13.0 CULTURAL HERITAGE

Introduction

13.1 This chapter of the ES assesses the likely significant effects of the Development in terms of archaeology and cultural heritage and incorporates a summary of a desk-based assessment which is included as Appendix 13.1.

13.2 The chapter describes the assessment methodology; the baseline conditions at the Site and surroundings; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed.

Policy Context

Legislation

13.3 Scheduled Monuments are protected by the Ancient Monuments and Archaeological Areas Act of 1979[i] .

13.4 Under the terms of Part I Section 2 of the Ancient Monument and Archaeological Areas Act 1979 it is an offence to damage, disturb or alter a Scheduled Monument either above or below ground without first obtaining permission (Scheduled Monument Consent) from the Secretary of State. This Act does not allow for the protection of the Setting of Scheduled Monuments.

13.5 Significant historic buildings are 'listed' and protected by the Planning (Listed Buildings and Conservation Areas) Act of 1990[ii]. Section 66 of the Act states that the planning authority must give special regard for the desirability of preserving (*inter alia*) the setting of any Listed Building that may be affected by the grant of planning permission. Section 72 states that special attention shall be paid to the desirability of preserving or enhancing the character or appearance of Conservation Areas.

National Planning Policy

National Planning Policy Framework[iii]

13.6 National policy guidance relating to the historic environment has been set out in the

National Planning Policy Framework (NPPF). NPPF states that:

> *"Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation."*

13.7 Additionally, NPPF advises that:

> *"Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset)"*, and *"They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal."*

Planning Practice Guidance[iv]

13.8 Planning Practice Guidance (PPG) links to NPPF and incorporates a section relating to conserving and enhancing the historic environment. PPG notes that:

> *"Protecting and enhancing the historic environment is an important component of NPPF's drive to achieve sustainable development"*

and

> *"The appropriate conservation of heritage assets forms one of the 'Core Planning Principles' that underpin the planning system."*

Local Planning Policy

North York Moors National Park Authority Adopted Core Strategy and Development Policies (2008)[v]

13.9 The Site is partly situated within the administrative area of North York Moors National Park Authority (NYMNPA) and partly within Ryedale District. Local planning policy applicable to the Development also includes that of North Yorkshire County Council.

13.10 The NYMNPA Adopted Core Strategy and Development Plan Policies (2008) within the Local Development Framework embody the national legislation and planning guidance. Within the Core Strategy and Development Plan Policies the core policy (Core Policy G) for protecting and enhancing cultural and historic assets states that:

> *"The landscape, historic assets and cultural heritage of the North York Moors will be conserved and enhanced."* and *"Particular protection will be given to those elements which contribute to the character and setting of: 1. Conservation Areas; 2. Listed Buildings; 3. Historic Parks and Gardens; 4. Scheduled Monuments and other sites of archaeological interest"*

13.11 This core policy is elaborated by the following development policies:

> *"Development Policy 7 – Archaeological Assets*
>
> *Proposals for development that would have an unacceptable impact on the integrity or setting of a Scheduled Monument, or other sites or remains considered to be of national archaeological important will not be permitted.*
>
> *In the cases of sites or remains of regional or local importance, development proposals will only be permitted where the archaeological interest is capable of being preserved in situ. Where this is not justifiable or feasible, permission will only be granted where provision is made for appropriate preservation by record. In all cases, an appropriate assessment and evaluation will be required to be submitted as part of the planning application in areas of known or potential archaeological interest."*

Ryedale Local Plan, March 2002[vi]

13.12 The Ryedale Local Plan (2002) embodies the national legislation and planning guidance. Within the plan the policies for the historic environment have objectives including:

> 2. *"To protect and ensure the continued preservation of the District's buildings of architectural and historic importance;*
> 3. *To preserve and enhance the District's Historic Parks and Gardens;*

4. To protect and ensure the continued preservation of important archaeological sites."

13.13 These objectives are elaborated in the following policies:

"Policy C13 – Archaeological investigation of sites

Where development proposals affects sites of lesser or potential archaeological importance, the District Council may request desk-top assessment or field evaluation as part of a planning application, to provide adequate assessment of the nature, extent, and importance of the remains present and the degree to which the development is likely to affect them. Where physical preservation in situ within development proposals is not possible or justified, the District Council in granting planning permission will require the implementation of a programme of archaeological investigation, recording and publication as part of the development scheme."

"Policy C14 – Ancient Monuments and archaeological sites

The District Council will seek to ensure that Ancient Monuments and other important archaeological sites are protected by exercising a presumption in favour of:-

(i) The physical preservation of nationally important archaeological remains and their settings, whether scheduled or not, and against development adversely affecting such sites.

(ii) The physical preservation of archaeological remains in situ within development proposals for other important sites."

"Policy C15 – Historic parks and gardens

The District Council will not grant permission for any development which would have a material adverse effect on either the character or setting of an Historic Park or Garden" (Ref. 13.6).

The Ryedale Plan – Local Plan Strategy 2013[vii]

13.14 The Ryedale Plan will be the new Local Plan for the district. It will (*inter alia*) guide development as well as protecting key Ryedale assets such as environmental and historic assets.

