ALDHURST FARM HABITAT CREATION SCHEME

EIA SCREENING REPORT

OCTOBER 2014

1. INTRODUCTION

1.1.1 This Screening Report has been prepared by EDF Energy to support its request for a 'Screening Opinion' from Suffolk Coastal District Council pursuant to Regulation 5(1) of The Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (SI No. 1824) (the 'EIA Regulations') on whether the proposed Aldhurst Farm Habitat Creation Scheme (the 'Scheme') is EIA development.

1.1.2 The Scheme would be centred on the creation of lowland ditches and a mosaic of reedbed and open water habitat ('wetland habitat'), occupying approximately 6.3 ha of low-lying land alongside two existing watercourses (the Aldhurst Valley Stream and a ditch receiving treated effluent from Leiston Waste Water Treatment Works).

1.1.3 These wetland habitats would grade into a mosaic of acid grassland, heathland, scrub and deciduous woodland across the remainder of the 67ha Aldhurst Farm site (the 'Site'). These wetland and terrestrial habitats would include Suffolk BAP habitats.

1.1.4 In accordance with Regulation 5(2) of the EIA Regulations, this report includes:

- *"a plan sufficient to identify the land"* – refer to Figure 1 (Location Plan), Figure 2 (Site Plan) and Figure 3 (Wetland Habitat);
- "*a brief description of the nature and purpose of the development and of its possible effects on the environment"* – refer to Section 2.1 for a description of the purpose of the Scheme; Section 2.2 for a description of the Site; Section 2.3 for a summary of the technical consultations that have been held with statutory and non-statutory stakeholders that have informed the Scheme design and impact assessment studies; Section 2.4 which describes the Scheme design and how it would be constructed and maintained in the longer-term; and Section 4 which describes the potential effects on the environment.
- *"such other information or representations as the person making the request may wish to provide or make"* as follows:
  - Section 5 which details other licences, consents and permits that may be required, which will regulate those aspects of the Scheme with potential to cause adverse environmental effects;
  - Section 6 which provides a summary of documents, including environmental reports, which EDF Energy intends to submit in support of the planning application for the Scheme.

2. THE ALDHURST FARM HABITAT CREATION SCHEME

2.1 Purpose

2.1.1 The purpose of the Scheme is to:

- Create lowland ditches, reedbed and open water habitat which has been designed to ensure that, with appropriate management, high quality reedbed and lowland ditch habitats will develop that are of similar quality and composition to those within the adjacent Sizewell Marshes Site of Special Scientific Interest (SSSI), and will also support comparable invertebrate and rare vascular plant communities;
- Reuse excavated materials from the creation of the reedbed and lowland ditch habitat within the wider Site to help create the various terrestrial habitats; and
- Through the above, deliver landscape character enhancements to existing arable land that extends from Leiston to the boundary of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). The Site would form an extension of the Sizewell Estate, which is already managed by EDF Energy to deliver biodiversity and landscape benefits under a Higher Level Stewardship Agreement.

2.1.2 Many of the proposed new habitats that would be created, including reedbeds and some of the drier habitats, are priority Suffolk Biodiversity Action Plan (BAP) habitats.

2.1.3 Figure 2 illustrates the proposed area for the reedbed and lowland ditch habitat (in 'green'), and the area within which the excavated materials will be reused and a mosaic of other semi-natural habitats created (in 'red').

2.2 Site Description

2.2.1 As illustrated in Figure 1, the Site is located at Aldhurst Farm to the west of the Sizewell Marshes SSSI, and immediately bounded by Lover's Lane to the north and east; by Valley Road to the south-east; and residential areas in Leiston and along the B1122 to the south and west, respectively.

2.2.2 The Site covers approximately 67 ha and is in arable farming use, comprising a series of fields, with access tracks, boundary hedgerows and small plantation woodland and shelter belts (mainly comprising mature hybrid poplar). As illustrated in Figure 2, the Site occupies a west-east aligned valley drained by a small watercourse, the Aldhurst Valley Stream (called Leiston Drain immediately downstream of the Site). A southwest–northeast flowing feeder drain to this watercourse receives treated sewage effluent from Leiston Waste Water Treatment Works (Leiston WWTW), which is located immediately to the south of the Site. Leiston Drain routes around the Sizewell Marshes SSSI and discharges to the North Sea via Minsmere Sluice.

