previous archaeological work carried out within the area of the Proposed Scheme.

10.7. BASELINE CONDITIONS

EXISTING BASELINE

- 10.7.1. Within the area of the Proposed Scheme, there is a scheduled monument: Drax Augustinian Priory (NHL1016857, **Figure 10.1 (Designated Heritage Assets)**). A trackway within the Order Limits crosses the scheduled area from east to west, adjacent to the northern boundary. This will be used for access only and no changes are proposed to the trackway.
- 10.7.2. There are no World Heritage Sites, registered battlefields or registered parks and gardens within the 10 km study area.
- 10.7.3. Within the 10 km study area there are 20 scheduled monuments (including Drax Priory), 15 Grade I Listed Buildings and 18 Grade II* Listed Buildings. There are 14 Conservation Areas within the 10 km study area.
- 10.7.4. Within the 1 km study area there are three scheduled monuments, one Grade I Listed Building and two Grade II Listed Buildings.
- 10.7.5. Within the 500 m study area there are eight NDHAs.
- 10.7.6. The Habitat Provision Area and East Laydown Area have been subjected to previous investigations as part of the White Rose Carbon Capture and Storage project

(Headland Archaeology, 2015). The proposed Drax Repower project, for which investigation was undertaken and which did not proceed, identified a laydown area in the same location as the East Laydown Area identified for the Proposed Scheme (WSP, 2018). These studies are outlined in detail in the **HEDBA (Appendix 10.1)**.

- 10.7.7. The location of HAs discussed below are shown in Figures 10.1 (Designated Heritage Assets) and 10.2 (Non-designated Heritage Assets).

Below Ground Remains and Earthworks

- 10.7.8. Within the area of the Proposed Scheme, but largely excluded from the Order Limits, there is a single scheduled monument: Drax Augustinian Priory (1016857). A trackway within the Order Limits crosses the scheduled area, however no changes are proposed to this.
- 10.7.9. Pits and ditches that provide evidence for Romano-British occupation have been found at Drax Abbey Farm, to the south of the Habitat Provision Area (Northern Archaeological Associates, 1998). Excavations in 2015 revealed an area of probable Roman activity within the East Laydown Area, evidenced through ditches and associated pottery (Headland Archaeology, 2015). It is likely that these remains and the possible Roman to modern boundary (MNY10069), formed part of a wider Roman agricultural landscape.
- 10.7.10. Drax Augustinian Priory (1016857) was founded in the 1130s and was occupied until 1535, when it was suppressed during the Dissolution of the Monasteries. The Priory was then leased to a local landowner, Sir Marmaduke Constable, as a farm. The Priory, which originally comprised a church, cloister, infirmary, refectory, prior's chamber and dormitory, is situated on an island of high ground and sub-divided by a land drain that connects Carr Dyke and Lendall Drain. Drainage works have converted the marsh into farmland, with the original island granted to the Augustinians now standing around 3 m to 4 m above the surrounding area. The earlier line of Carr Dyke, which is the drain that lies just to the west of Drax Abbey Farm, may be the "*Karregote*" mentioned in a document of 1410.
- 10.7.11. A Medieval fishpond (MNY10071) probably associated with Drax Augustinian Priory (1016857) is recorded as cropmarks to the west of the scheduled monument, outside the Order Limits.
- 10.7.12. A Modern boundary ditch (MNY10115) is recorded 50 m to the north of the Drax Power Station site, outside the Order Limits.
- 10.7.13. The Proposed Scheme is located within the Humberhead Levels which is considered to provide a considerable palaeoenvironmental resource, and the study of the wetland deposits such as peats, silts and clays provides important information on past environments and climatic conditions. Previous investigations revealed substantial deposits of organic-rich material and peat within the confines of the former channel of the Carr Dike (Headland Archaeology, 2015).
- 10.7.14. Within the 500 m study area other NDHAs, several of which relate to features of Drax Augustinian Priory (MNY10071, MNY17455). Barlow Airfield (MNY10376) is recorded

300 m to the west of the Order Limits. It was leased to Armstrong Whitworth in 1917 for the construction of airships and housed an airship hanger shed (MNY10377), where airships and other aircraft such as the R25 and R33 were constructed during the First World War. The site of Second World War Army Camp (MNY36699) is recorded immediately to the west of the Off-site Habitat Provision Area. The site was later used as a Royal Army Ordnance Corps (RAOC) post and is no longer extant.

FUTURE BASELINE

- 10.7.15. For HAs within the Order Limits (below ground) and the HLC of the Proposed Scheme, the future baseline is expected to be the same as the present. Such remains are a static resource, which have reached equilibrium with their environment and do not change (i.e., decay or grow) unless their environment changes as a result of human or natural intervention.
- 10.7.16. The setting of designated HAs within the surrounding area of the Proposed Scheme may change due to the presence of future development. The proposal for mining operations at Barlow Mound, immediately to the west of the Proposed Scheme, has potential to degrade the current setting of Drax Augustinian Priory (1016857). It is noted however that any effects would be temporary (20 years) and not significant due to the nature of the recovery works and sympathetic restoration (Stantec, 2022). Any other unknown proposals could potentially have a detrimental or positive effect on setting and could result in the intervening presence of structures and / or vegetation changes.