13.15 Policy SP12 Heritage states that:

> *"Distinctive elements of Ryedale's historic environment will be conserved and where appropriate, enhanced. The potential of heritage assets to contribute towards to the economy, tourism, education and community identity will be exploited including (*inter alia*):*
>
> - *The nationally significant prehistoric archaeological landscapes of the Yorkshire Wolds and the Vale of Pickering*
>
> *To assist in protecting the District's historic assets and features, the Council will; (*inter alia*)*
>
> - *Work with partners and landowners to encourage sensitive land management in the Vale of Pickering and the Wolds."*

Additionally,

> *"Designated historic assets and their settings, including Listed Buildings, Conservation Areas, Scheduled Ancient Monuments and Registered Parks and Gardens will be conserved and where appropriate, enhanced. Development proposals which would result in substantial harm to or total loss of the significance of a designated heritage asset or to the archaeological significance of the Vale of Pickering will be resisted unless wholly exceptional circumstances can be demonstrated. Proposals which would result in less substantial harm will only be agreed where the public benefit of the proposal is considered to outweigh the harm and the extent of harm to the asset.*
> *In considering and negotiating development proposals, the Council will seek to protect other features of local historic value and interest throughout Ryedale."*

13.16 Policy SP13 Landscapes states that:

> *"The quality, character and value of Ryedale's diverse landscapes will be protected and enhanced by;*
> *Encouraging new development and land management practises which reinforce the distinctive elements of landscape character within the District's broad landscape character areas;"*

Additionally,

"Development proposals should contribute to the protection and enhancement of distinctive elements of landscape character that are the result of historical and cultural influences, natural features and aesthetic qualities"

Assessment Methodology and Significance Criteria

Study Area

13.17 The study area used within this assessment encompasses a zone within 250m of the Site, for a distance of 13.9 km along the proposed pipeline route, as shown on Figures 13.1 and 13.2, between EMS Well Site and KGS (the 'Study Area').

Scope of the Assessment

13.18 The assessment identifies and describes known cultural heritage resources within the study area in terms of their relative importance. It also provides an assessment of the magnitude and significance of the effects of the Development on the cultural heritage resource which includes:

Archaeological sites (above and below ground);
Historic structures and Listed Buildings;
Conservation Areas;
Historic parks or gardens; and
Historic landscapes.

Desk-Based Study

13.19 The initial desk-based study was carried out in accordance with the standards and guidance of the Institute for Archaeologists[viii]. A desk-based assessment is defined as:

"*a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area,*

including appropriate consideration of the settings of heritage assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest."

13.20 The desk-based assessment comprised a consultation of the North Yorkshire Historic Environment Record (HER), North York Moors National Park HER, accompanied by documentary and cartographic research undertaken at North Yorkshire County Record Office and libraries at Malton, Pickering and York Minster. A complete list of resources consulted as well as details and gazetteers of archaeological sites and other cultural heritage features within the study area are contained in the full desk-based assessment (Appendix 13.1)

13.21 Evaluation would normally be undertaken by geophysical survey, trial trenching, or a combination of both, in order to establish the layout and extent, nature, function, date, state of preservation, and significance of any archaeological remains present. Geophysical survey has been undertaken on part of the route, near the Moorland Energy compound, previously[ix]. The present conditions at the well site render most techniques of geophysical survey inappropriate, although ground-probing radar could potentially be used. Elsewhere on the pipeline route magnetometer survey would be the most appropriate technique of geophysical investigation

Site Visit

13.22 The results of the desk-based research were supplemented by a site examination of accessible parts of the Site, undertaken to assess current ground conditions and land-use patterns; to ascertain the presence of any surface finds of an archaeological character, and of features that might indicate the presence of archaeological remains; to identify the presence and proximity of historic buildings and structures; and to identify any historic landscape remains. Several site visits have been undertaken between the 28th November 2012 and 23rd November 2013.

Consultation

13.23 Consultative enquiries have been submitted to English Heritage and the Planning Archaeologists of North Yorkshire County Council and NYMNPA to ascertain potential mitigation or other requirements in response to the planning application, however, at the time of submission of the application, responses have not been received.

Assessment Criteria

13.24 The cultural heritage resource of any site may potentially be affected by development through a variety of sources and to variable degrees. The principal effects include direct total or partial disturbance of archaeological features, both above and below ground; secondary disturbance through vibration, noise, dust or hydrological change to archaeological deposits, features or structures; severance of a cultural heritage feature from a group of closely associated features; and long-term deterioration of the physical setting of an archaeological feature or listed building.

13.25 Development works are most likely to impact cultural heritage features through direct disturbance of deposits during site preparation or construction or through secondary impacts resulting from the use of the site. Development may affect earthwork or buried archaeological remains where groundworks are undertaken but can provide an opportunity to enhance the understanding of archaeological remains through appropriate assessment and recording.

13.26 The significance of potential effects of development is assessed taking into account the sensitivity of the receptor (the importance of the archaeology or cultural heritage sites likely to be affected) and the magnitude of change upon the receptor (the level or degree of effect likely to be caused by the Development). A general scale of sensitivity (site importance), based on existing designations may be high, medium, low or negligible, summarised as follows:

Scale of Importance	Equivalent to
High	Sites of national or international importance, Scheduled Monuments, Grade I and II* Listed Buildings
Medium	Sites of regional importance, registered sites, such as Parks and Gardens, Grade II Listed Buildings, Conservation Area
Low	Locally important sites
Negligible	Sites of no significant value or interest

13.27 Where the Site and Study Area have seen no, or only limited, archaeological survey the potential of the Site to contain undetected archaeological deposits will be uncertain.