2.2.3 The majority of the lower valley floor lies between 1.75 and 2.25 m Above Ordnance Datum (AOD). In the middle section of the main valley, ground elevations are

between 2.25 and 3m AOD. In the upper valley ground elevations are between 3 and 5m AOD.

2.2.4 Shallow groundwater levels in the valley range from ~0.2-0.7 m below ground lev el (bgl) (around 1.3-1.8 mAOD) in the lower valley to ~1.3-1.5 mbgl (around 2.5 mAOD) in the middle section, and ~3 mbgl (3.5 mAOD) at the top of the valley. Seasonal variation in groundwater levels at the bottom of the valley is relatively s ubdued (around 0.25 m), with greater variation (ar ound 0.5 m) at the top of the valley, as would be expected in an interfluvial area.

2.2.5 Bed elevations in the watercourses r ange from -0.1 mAOD at Leiston Drain to the east, to 0.3 mAOD at the confluence of the watercourses and 5.5m AOD in Aldhurst Valley Stream in the west of the Site. Flows increase downstream, and are strongest downstream of the confluence of the Aldhurst Valley Stream and the Leiston WWTW Drain. Watercourse bed elevations are ge nerally 1 - 1.5 m lower than the a djacent valley floor ground levels, and 0.8m below groundwater levels in the middle a nd lower sections of the valley (see Figure 4). Studies have indicated that groundwater accretion contributes to the flows, particularly in the lower valley.

2.2.6 There is c urrently a licensed groundwater abstraction lo cated within the valley for spray irrigation use, mainly on the arable land within the Site.

2.2.7 A Public Right of Way (PRoW) runs along a limited length of the Site's perimeter from Leiston WWTW to Lover's Lane. There are no other PRoW within the Site.

2.3 Scheme Development

2.3.1 EDF Energy presented in itial proposals for a reedbed cr eation scheme at Aldhurst Farm to stakeholders at a workshop in Oc tober 2013. The stakeholders comprised the Environment Agency, Na tural England, Suffolk C oastal District Council a nd Suffolk County Council. A bilateral cons ultation meeting was a lso held ar ound this time with Suffolk Wildlife Trust.

2.3.2 The proposed conceptual design at that time in corporated in-channel control structures to raise wat er levels in existing ditches and on adjacent low-lying land and some limited ground lowering in order t o create s uitable conditions to support reedbed habitat. The key feedback from thes e meetings was a concern that there may be insufficient water available to sustain wet reedbed, espec ially under drought conditions when the water table would be naturally low and gro undwater resources may be under added pressure from abstraction from two nearby public water supply boreholes. Taking account of this feedback, EDF Energy commissioned further more detailed hydrological and hydrogeologic al investigations to better understand baseline conditions and to inform the functi onal design of the Sc heme with specific emphasis upon and the interaction between groundwater and surface waters.