10.8. SENSITIVE RECEPTORS

The following sensitive Receptors have been assessed and are displayed in Table 10.6 below.

Table 10.6 – Buried Heritage Asset Receptors within the Proposed Scheme boundary and their Value

Value / Sensitivity	Buried Heritage Asset
Very High	None
High	Drax Augustinian Priory (1016857)
Medium	None
Low	None
Negligible	None
Unknown	Currently unknown buried HAs

10.8.1. All key sensitive Receptor locations are shown on **Figure 2.1 (Environmental Constraints)** (document reference 6.2.2.1).

10.9. PRELIMINARY ASSESSMENT OF LIKELY IMPACTS AND EFFECTS

10.9.1. This section details the preliminary assessment of significant effects taking account of primary mitigation and tertiary mitigation, as described in **Chapter 2 (Site and Project Description)** but in the absence of secondary mitigation. Secondary mitigation for the Proposed Scheme is described in **Section 10.10** below.

10.9.2. Receptors identified as experiencing no change, negligible or minor effects (not significant) during the preliminary assessment of likely impacts and effects have been reported in **Appendix 10.2 Effects that have been determined to be not significant**, of this ES.

CONSTRUCTION PHASE AND DECOMMISSIONING

10.9.3. The likely significant effects for Heritage associated with the construction phase are set out below.

Unknown Buried Heritage Assets

10.9.4. Within the Order Limits, all direct impacts on below-ground HAs will be permanent and irreversible. Groundworks within the East Laydown Area have the potential to impact upon any buried archaeological remains, and include but are not limited to ground levelling, topsoil stripping, the removal of existing road surfaces, ponds, construction of temporary compounds and haulage roads, and the installation of infrastructure items. Any form of landscaping, including the planting of trees and hedges for screening and ecological mitigation within the Offsite Habitat Provision Area, Habitat Provision Area, also has the potential to disturb buried archaeological remains.

10.9.5. The baseline data suggest that there is potential for hitherto unknown below ground HAs within both the Habitat Provision Area and the East Laydown Area.

10.9.6. The value of any such buried assets is currently unknown but has the potential to range from negligible to high, depending on their Archaeological Interest. There is the potential for moderate adverse impacts on unknown buried HAs located within the Habitat Provision Area and East Laydown Area within the undisturbed ground, and outside the areas of previous investigation, within the Order Limits. This would result in effects ranging from negligible to moderate (depending on the value of the HA).

OPERATIONAL PHASE

10.9.7. All impacts upon buried HAs would take place during the construction phase. There would be no significant effects during Operational Phase.

10.10. DESIGN, MITIGATION AND ENHANCEMENT MEASURES

- 10.10.1. This Section sets out the design, mitigation and enhancement measures which are likely to be required to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment.

DESIGN

- 10.10.2. Avoidance through design of known below ground HAs and areas of high potential would be used in the first instance. The main works proposed in the Habitat Provision Area are outlined in **Chapter 8 (Ecology)** (document reference 6.1.8). Any planting in the Habitat Provision Area would avoid the boundary of the Drax Augustinian Priory (NHLE1016857). No works are required to the access track within the scheduled area.

MITIGATION

- 10.10.3. A **Register of Environmental Actions and Commitments (REAC)** has been produced for the Proposed Scheme (document reference 6.5). The **REAC** sets out how the actions and commitments set out within it (and described in this section) are secured and includes within it a requirement for a Construction Environmental Management Plan (CEMP) to be produced for the Proposed Scheme.
- 10.10.4. Any proposed works within the Habitat Provision Area and East Laydown Area would need to consider the potential for previously unknown archaeological remains to be present. Previous investigations have been carried out within these areas, including geophysical survey and trial trench evaluation, see **Figure 10.3 (Previous Archaeological Evaluations)** (document reference 6.2.10.4), and the archaeological resource is therefore well understood. An archaeological Watching Brief to an approved archaeological Written Scheme of Investigation (WSI) would be agreed with the Local Planning Authority for any major ground disturbance to ensure that archaeological remains are not removed without record. This would need to be programmed with adequate time to allow for the recording of archaeological remains.
- 10.10.5. An Archaeological Clerk of Works (ACoW), who would be responsible for the design and implementation of the archaeological works, would oversee all heritage aspects for the Proposed Scheme. Roles and responsibilities for the ACoW would be included in the CEMP.
- 10.10.6. Any archaeological work will be undertaken in consultation with the relevant Archaeological Advisor, and in accordance with an archaeological Written Scheme of Investigation (WSI) approved by the relevant planning authority outlining the scope and method of investigation, along with the post-excavation reporting and dissemination strategy. The requirement for a WSI has been included in the **Register of Environmental Actions and Commitments** (document reference 6.5) for the Proposed Scheme and would be secured through a requirement in the DCO. The level of archaeological attendance would depend on the detail of the proposed works in the Habitat Provision Area and East Laydown Area.