13.28 Magnitude of change is based on the vulnerability of the receptor, its current condition and the likely nature of the effect of the Development. A general scale of change may be major, moderate, minor or negligible, summarised as follows:

Magnitude of Change	Criteria for assessing impact
Major	Loss of the site or feature of national importance, or change resulting in loss or impairment of the resource and its historical context and setting
Moderate	Change to the site or feature resulting in loss or impairment of the resource and its historical context and setting
Minor	Loss of or change to a site of local importance
Negligible	Loss of or damage to a feature of very low archaeological significance or minimal effect upon the setting of a feature of local archaeological importance

13.29 The significance of the environmental effect is determined by the interaction of magnitude and sensitivity, whereby the impacts can be beneficial or adverse, summarised as follows;

Magnitude	Sensitivity		
	High	**Moderate**	**Low**
Major	Major Adverse/Beneficial	Major – Moderate Adverse/Beneficial	Moderate-Minor Adverse/Beneficial
Moderate	Major – Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial
Minor	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor - Negligible
Negligible	Negligible	Negligible	Negligible

13.30 It should be noted that developments can also provide positive lasting effects by, for example, reuniting cultural heritage features through reducing land severance and improving public access, as well as enhancing local heritage and contributing to the understanding of the past through archaeological recording works.

Limitations and Assumptions

13.31 A limitation has been identified. This is the general paucity of archaeological fieldwork undertaken within the Study Area, particularly intrusive investigations. Results of such work would inform depths of overburden as well as identifying deposits that may mask archaeological features from aerial photographs or geophysical survey. This is particularly relevant within the Vale of Pickering where wind blown deposits and alluvium may seal archaeology. The aforementioned paucity of archaeological investigation is largely because such intrusive fieldwork is usually impelled, through the planning process, by development. The lack of archaeological investigation therefore reflects limited development which might have a physical impact on archaeological deposits in the study area.

13.32 An assumption has also been made. In compiling the HER data, the assessment (Appendix 13.1) used data gathered for previous assessments for proposed routes relating to this Development. While there are no gaps in the geographic coverage, the HERs have not been

approached since 2013. It has been assumed that there has been no change or addition to the HER data since the last search.

Baseline Conditions

Archaeology

13.33 There are Scheduled Monuments and non-designated archaeological sites within the Study Area. The locations of these are shown in Appendix 13.1 and Figures 13.1 and 13.2.

13.34 Appendix 13.1 provides a detailed description of the historic development of the study area with reference to the following periods:

- Prehistoric (>500000BC – AD43);
- Roman (AD43 – AD410);
- Saxon – medieval (AD410 – AD1500);
- Post-medieval (AD1500 – AD1900); and
- Modern (20th century – present day).

13.35 Summaries of the results by period are detailed below.

Prehistoric

13.36 The earliest recorded site within the study area is a flint artefact scatter dating from the Mesolithic period (10000-4000 BC) identified in the field to the south and west of Ebberston Moor South Well Site (Sites 54 and 64). Flint tools of later prehistoric were also retrieved from this area and subsequent trial trenching revealed archaeological features in this area.

13.37 Isolated finds of Neolithic date (4000-2250 BC) include five stone axes (Sites 27, 31, 33, 34 and 66) found around Allerston and in the vicinity of the well site. These are likely to represent casual loss perhaps during forest clearance.

13.38 Prehistoric linear boundaries are found within the study area, particularly in the higher ground to the north. Pit alignments are thought to be the earliest manifestation of these, perhaps dating to the Late Neolithic. One such group of pit alignments occur to the north of the Site (Sites 38 and 55). The southern extent of these is masked by a plantation but their extrapolated course would suggest that they are crossed by the Site.

13.39 Linear banked and ditched boundaries within the study area comprise Oxmoor Dyke, Givendale Upper Dyke, Givendale Lower Dyke and Diggerfoot Dyke (Sites 7-20, 54, 57 and 58). These are believed to date from the Bronze Age (2250-800 BC) to the Iron Age (800 BC-AD 43) and may have functioned as territorial/political boundaries or smaller estate boundaries. They survive in a variety of conditions ranging from extant earthworks to ploughed out remnants only visible on aerial photographs. The Site crosses each of the dykes within the study area.

13.40 Bronze Age funerary monuments, either earthen barrows or stone cairns, are also found in the northern part of the study area (Sites 23, 67 and 68). Immediately beyond the study area are many more examples indicating a large but dispersed cemetery. Bronze Age metalwork is often associated with these features and may indicate further examples which are not visible. Such metalwork is recorded as Sites 27, 30 and 32.

13.41 Iron Age ditches have been recorded in the vicinity of Knapton Generating Station (KGS) (Site 36) but are absent from the wider study area.

13.42 Known prehistoric sites are absent from the central part of the assessment area, largely due to Lake Pickering, a pro-glacial lake which survived as a wet landscape into the medieval period. Wind blown sands and alluvial sediments associated with Lake Pickering have sealed any potential prehistoric remains from view.

13.43 During site visits, prehistoric flints were recorded thinly scattered along the route of the Development. Slight concentrations were noted to the west of KGS and to the north of Warren House. These may define areas of prehistoric activity but could also represent transient human presence in these areas.

Roman

13.44 Roman sites cluster towards the southern end of the Site in the vicinity of KGS. They include excavated remains as well as cropmarks of a type suggestive of Roman occupation.

13.45 A single Roman sherd was found adjacent to the EMS Well Site (Site 70).

13.46 A scatter of Roman artefacts, which may represent an isolated rural settlement/farmstead, was noted along the route of the length of the Site.

13.47 A geophysical survey was undertaken at the location of the artefact scatter which revealed anomalies probably representing a ditch and a number of pits. The ditch did not align on

visible or mapped field boundaries suggesting it pre-dates the current field system.

Saxon – Medieval

13.48 No Saxon sites have been recorded within the study area. Place-name evidence suggests that the adjacent villages were being established throughout this period.