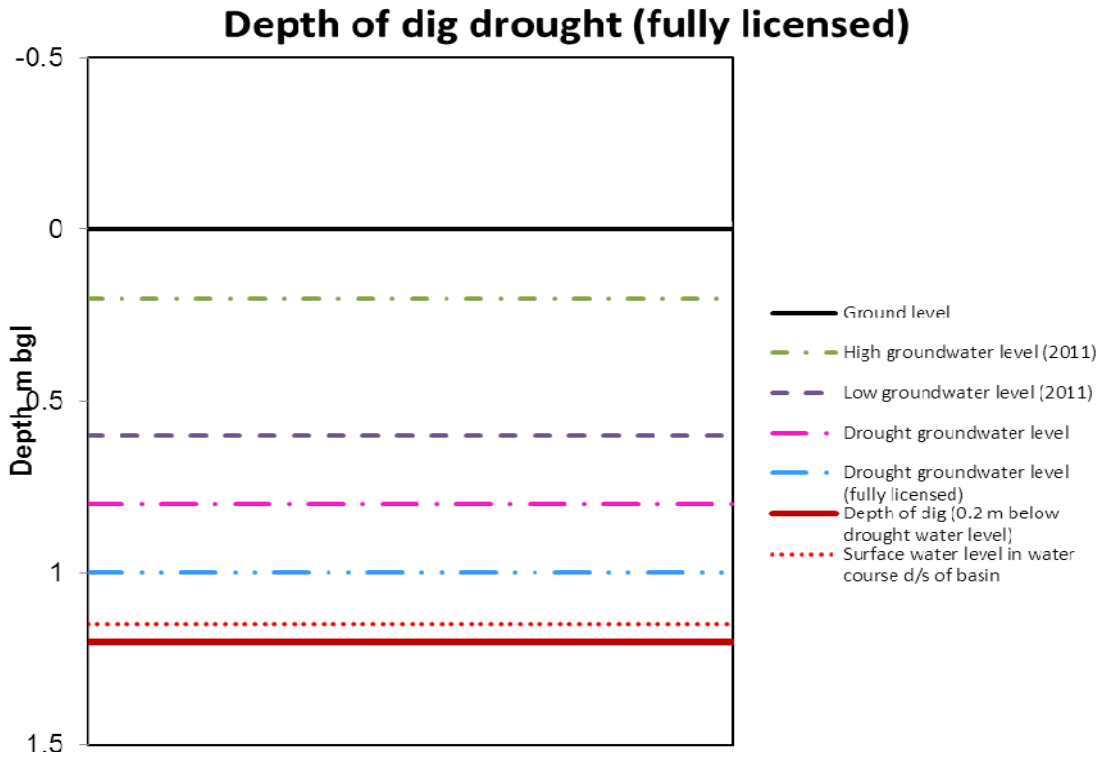
2.3.3 The findings of this additional work were presented to stakeholders at a second workshop held in April 2014. All of the above st akeholders, plus the RSPB, attended the workshop. An updated sit e conceptualisation was prese nted, based on the results of additional site investigati ons and use of the En vironment Agency's Regional Groundwater Model f or the Crag Princ ipal Aquifer. Groundwater levels in the vicinity of the Site were predicted fo r a number of different scenarios, including a 'worst-case' theoretical low-flow scenario th at assumed recorded levels in the early

1990s drought with the two public water supply boreholes operating at maximum licensed abstraction rates (which has never occurred to date). In this context, three design options were presented: a surface water-fed scheme akin to the original proposition (Option 1); and two groundwater-fed schemes (Options 2a and 2b). Option 2b, the deeper and therefore more drought resilient scheme which would remain wet even under the above 'worst case' scenario, was identified as EDF Energy's preferred option. Plate 1 illustrates the groundwater levels and the depth of the reed establishment area in relation to drought plus fully licensed abstraction conditions water levels (note this represents 'theoretical' worst case conditions which have not been experienced to date as actual abstraction rates have been lower).

2.3.4 The Environment Agency confirmed that they agreed with the updated conceptualisation and considered that sufficient water would be available to support resilient wetland habitat without compromising water supplies to downstream users and habitats, notably Sizewell Marshes SSSI. The Environment Agency stated their preference was for Option 2b, the more drought resilient scheme, because it was most likely to deliver the appropriate hydrological conditions to allow the compensation habitat to be developed. All of the other stakeholders that were present at the workshop, including Natural England, also supported this option.

2.3.5 A further workshop was held with the same stakeholders in July 2014 to agree the design principles for the Scheme. The key outcomes of this meeting included the need to create a reedbed mosaic comprising wet reedbed interspersed with deeper pools connected by internal channels; and the inclusion of perimeter drains of variable profile and depth around each of the groundwater basins to create appropriate lowland ditch habitat and to help deter predators. The agreed design principles will be taken into account and detailed in the planning application.

Plate 1 : Groundwater Levels and depth of Reed Establishment Area



2.3.6 A further workshop was held with stakeholders on 15th October 2014 to discuss progress with the preliminary design work that will inform the planning application.