- 10.10.7. Whilst an archaeological watching brief is recommended, it is recognised that following consultation additional targeted site-based archaeological investigation may be required, the scope and form of which is to be agreed with LPA archaeological officers. Dependant on the results of this investigation, further mitigation may be required.
- 10.10.8. Current legislation draws a distinction between archaeological remains of national or international importance and other remains considered to be of lesser importance. Those perceived to be of international or national importance may require preservation in situ, whilst those of lesser importance may undergo archive recording, where they are of Regional / County or Local / Borough importance.
- 10.10.9. If impacts occur on currently unknown but nationally important Below-Ground HAs related to Drax Augustinian Priory (1016857), preservation in-situ would be explored, where practicable.

Opportunities for Environmental Enhancement

- 10.10.10. The WSI will set out how public benefits may be achieved by means of engagement, participation and / or dissemination, as appropriate, to the scale and circumstances of the work.

10.11. ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

- 10.11.1. This section details the assessment of significant effects taking account of the Secondary Mitigation detailed in Section 10.10 above.
- 10.11.2. The assessment of effects assumes the Secondary Mitigation Measures outlined in section 10.10 are applied and that buried HAs are either subject to preservation in-situ or preservation by recording and reporting.

CONSTRUCTION PHASE AND DECOMMISSIONING

Unknown Buried Heritage Assets

- 10.11.3. Within the Order Limits, all direct impacts on Below-Ground HAs would be permanent and irreversible. Any groundworks within the East Laydown Area have the potential to impact upon any buried archaeological remains that include but are not limited to ground levelling, topsoil stripping, the removal of existing road surfaces, construction of temporary compounds and haulage roads, and the installation of infrastructure items. Any form of landscaping, including the planting of trees and hedges for screening and ecological mitigation, also has the potential to disturb buried archaeological remains.
- 10.11.4. The Baseline data suggest that there is potential for hitherto unknown below ground HAs within both the Off Site Habitat Provision Area, Habitat Provision Area and the East Laydown Area.
- 10.11.5. The value of any buried assets is currently unknown but has the potential to range from **negligible to high**, depending on their archaeological, heritage and any

architectural interest. There is the potential for permanent **minor adverse** impacts on unknown buried HAs located within the Habitat Provision Area and East Construction Laydown Area within the undisturbed ground, and outside the areas of previous investigation, within the Order Limits. With preservation through record in the form of a watching brief this would result in effects ranging from **negligible to moderate adverse (significant)** depending on the value of the asset.

OPERATIONAL PHASE

- 10.11.6. All impacts upon buried HAs would take place during the construction phase. There would be no significant effects during the Operational Phase.

ASSESSMENT AGAINST FUTURE BASELINE

- 10.11.7. There would be no change to the Baseline should the Proposed Scheme not be implemented.

10.12. CUMULATIVE EFFECTS

- 10.12.1. No specific Cumulative Effects are anticipated for HAs during the construction phase and operational phase. A detailed assessment of inter-project cumulative effects for the Proposed Scheme has been carried out and is presented in **Chapter 18 (Cumulative Effects)** of this ES (document reference 6.1.18).

10.13. IN-COMBINATION CLIMATE CHANGE IMPACTS

- 10.13.1. The in-combination Climate Change impact assessment considers the extent to which Climate Change may alter the effects which have already been identified within this chapter.
- 10.13.2. The effects that have been considered within this chapter have been assessed against likely climate hazards, as set out within **Chapter 14 (Climate Change Resilience)** (document reference 6.1.14), and the effects identified are not anticipated to change as a result of these hazards.

10.14. MONITORING

- 10.14.1. No further monitoring, in addition to that outlined in section 10.9, would be required.

Table 10.7 - Summary of Heritage Effects

Receptor	Potential Effects	Additional Mitigation	Residual Effects
<p>Unknown buried HAs</p>	<p>Any groundworks within the East Laydown area have the potential to impact upon any buried archaeological remains include but are not limited to ground levelling, topsoil stripping, the removal of existing road surfaces, construction of temporary compounds and haulage roads, and the installation of infrastructure items</p> <p>Any form of landscaping, including the planting of trees and hedges for screening and ecological mitigation, within the Habitat Provision Area has the potential to disturb buried archaeological remains.</p>	<p>Mitigation through preservation in-situ.</p> <p>Mitigation through preservation by record.</p>	<p>Negligible Adverse to Moderate Adverse (significant)</p> <p>P / D / N/A</p>

Key to table:

P/T = Permanent or Temporary, D/I = Direct or Indirect, ST/MT/LT = Short Term, Medium Term or Long Term, N/A = Not Applicable

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