13.49 Few heritage resources of medieval date have been identified in the Study Area. At the southern end of the Development, medieval ditches have been recorded. In the same general area, other ditches and trackways, of uncertain date but considered to be Roman to medieval, have been identified.

13.50 During the site visits, soilmarks indicative of ploughed out ridge and furrow of probable medieval date were observed on the Development route to the south of the A170 Wilton-Allerston road. Additionally, adjacent and north of the A170 earthworks of ridge and furrow were noted which appear to truncate an earlier, though undated, earthwork enclosure (Appendix 13.1).

13.51 The extent of the medieval field system is unlikely to have reached the higher ground towards the north of the Site. Here, the landscape would have been open moor and utilised for important resources such as bracken, heather and turves. Documentary sources mention sheep folds, which were probably of a seasonal nature, in this area.

Post-medieval

13.52 The most common sites of this period within the study area are associated with rabbit warrens. Referred to as 'traps' and 'types', five fall within the northern part of the study area (Sites 59-61, 63 and 72).

13.53 One former quarry (Site 73) of the period is located adjacent to the EMS Well Site.

Modern

13.54 No modern heritage resources are recorded within the study area.

Built Heritage

13.55 Towards the southern end of the Site is a milestone and Knapton Lodge (Sites 28 and 29). Both of these are Grade II Listed Buildings.

Historic Landscape

13.56 The Site crosses two character areas (CAs). The southern half of the study area is in the Vale of Pickering CA and the northern part within the North Yorkshire Moors and Cleveland Hills CA.

13.57 Where the Site crosses the Vale of Pickering, the historic landscape character is largely an enclosed one. Specifically, modern improved fields, planned large scale parliamentary enclosure and planned enclosure of unknown (though probably post-medieval) date.

13.58 North of the A170 Wilton-Allerston road, the Site enters the North Yorkshire Moors and Cleveland Hills CA. At the southern end of this section, the historic landscape character is modern improved fields. Thereafter, heading northwards, the Site traverses mixed plantation woodland with a few areas of undated planned enclosure.

Prehistoric

13.59 An extensive prehistoric landscape encompasses the northern part of the study area and contains funerary monuments (some of which are Scheduled Monuments) and linear boundaries (All but one of which are Scheduled Monuments). The funerary remains date to the Bronze Age and occur either as earthen barrows or stone cairns. Although only a few fall within the study area, they are part of a wider dispersed cemetery. The linear features probably originated as territorial or estate boundaries and mostly survive as earthworks.

Post-medieval

13.60 The post-medieval landscape traversed by the Site comprises two character areas. The southern part is modern improved fields, though historic maps suggest the field systems were probably established by parliamentary enclosure in the post-medieval period. North of this, within the woodland mixed plantation CA, are enclosures, field systems, rabbit warrens and a quarry. The enclosures are of variable form and some remain as fields while others have been covered by modern forestry. These enclosures are depicted on historic maps of the study area (see Appendix 13.1). Field systems of more rectangular fields are recorded on mid 19th – early 20th century maps and are focussed on farmsteads such as Warren House Farm.

Modern

13.61 The modern landscape is one dominated by forestry plantation within Dalby Forest. The

forestry is known to have impacted elements of the earlier historic landscapes (see Appendix 13.1), although prehistoric and post-medieval features survive within the modern landscape.

Likely Significant Effects

13.62 The Development comprises the construction of facilities at the EMS Well Site EMS and the construction of the pipeline between the well site and KGS. A pipeline and pig receiver module will also be constructed at KGS.

Construction

13.63 The construction phase will involve: the installation of a 12" steel pipeline 13.9km in length, together with a fibre optic cable, from EMS well site to KGS using an open trench for most of its length. However, where crossing railways, the River Derwent and roads, auger boring will be used to limit surface disturbance (see Chapter 5) for more detail). The construction working width for the pipeline will be 30m across although, in some sensitive locations, this will be reduced. The working corridor will be required to allow for the laying down of pipe work, the movement of construction vehicles and the use of plant and machinery for the construction of the pipeline.

Topsoil Stripping

13.64 Topsoil and subsoil will be stripped and left in individual rows along the edge of the construction working corridor to be distributed on completion of the construction activities. This will create the least possible disturbances to the land by limiting any potential adverse effects of the construction process and to ease the process of reinstating the land.

Trenching

13.65 A trench will be excavated to a depth sufficient to provide in excess of 1m cover of the pipe (>1300mm). The ultimate depth of cover will be determined by safety considerations and/or by local site conditions. The preferred plant for topsoil stripping and trench excavation would be a 360 degree tracked excavator.

Crossings

13.66 At crossings such as the River Derwent, the railway or major roads auger boring, directional drilling or alternative suitable installation techniques will be used. Auger boring involves a

length of pipe being moved through the ground beneath the obstacle by an auger tool in the pipe which removes the spoil from the face of the pipe. Once the pipe has reached the end of the crossing, it forms part of the permanent pipeline.

Direct effects on cultural heritage resources (as defined in Section 13.18)

13.67 Construction at the EMS Well Site will involve foundation excavation and construction. Site preparation will be minimal because the site is already established. Construction will involve earthworks, drainage, plinth and foundation installation. In addition, a new combined water production control and water disposal well will be constructed, using drill equipment. Prehistoric flint scatters were recorded during previous investigations at the EMS Well Site. However, it is likely that the original establishment and construction of the EMS Well Site will have removed any archaeological remains within its confines, with the result that there is likely to be no direct effect on cultural heritage resources at the site.