2.4 Description of the Scheme

a) The Scheme

2.4.1 The Scheme, in particular the reedbed and lowland ditch habitat, would involve ground lowering alongside the Aldhurst Valley Stream and the drain that receives treated effluent from Leiston WWTW. Four large groundwater basins, as illustrated in Figure 3, would be created covering approximately 6.3 hawhich would be excavated to an 'average' depth of around 1.2 m bgl in order to ensure that they would remain wet even under drought conditions (see Plate 1). Wet reedbed will require a water depth of at least 0.05 m to 0.3 m to be maintained in reed stands throughout the year (see Figure 5). An area of drier reedbed will also be created at the western end of the site.

2.4.2 Within the groundwater basins for the wet reedbed, deeper excavations up to 2-3 m bgl would be designed to create irregular shaped pools that would be connected to sinuous channels to help maintain open water and 'edge habitat' within the reedbeds. These are important for biodiversity, and to facilitate water 'flushing' to prevent stagnation. Perimeter ditches would also be created around the margins of basins.

2.4.3 The base level of the groundwater basins would be set higher than the bed level of the Aldhurst Valley stream. Control structures, such as adjustable weirs, would be installed between each groundwater basin and the stream. Groundwater would therefore tend to flow passively through the reedbed habitat into the stream. The weirs would be of an 'eel friendly' design to allow movement of eels between water bodies. As the weirs would be adjustable, it would be possible to control water levels separately in each groundwater basin and to raise or lower water levels as required. This would be important to facilitate reedbed management and maximise biodiversity.

2.4.4 The Scheme would be designed to minimise the risk of return flow from the Aldhurst Valley stream (or the drain from the WWTW) entering the reedbeds, other than perhaps occasionally under some flood events. This would minimise the risk of eutrophication of the reedbeds from treated sewage effluent discharges.

2.4.5 Works within or adjacent to the Aldhurst valley stream such as installation of the proposed weirs will require Land Drainage Consent from Suffolk County Council and/or the Internal Drainage Board (refer to Section 5).

2.4.6 The Scheme would retain an abstraction license for groundwater (currently for spray irrigation) but the existing boreholes and pumphouse in the valley would be decommissioned to make way for the groundwater basins, and a new abstraction facility created elsewhere within the Site (location to be determined). The proposed licence variation would reflect a change-of-use to "stream support". This would be a precautionary measure to allow maintenance of the minimum (Q95) flow in Leiston Drain immediately downstream of the Scheme (upstream of Sizewell Marshes SSSI), as well as at a location further downstream, at Minsmere sluice. This precautionary measure, which has been agreed in principle with the Environment Agency, is designed to safeguard the water supply to Sizewell Marshes SSSI, even under severe drought conditions, but would likely only be required very rarely, if at all.

2.4.7 Outside of the wetland area, a mosaic of terrestrial semi-natural habitat s will be created, as previously described. It is intended that areas where excavated s oils are re-used are grass seeded to minimise ero sion. It is envisaged t hat creation of the other terrestrial habitats will take place over a longer timeframe (details to be agreed). Landscape plans will be provided with the planning application.

b) Construction and Reedbed Establishment

2.4.8 The ground-lowering would be carried out using conventional earth-moving plant and it is estimated that up to 90,000 cubic metres of soil would be excavated, comprising topsoil, peat and sand in approximately equal proportions. Peat removed from the working area would be reused within the bas ins to provide an appropriate substrate for reedbed establishment (in t he middle section of the vall ey it is likely that the excavations will e xtend into the underlyi ng Crag sand, so in these areas th e excavations would be overdug and the peat retained as a planting medium).

2.4.9 It is envisaged that all of the excavated soils would be re-used within the wider Site to create a mosaic of other semi -natural habitats. Should any material not be suitable for use on the site, it would be remov ed from the site as waste and managed in accordance with waste legislation.

2.4.10 A Materials Management Plan (MMP) would be prepared to govern materi als re-use under the 'Definition of Wast e: Development Industry C ode of Practice' which has been agreed 'in-principle' with the Environment Agency.

2.4.11 Management of dewat ering which may be r equired as part of the excavation works, would be facilitated by the construction of four separate basins a llowing water to be pumped between basins before the need to dis charge to the watercourse. Connections to be made to Aldhurst Valley Stream will be via control structures which would allow water quality to be monitored prior to any drainage being released from the basins.