13.68 The first length of pipeline in the northern part of the Development, heading west from the EMS Well Site, traverses a Mesolithic and later flint scatter with associated features recorded during trial trenching (Sites 64 and 65). Surface flint scatters may be all that remains of the Mesolithic occupation of this site. Preliminary geophysical survey has been undertaken as has a topsoil strip and excavation along the route of the Ryedale Gas Pipeline and associated access track, although a more recent survey identified no anomalies of archaeological interest. This will have a moderate adverse effect of medium significance.

13.69 Further west, the pipeline crosses the line of an undated earthwork bank (Site 21), though the bank appears to have since been ploughed away. The effect on this will be minor adverse on a site of low potential.

13.70 The pipeline then crosses the Oxmoor, Givendale Upper and Givendale Lower Dyke complex (Sites 7-18). Between the dykes are possible undated enclosures (Site 37) which by their association with the dykes increases their significance. The dykes are Scheduled Monuments of high significance and construction of the Development will have a major adverse effect. The duration of the effect would be permanent and physically irreversible. The cut for the pipeline targets an existing break in the eastern arm of the dyke complex, though no break occurs on the western arm. The working corridor will have to be narrowed considerably at this point to avoid damage to extant portions of the dyke/bank. However, final mitigation strategies for these monuments will have to be agreed with English Heritage.

13.71 Near Givendale Head the Development is close to a pit alignment (Sites 38 and 55). The Development would not have an effect on the Scheduled portion of this site as mapped, but

it is not known if the site continued further south or if there are associated features which would be affected by the Development. This will have a moderate adverse effect on a site of medium potential. Given the proximity of the Scheduled Monument, English Heritage will have to be consulted on the Development and mitigation strategies agreed by them.

13.72 Near Warren House, the Development will cross Diggerfoot Dyke (Sites 19-20, 57-58) which has been substantially damaged by cultivation and forestry operations. Geophysical survey indicates that there is a central dyke flanked by two probable pit alignments. The Development will have a moderate adverse effect of medium significance.

13.73 At the southern end of the route, by Knapton Generating Station, the Development will cross boundaries of medieval date (Site 4). This will have a minor adverse effect of low significance.

13.74 In addition, to the archaeology and cultural heritage resources registered at the two Historic Environment Records, evidence of other resources was identified during the site visits (see Appendix 13.1) and from the results of the geophysical survey (see Appendix 13.2). At the southern end of the Development, immediately west of KGS, a thin scatter of prehistoric flints was observed. A cluster of Roman pottery was noted on the north side of the A170 Wilton-Allerston road and subsequent geophysical survey recorded pit like anomalies. The Development will have a minor adverse effect of uncertain but probably low significance on these heritage resources.

Indirect (setting, visual) effects on cultural heritage resources (as defined by Section 13.18)

13.75 At the northern end of the Development, west of the EMS Well Site, are two barrows located on the edge of, and within, a plantation (part of Wydale Forest). These are Scheduled Monuments (Sites 67 and 68). The Development, including the temporary placement of the drilling rig at the EMS Well Site, will have a minor-moderate adverse effect on the setting and visual integrity of these monuments, and the duration of this effect will be temporary and reversible. However, as Scheduled Monuments, English Heritage will have to be consulted on the Development and its relationship to the barrows.

13.76 Adjacent to the EMS Well Site the Development traverses an area of Mesolithic and later occupation (Sites 64 and 65) which have no above-ground expression. The Development will have a negligible effect on the setting of these remains and no visual impact.

13.77 Further west, the Development traverses the Oxmoor, Givendale Upper and Givendale Lower Dykes complex (Sites 7-18). The Development will have a major-moderate adverse effect on

the setting and visual integrity on these monuments, though the duration of this effect will be short-term temporary and reversible.

13.78 At Givendale Rigg, the Development is close to a Scheduled pit alignment (Sites 38 and 55). The Development will have a minor adverse effect on the setting and visual integrity of this monument, and the duration of this effect will be temporary and reversible.

13.79 A number of sites lie along Givendale Rigg including a Scheduled Bronze Age barrow (Site 23), prehistoric findspots (Sites 24, 32 and 62) and rabbit traps/types (Sites 59-61 and 63). Most lie within forest plantation and are therefore screened from the Development. The Development will have a negligible effect on the setting and visual integrity of these sites, and the duration of these effects will be temporary and reversible.

13.80 At the southern end of the study area, the Development bypasses two Listed Buildings (Sites 28 and 29). These lie at 250m and 140m from the Development and there are intervening hedgerows and other vegetation. Consequently, the Development will present no visual impacts on these cultural heritage resources, and there will be a negligible effect on the setting of the resources.

13.81 Medieval ditches are recorded to the west of KGS (Site 4). These remains have no above-ground expression. Consequently, the Development has negligible effect on the setting, and no visual impact.

Operation

Direct effects on cultural heritage resources (as defined by Section 13.18).

13.82 The operational phase of the Development will not involve any further ground disturbance beyond that undertaken under the initial construction. Therefore, the operation phase of the Development will have no direct effect on cultural heritage resources.

Indirect (setting, visual) effects on cultural heritage resources (as defined by Section 13.18)

13.83 New pieces of equipment will be located on the EMS Well Site as part of the construction phase and will remain for the operational phase. These will have a minor-moderate adverse effect on the setting and visual integrity of two nearby Scheduled barrows (Sites 67 and 68) located on the edge of, and within, a plantation (part of Wydale Forest), though the duration of this effect will be temporary and reversible. However, as Scheduled Monuments, English Heritage will have to be consulted on the Development and its relationship to the

barrows.

13.84 Otherwise, the operational phase of the Development will not involve any further ground disturbance beyond that undertaken under the initial construction. Therefore, the operation phase of the Development will have no direct effect on the setting and visual integrity of cultural heritage resources.