2.4.12 Environmental permit and cons ent applications will be subject to further Scheme design and disc ussion with t he appropriate regulators. Any discharges to watercourses, such as surface wate r run-off and groundwater, will be managed in accordance with any discharge permit and/or water transfer license conditions (refer to Section 5). .

2.4.13 Once the basins have been created, t hese would be planted with commerci al stocks (pot-grown plants or rhizomes). Planting would be ac ross the base of the basins at optimal spacing, excluding the open water areas (details to be agreed). To augment the new reedbed habitat, EDF Ener gy will explore opportuniti es to inoculate it with material of local pro venance to facilitate the colonisation of the new h abitat by notable and rare invertebrates.

2.4.14 It is envis aged that th e wetland habitats would be cr eated within approximately si x months of commencement of the excava tions. The decommission ing and relocation of the groundwater abstraction would be expected to occur within this timeframe.

2.4.15 It is recognised that t here are potential benef its in terms of improved ecological connectivity for some spec ies between the Scheme and t he adjacent Sizewell Marshes SSSI, if the existing twin culv erts running beneath Lover's Lane were to be

upgraded to enhance mammal passage (in particular for voles and otters). However, any potential upgrade would need to take account of the Flood Risk Assessment for Sizewell C, which will not be available until the Development Consent Order application for the proposed power station is submitted. As a result, the Scheme does not encompass any works to the drainage infrastructure beneath the road crossing.

2.4.16 The likely construction methods will utilise best practice measures to prevent nuisance or pollution, including measures relating to (as relevant): dust management; cleaning of highways and site access tracks; pollution prevention and protection of watercourses; prevention of pollution due to sedimentation; storage of oils, fuels and chemicals; control of surface water drainage; pollution response; noise and vibration management; materials management (relating to excavated soils) and soils protection.

2.4.17 The Scheme would also include measures to control public access, including fencing during construction and long term management.

3. EIA SCREENING

3.1.1 The Scheme would create new reedbed and lowland ditch habitat, and a mosaic of other semi-natural habitats. This would enhance both the biodiversity and landscape character of the Site, which is predominantly arable farmland at present.

3.1.2 As described below, given the size of the Site and the proximity to and connectivity of the Scheme with Sizewell Marshes SSSI, an EIA screening exercise has been undertaken in accordance with the EIA Regulations, and with reference to the Department for Communities and Local Government's Planning Practice Guidance on Environmental Impact Assessment..

3.2 Criteria for determining the need for environmental assessment

3.2.1 The EIA Regulations set out that a proposed development is, or has the potential to be an EIA development if it falls within either one of two categories of projects, in Schedule 1 or Schedule 2 of the Regulations. In respect of Schedule 1 developments, an EIA is required in every case; in respect of Schedule 2 developments, an EIA is required only if a project is likely to give rise to significant environmental effects.

3.2.2 The proposed Scheme is not a Schedule 1 but it could be considered a Schedule 2 development, in particular it could be considered to fall within category 10(i):

> *"Dams and other installations designed to hold water or store it on a long-term basis (unless included in Schedule 1)"*

or, category 10(n):

> *"Groundwater abstraction and artificial groundwater recharge schemes not included in Schedule 1"*

with the threshold for both being:

> *"The area of the works exceeds 1 hectare"*

3.2.3 In addition, the works are adjacent to and connect with the Sizewell Marshes SSSI which is considered a 'sensitive area', where a sensitive area is defined in the EIA Regulations, as including:

> *"land notified under section 28(1) (sites of special scientific interest) of the Wildlife and Countryside Act 1981…"* or
>
> *"…a European site within the meaning of regulation 8 of the Conservation of Habitats and Species Regulations 2010"*

3.2.4 The Scheme has therefore been appraised in line with the criteria in Schedule 3 of the EIA Regulations to determine whether it is EIA development. Schedule 3 requires that the 'characteristics' of the development, the 'location' of the development and the 'characteristics of the potential impact' must be considered.