Decommissioning and restoration

Direct effects on cultural heritage resources (as defined by Section 13.18)

13.85 The decommissioning and restoration phase of the Development will involve excavation into ground already disturbed by the construction phase, and removal of plant and installations. Therefore, this phase of the Development will have no direct effect on cultural heritage resources.

Indirect (setting, visual) effects on cultural heritage resources (as defined by Section 13.18)

13.86 The decommissioning of the EMS Well Site will remove the visual impact it would have on nearby heritage resources. Therefore, the demolition and restoration phase of the well site will have an overall moderate beneficial effect on the settings and visual integrity of cultural heritage resources in the vicinity.

13.87 The pipeline will be left in place. Therefore, there will be no effect on the setting of the nearby cultural heritage resources.

Mitigation Measures

13.88 Research and the site visits have indicated that a number of cultural heritage resources (as defined in the baseline section of the chapter) are located within the Study Area. Consequently, archaeological intervention or other mitigation measures are required prior to and during the Development.

13.89 In those areas where the Development crosses or closely approaches cultural heritage resources of low sensitivity, or is further away from cultural resources of medium to high sensitivity, a programme of archaeological monitoring and recording will be carried out during the construction phase within the Development working corridor. These areas include the flint tool scatter and medieval ditches to the east of KGS, the findspots of Bronze Age date near Warren House and during any ground disturbance works near the EMS Well Site.

It is considered that the previous construction of the EMS Well Site will have removed archaeological remains within its confines. Therefore, it is proposed that there is no need for any archaeological intervention at the Well Site.

13.90 In those areas where the Development crosses or closely approaches cultural heritage resources of medium sensitivity, or of uncertain significance, a programme of archaeological trial trench evaluation will be undertaken prior to the commencement of the Development. Subject to the results of the trenching, a programme of archaeological monitoring and recording will be undertaken during the construction phase within the working corridor of the Development. These include the area of Mesolithic and later occupation to the west of the EMS Well Site (Sites 64 and 65), the area adjacent to the Scheduled pit alignment (Sites 38 and 55), the area of Diggerfoot Dyke to the north of Warren House (Sites 19, 20, 57, 58) and the area north of the A170 Wilton-Allerston road where Roman pottery and geophysical anomalies are recorded.

13.91 The Development will cross a series of prehistoric linear boundaries, the Oxmoor, Givendale Upper and Givendale Lower Dykes complex (Sites 7-18), which are protected as Scheduled Monuments. At these locations auger boring, directional drilling or alternative suitable installation techniques is proposed to carry the pipeline beneath the Scheduled Monuments, with archaeological recording of the launch and receptor pits. Additional mitigation in the form of barriers will protect extant remnants of the linear boundaries from being damaged. This will need to be agreed with English Heritage.

13.92 Any archaeological recording of potential remains should meet the specific requirements of the Planning Archaeologists of North Yorkshire Council and North York Moors National Park Authority, and English Heritage.

13.93 No mitigation measures are required during operation or decommissioning and restoration.

Residual Effects

Construction

13.94 The residual effect of the Development on any, as yet, unknown cultural heritage resources (as defined in the baseline section of the chapter) within the Study Area will be moderate beneficial, as mitigation measures will result in the recording of previously unknown cultural heritage remains. As noted above (Section 13.31), there is a paucity of published data from archaeological fieldwork in the area. Therefore, proposed recording as part of the mitigation measures will increase the data set.

13.95 The pipeline leading west from the EMS Well Site crosses a prehistoric flint scatter and associated features (Sites 65 and 68) and an undated earthwork bank (Site 21). Mitigation of the development impact on these remains by archaeological recording will result in a minor beneficial effect.

13.96 A little further west the Development crosses the Scheduled prehistoric Oxmoor, Givendale Upper and Lower Dykes complex (Sites 7-18). Mitigation of the development impact on these remains by archaeological recording will result in a moderate beneficial effect.

13.97 Near Givendale Head the Development is close to a Scheduled prehistoric pit alignment (Sites 38 and 55). Mitigation of the development impact on these remains by archaeological recording will result in a moderate beneficial effect.

13.98 Near Warren House, the Development will cross Diggerfoot Dyke (Sites 19-20, 57-58). Mitigation of the development impact on these remains by archaeological recording will result in a moderate beneficial effect.

13.99 At the southern end of the route the Development will cross boundaries of medieval date (Site 4). Mitigation of the development impact on these remains by archaeological recording will result in a minor beneficial effect.

13.100 Immediately west of KGS a thin scatter of prehistoric flints was observed during the site visits. Additionally, a cluster of Roman pottery was recorded north of the A170 and geophysical survey recorded pit-type anomalies in the area. Mitigation of the development impact on these remains by archaeological recording will result in a moderate beneficial effect.

13.101 Just west of the EMS Well Site are two Scheduled prehistoric barrows (Sites 67 and 68). The indirect, visual and setting, impact on these monuments by the construction at the Well Site and emplacement of the drilling rig is minor, temporary and reversible, but will persist through the construction and operation phases of the Well Site. This indirect impact will be mitigated by the decommissioning and restoration phase of the Development. Construction of the pipeline past the Scheduled barrows will also have an indirect effect on them, but this will be minor, short-term temporary and reversible by the completion of construction.

13.102 The indirect impact of the Development on the Scheduled Oxmoor, Givendale Upper and Lower Dykes complex is moderate-major, but will be short-term temporary and reversible by completion of construction.