3.2.5 The ‘location’ and ‘characteristics’ of the development are described above in Section 2 and appraised against the Schedule 3 criteria in Tables 1 and 2 below:

Table 1 : Appraisal of Scheme having regard to the Selection Criteria in Schedule 3 of the EIA Regulations 2011 - Characteristics of Development

Criteria	Appraisal of the Scheme
Characteristics of development	
"The characteristics of development must be considered having regard, in particular, to—	
(a) the size of the development;	Approximately 6.3 ha of reedbed and lowland ditch habitat would be created with wider landscape character enhancements provided in a site covering 67 ha in total.
(b) the cumulation with other development;	There are no developments proposed that could give rise to cumulative impacts, either additive or synergistic impacts, with the development of the Scheme.
(c) the use of natural resources;	The Scheme does not propose to exploit natural resources, other than the potential relicensing of an existing groundwater abstraction for "stream support" in order to safeguard the water supply to Sizewell Marshes SSSI. However the Scheme would be 'groundwater-fed' and would interact with surface watercourses. The Scheme will be designed to avoid any significant downstream effects on both groundwater and surface water resources. During the creation of the wet reedbed habitat, soils would be excavated but be re-used elsewhere within the Site, in accordance with a Material Management Plan and Ecology and Landscape Management Plan.
(d) the production of waste;	The Scheme is not anticipated to give rise to any significant volumes of waste. It is proposed that all soil materials to be excavated during the works would be re-used within the Site. Refer to para 2.4.18 for further details.
(e) pollution and nuisances;	The Scheme is not anticipated to give rise to any significant pollution or nuisances. All construction activities would be managed through a Construction Management Strategy and contractor Environmental Management Plans. Refer to para 2.4.12 for further details.
(f) the risk of accidents, having regard in particular to substances or technologies used."	The risk of accidents giving rise to significant adverse effects is minimal. The earthworks would be carried out in closed basins and there would be provision for testing of water quality before release of drainage water to surface waters. In addition it is not expected that that any environmentally harmful substances or novel technologies would be used.

Table 2 : Appraisal of Scheme having regard to the Selection Criteria in Schedule 3 of the EIA Regulations 2011 – Location of Development

Criteria	Appraisal of the Scheme
Location of Development	
"The environmental sensitivity of geographical areas likely to be affected by development must be considered, having regard, in particular, to—	
(a) the existing land use	The majority of the Site comprises arable fields which have limited biodiversity value. The Scheme would convert this arable farmland into wetland habitat and a mosaic of neutral and acid grassland, heathland, scrub, species rich hedgerows and deciduous woodland which would provide enhanced habitat for wildlife and landscape enhacement.

Criteria	Appraisal of the Scheme
Location of Development	
"The environmental sensitivity of geographical areas likely to be affected by development must be considered, having regard, in particular, to—	
(b) the relative abundance, quality and regenerative capacity of natural resources in the area	This relates to the quality and regenerative capacity of natural resources in the area. As described in Section 4, the Scheme has been designed to avoid any effects on groundwater and surface water resources; and excavated soils would be re-used within the Site. The Scheme would also be designed to avoid impacts on water voles and reptiles. There would be a significant net increase in biodiversity of the site through creation of new habitats.
(c) the absorption capacity of the natural environment, paying particular attention to the following areas— *(i) wetlands;* *(ii) coastal zones;* *(iii) mountain and forest areas;* *(iv) nature reserves and parks;* *(v) areas classified or protected under Member States' legislation, areas designated by Member States pursuant to Council Directive 2009/147/EC on the conservation of wild birds and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora;* *(vi) areas in which the environmental quality standards laid down in EU legislation have already been exceeded;* *(vii) densely populated areas;* *(viii) landscapes of historical, cultural or archaeological significance.*	A wetland-type habitat, contiguous with adjacent areas of designated SSSI habitat, would be created and would enhance the landscape and biodiversity value of the Site. The Scheme will be designed to avoid any significant downstream effects on groundwater and surface water resources and provides for relicensing of an existing groundwater abstraction for "stream support" in order to safeguard the water supply to Sizewell Marshes SSSI. The potential for indirect impacts on adjacent Sizewell Marshes SSSI e.g. associated with disturbance during construction would be managed through the design, management plans and permit/license conditions. No impact upon absorption capacity is anticipated.

3.2.6 The criteria for the 'characteristics of the potential impact' are outlined in Table 3, and the Scheme appraised in Section 4.