13.103 The indirect impact of the Development on the Scheduled pit alignment at Givendale Rigg is minor, short-term temporary and reversible by completion of construction.

Operation

13.104 When the Development is complete, and operating, the direct effects on any potential cultural heritage resources (as defined in Section 13.18) will be none.

13.105 The operation of the Well Site will have an indirect impact on the nearby Scheduled prehistoric barrows (Sites 67 and 68). This impact is minor adverse, temporary and reversible, and will be mitigated by the decommissioning and restoration phase of the Development.

Decommissioning and Restoration

Direct effects on cultural heritage sites (as defined by Section 13.18)

13.106 The decommissioning and restoration phase of the Development will involve excavation into ground already disturbed by the construction phase, and the removal of plant and installations. Therefore, this phase of the Development will have no direct effect on cultural heritage resources.

Indirect (setting, visual) effects on cultural heritage resources (as defined by Section 13.18)

13.107 The decommissioning and restoration of the EMS Well Site as part of the Development, if future planning permission is not secured, will remove the visual impact the Well Site facilities have on nearby heritage resources. Therefore, the demolition and restoration phase of the Development will have an overall moderate beneficial effect on the settings and visual integrity of cultural heritage resources in the vicinity of the EMS Well Site.

Cumulative Effects

13.108 The cumulative effects of the Development, in conjunction with the Ebberston Moor EDS, will be minor-moderate beneficial. This is because archaeological recording will accompany the Development (in those areas not already impacted by ground reduction) and will provide information on the presence or absence of cultural heritage resources within the Development working corridor.

13.109 The Development itself will have only a temporary and reversible minor adverse effect on

the setting of nearby cultural heritage resources. Therefore, due to the scale of development and its reversibility, the cumulative effect, in conjunction with the Ebberston Moor EDS, on the setting of cultural heritage resources will be minor-negligible.

13.110 The cumulative effect of the Development in conjunction with a proposed scheme to mine potash from an area southwest of Whitby (The York Potash Project)[x] will have a negligible cumulative effect on the setting of cultural heritage resources due to distance (c. 17km) separating the two schemes.

Summary

13.111 Table 13.1 contains a summary of the likely significant effects of the Development.

13.112 A number of cultural heritage resources (as defined in the baseline section of the chapter) have been identified within the Study Area. Site visits and a geophysical survey have also identified archaeological remains on or close to the Development.

13.113 Several prehistoric monuments, some of them nationally important Scheduled Monuments are located in the Study Area and in close proximity to the Development. Two are directly affected by the Development. Mitigation measures involving auger boring the pipeline beneath the monuments are proposed. English Heritage will be consulted with regard to these proposals.

13.114 The remaining Scheduled Monuments within the Study Area are not located in the Development working corridor. However, during the construction phase the Development may have a minor adverse effect on the setting and visual integrity of the nearby Scheduled Monuments. These include barrows to the west of the EMS Well Site, a pit alignment on Givendale Rigg and a further barrow northeast of Warren House. English Heritage will be consulted with regard to setting issues.

13.115 Two Listed Buildings are located within the Study Area. There will be no visual impact and a negligible effect on their setting. English Heritage will be consulted with regard to setting issues.

13.116 Other, non-designated, archaeological remains have been identified along the Development. These include Mesolithic and later occupation, a prehistoric linear boundary (Diggerfoot Dyke) north of Warren House, a Roman pottery scatter with associated geophysical anomalies to the north of the A170 Wilton-Allerston road and medieval ditches near Knapton Generating Station. The construction phase of the Development will have a minor adverse

effect on these remains. The operational and decommissioning and restoration phases would have no effect.

13.117 Further non-designated archaeological remains have been identified within the Study Area. The construction phase of the Development would have a negligible-minor adverse effect on these remains. The operational and decommissioning and restoration phases would have a negligible effect.

13.118 It is proposed that programmes of archaeological work are undertaken in specified areas to mitigate the effects of the Development. This archaeological work will involve trial trench evaluation prior to development, and archaeological monitoring during construction groundwork.

13.119 The locations identified for trial trenching are the area of Mesolithic and later occupation to the west of the EMS Well Site, the area adjacent to the Scheduled pit alignment, the area of Diggerfoot Dyke to the north of Warren House and the area north of the A170 Wilton-Allerston road where Roman pottery and geophysical anomalies are recorded.

13.120 Locations identified for archaeological monitoring and recording are the flint tool scatter and medieval ditches to the east of KGS, the artefact scatter of Bronze Age date near Warren House and during any ground disturbance works near the EMS Well Site.

13.121 The operational and decommissioning and restoration phases of the Development will have no effect on cultural heritage resources.

13.122 Any archaeological recording of potential remains should meet the specific requirements of the Planning Archaeologists of North Yorkshire County Council and North York Moors National Park Authority, and English Heritage.