Table 3 : Appraisal of Scheme having regard to the Selection Criteria in Schedule 3 of the EIA Regulations 2011– Characteristics of the Potential Impact

Criteria	Appraisal of the Scheme
Characteristics of the Potential Impact	
"The potential significant effects of development must be considered in relation to criteria set out under paragraphs 1 and 2 above, and having regard in particular to—	
(a) the extent of the impact (geographical area and size of the affected population);	Refer to Section 4 which considers effects on the following environmental aspects: • Groundwater and Surface Water (Section 4.2) • Ecology (Section 4.3) • Landscape (Section 4.4) • Archaeology (Section 4.5)
(b) the transfrontier nature of the impact;	The effects of the Scheme would be local, therefore there will be no transfrontier impacts.
(c) the magnitude and complexity of the impact;	Refer to Section 4 which considers effects on the following environmental aspects: • Groundwater and Surface Water (Section 4.2) • Ecology (Section 4.3) • Landscape (Section 4.4) • Archaeology (Section 4.5)
(d) the probability of the impact;	Refer to Section 4 which considers effects on the following environmental aspects: • Groundwater and Surface Water (Section 4.2) • Ecology (Section 4.3) • Landscape (Section 4.4) • Archaeology (Section 4.5)
(e) the duration, frequency and reversibility of the impact.	Refer to Section 4 which considers effects on the following environmental aspects: • Groundwater and Surface Water (Section 4.2) • Ecology (Section 4.3) • Landscape (Section 4.4) • Archaeology (Section 4.5)

4. POSSIBLE ENVIRONMENTAL EFFECTS

4.1.1 EDF Energy has undertaken a number of environmental studies to inform a thorough understanding of baseline conditions; to in form the design of the Scheme, and to understand any possible effects to ensure that they can be managed such that potential significant adverse effects would not occur.

4.1.2 As described below, the Scheme has the potential to effect the following environmental aspects:

- Groundwater and Surface Waters;
- Ecology;
- Landscape; and
- Archaeology.

4.1.3 The Scheme, once created, is not anticipated to have any further adverse environmental effects on env ironmental or human receptors. During cons truction, environmental management plans would be implemented to manage c onstruction activities, protect sensitive receptor s and prevent pollution (such as noise management, dust management, control of surface water run-off and sedimentation).

4.2 Groundwater and Surface Water

4.2.1 During the construction phase the wor ks would be managed through the adoption of the good practice measures outlined in Sect ion 2.4 to avoid effecting downstream water flows and quality within Leiston Drain. This would inc lude excavation works being undertaken within the basins, m anaged dewatering between basins (in the event that this is required over t he short term to allow access for excavation plant and equipment) and the use of control structures within connections between the basins and watercourses to allow flow/quality monitoring prior to discharge.

4.2.2 Detailed hydrological and hydrogeological studies have been undertaken which have informed the design of t he reedbed and lowland dit ch habitat. These have been carried out in consultation with stakeholde rs, including the Envir onment Agency and Natural England. Both stak eholders are satisfied t hat these studies provide a sufficiently comprehensive and detailed analysi s of the Site's prevailing hydrological and hydrogeological conditions, and that t he detailed water balance calculations carried out as part of these studies demonstrate that the Scheme would be unlikely to affect the water supply to Sizewell Ma rshes SSSI. Retention of the existing groundwater abstraction for "stream support" within Leiston Drain as ou tlined in Section 2.4 would provide an additional safeguard against any such impacts.

4.3 Ecology

4.3.1 The principal environmental effect would be a pos itive and permanent ecological enhancement due to creation of up to 67 ha of semi-natural habi tat on ar able land which is currently of low ecol ogical (and biodiversity) interest. Many of the proposed habitats, including reedbeds, are listed as Suffo lk Priority Biodiv ersity Action Plan Habitats. There are some existing ecologic al features within the Site, notably water

voles within the ditches; and reptiles (slow worm and adder) wit hin the field margins and hedgerows. The Scheme has been des igned with the existing ditches left in-situ which would limit impacts on water voles, and the proposed new wetland and ditches would provide substantial qualit y habitat fo r water vole. Weirs and any other in-channel structures such as temporary culver ts would be sited to avoid water voles. The Scheme is unlikely to have a significa nt adverse effect on reptiles bec ause the field boundaries would also be left in-sit u and the proposed semi -natural habitats which would be created within the Site, would prov ide good quality habitat for a variety of reptiles including gras s snake, adder, slow worm and common liz ard. The proposed wetland habitat would also provi de suitable habitat for eels, amphibians, invertebrates, mammals and a wide variety of breeding, overwinter ing and foraging birds.