Table 13.1: Table of Significance – Archaeology and Cultural Heritage

Potential Effect	**Nature of Effect** (Permanent/ Temporary)	**Significance** (Major/Moderate /Minor) (Beneficial/ Adverse/ Negligible)	**Mitigation / Enhancement Measures**	**Geographical Importance***							**Residual Effects** (Major/ Moderate/ Minor) (Beneficial/ Adverse/ Negligible)
				I	UK	E	R	C	B	L	
Construction Phase											
Damage / destruction of buried archaeological remains or deposits within Assessment Site: undated earthwork bank near Moorland Energy compound; undated possible enclosures south of Givendale Head Farm; medieval ditches west of KGS.	Permanent	Minor / Moderate Adverse	archaeological evaluation of specified locations prior to development commencing						*		Moderate Beneficial
Damage / destruction of buried archaeological remains or deposits within Assessment Site: vicinity of post-medieval rabbit traps/types southwest of Givendale Head Farm.	Permanent	Minor Adverse	archaeological monitoring of specified locations during groundworks						*		Moderate Beneficial
Damage / destruction of buried archaeological remains or deposits within Assessment Site: vicinity of Scheduled Monument prehistoric pit alignment southwest of Givendale	Permanent	Minor / Moderate Adverse	archaeological monitoring of specified locations during groundworks		*						Moderate Beneficial

Head Farm; and vicinity of Scheduled Monument prehistoric barrow 1.5km southwest of Givendale Head Farm											
Damage / destruction of buried archaeological remains or deposits within Assessment Site: vicinity of Scheduled Monument prehistoric pit alignment southwest of Givendale Head Farm; and vicinity of Scheduled Monument prehistoric barrow 1.5km southwest of Givendale Head Farm	Permanent	Minor / Moderate Adverse	archaeological monitoring of specified locations during groundworks		*						Moderate Beneficial
Damage / destruction of buried archaeological remains or deposits on Oxmoor Dykes Scheduled Monument.	Permanent	Major Adverse	Either: archaeological excavation and recording on pipeline route as it passes through the monument; or, auger boring beneath monument; archaeological monitoring of auger launch and receptor pits		*						Moderate Beneficial
Damage / destruction of buried archaeological remains or deposits on Givendale Upper Dyke Scheduled Monument.	Permanent	Major Adverse	Either: archaeological excavation and recording on pipeline route as it passes through the monument; or, auger boring beneath monument; archaeological monitoring of auger launch and receptor pits		*						Moderate Beneficial
Damage / destruction of	Permanent	Major Adverse	Either: archaeological		*						Moderate

buried archaeological remains or deposits on Givendale Lower Dyke Scheduled Monument.			excavation and recording on pipeline route as it passes through the monument; or, auger boring beneath monument; archaeological monitoring of auger launch and receptor pits								Beneficial
Damage / destruction of buried archaeological remains or deposits on Diggerfoot Dyke	Permanent	Moderate Adverse	archaeological excavation and recording on pipeline route as it passes through the asset					*			Moderate Beneficial
Damage / destruction of buried archaeological remains or deposits associated with Roman pottery scatter N of A170	Permanent	Moderate Adverse	archaeological excavation and recording on pipeline route as it passes through the asset					*			Moderate Beneficial
Visual and landscape effects on Scheduled Monument: Oxmoor Dykes	Short term temporary	Moderate Adverse			*						Minor Adverse
Visual and landscape effects on Scheduled Monument: Givendale Dykes	Short term temporary	Moderate Adverse			*						Minor Adverse
Visual and landscape effects on Scheduled Monument: prehistoric pit alignment SW of Givendale Head Farm	Short term temporary	Moderate Adverse			*						Minor Adverse
Visual and landscape effects on Scheduled Monument: prehistoric barrows near Moorland Energy compound and on Givendale Rigg	Short term temporary	Negligible			*						Negligible

Visual and landscape effects on Listed Buildings: Knapton Lodge; and milestone south of Knapton Lodge	Short term temporary	Minor Adverse				*					Negligible
Operation											
Visual and landscape effects on Scheduled Monument: Oxmoor Dykes	Long term temporary	Moderate Adverse			*						Minor Adverse
Visual and landscape effects on Scheduled Monument: Givendale Dykes	Long term temporary	Minor-Moderate Adverse			*						Minor Beneficial
Visual and landscape effects on Scheduled Monument: prehistoric pit alignment SW of Givendale Head Farm	Long term temporary	Negligible			*						Negligible
Increased traffic movement affecting setting of Scheduled Monument: Oxmoor Dykes	Long term temporary	Moderate Adverse			*						Minor Adverse
Demolition and Restoration											
Visual and landscape effects on Scheduled Monument: Oxmoor Dykes	Short term temporary	Moderate Adverse			*						Moderate Beneficial
Increased traffic movement affecting setting of Scheduled Monument: Oxmoor Dykes	Short term temporary	Moderate Adverse			*						Moderate Beneficial
Landscape effects on setting of Scheduled Monument: Givendale Dykes	Short term temporary	Negligible			*						Negligible

Landscape effects on setting of Scheduled Monument: prehistoric pit alignment SW of Givendale Head Farm	Short term temporary	Negligible			*						Negligible
Cumulative Effects											
Construction Phase	Mostly permanent	Moderate Adverse			*				*		Minor Beneficial
Operational Phase	Long term temporary	Negligible							*		None
Demolition and Restoration	Short term temporary	Moderate Adverse			*				*		Moderate Beneficial

*** Geographical Level of Importance**

I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local

References

[i] HMSO, 1979 *Ancient Monuments and Archaeological Areas Act*

[ii] HMSO, 1990 *Planning (Listed Buildings and Conservation Areas) Act*

[iii] DCLG, 2012 *National Planning Policy Framework*

[iv] DCLG, 2014 *Planning Practice Guidance*

[v] NYMNPA, 2008 *North York Moors National Park Authority Adopted Core Strategy and Development Policies*

[vi] RDC, 2002 *Ryedale Local Plan*

[vii] RDC, 2013 *Ryedale Plan – Local Plan Strategy*

[viii] IfA, 2011 *Standard and Guidance for Archaeological Desk-based Assessments*

[ix] Archaeological Services WYAS, 2010 *Ryedale Gas Project North Yorkshire Geophysical Survey*

[x] York Potash Ltd, 2014 *The York Potash Project Explained, Information to support public consultation*