4.3.2 The Scheme is not likely to have any significant adverse effects on the adjacent Sizewell Marshes SSSI. Indirect effects a ssociated with potential changes in the flow or quality of controlled water are unlikel y to occur during construction or once created.

4.3.3 The only o ther potential effects on the Sizewell Marshes SSSI would be temporary disturbance e.g. from noise and vibration associated with the construction phase. However, given the nature and short duration of the cons truction works (up to six months approximately) and the proximity of the Scheme to existing s ources of disturbance e.g. Lover's Lane and the nearby wast e recycling centre, it is very unlikely that such impacts would be signif icant either on breedi ng or overwintering birds. This assessment has been discuss ed and agreed with t he Suffolk Wildlife Trust, which manages Sizewell Marshes SSSI on be half of EDF Energy. Mitigation (e.g. in the form of temporary acoustic scr eening) could be used in the unlik ely event this proves necessary.

4.4 Landscape

4.4.1 The Scheme would result in a positiv e effect on land scape character in what is currently intensively farmed arable land. The wider 67 ha site would in effect form an extension to the Sizewell Estate, which is already managed by EDF Energy to deliver both biodiversity and landscape benefits, under a high level Stewardship Scheme.

4.5 Archaeology

a) Background

4.5.1 Desk-based assessment indicates that the Aldhurst Farm site has both palaeoenvironmental and archaeological potential.

4.5.2 British Geological Survey (BGS) mapping shows that the area of the site proposed for wetland habitat creation is underlain by a narrow east-west orientated outcrop of peat. This was confirmed by a series of boreholes taken by Royal Haskoning in 2011. These revealed a sequence of sand and gr avel deposits, overlain by peat and/or silty sandy clay and indic ated that the peat is well distributed across the area (being present in 27 of the 42 borehole locations and up to 1.6m in thickness).

4.5.3 The peat is of palaeoenv ironmental and potentially ar chaeological interest, since such organic-rich sediments have high poten tial to provide a detailed rec onstruction

of past environments (including evidence of human activity) through the assessment/analysis of palaeoecological remains (e.g. pollen, plant macrofossils and insects) and radiocarbon dating.

4.5.4 An extensive surface scatter of heavily burnt flints (MSF 26807), found adjacent to a small stream within the wetland habitat creation area in 2007, could represent the remains of a Bronze Age burn mound. Two Mesolithic maceheads (MSF 806) were discovered in a clay pit, and two Middle to Late Bronze Age cinerary urns (MSF2343) were discovered during excavations for a gas main in Carr Road within the site, to the south of the wetland habitat creation area. An extensive series of undated linear cropmarks (MSF 4001) has been identified from aerial photographs of the southern part of the site.

4.5.5 Surface scatters of Prehistoric worked flint have been found approximately 500-600m north of the proposed site (MSF 21565 and MSF 21563, respectively). A number of undated cropmarks are recorded in the fields to the north of the site. These include a possible causewayed enclosure, measuring c. 30m in diameter (MSF 21567), which has been tentatively assigned a Bronze Age date, and a concentric ring ditch, measuring c. 30m in diameter.

4.5.6 There is no confirmed evidence of Iron Age activity within the site. Pottery sherds of possible Roman date (MSF 11523, MSF 11524, MSF 12096) have been discovered within the site, to the north of the wetland habitat creation area. Two bronze 1st century Roman Sestertii coins (MSF 11527) were found in an area washed by storm water from drain pipes, c. 100m west of the proposed site, whilst a Roman brooch was discovered c. 200m west (MSF 11526). Roman settlements are usually readily apparent to geophysical survey and aerial photography, and are frequently visible as discernible surface scatters of artefactual material in arable land. The minimal evidence for activity during the Roman period from the site, and immediately surrounding area, may reflect a genuine absence of past activity.

4.5.7 A surface scatter of medieval artefacts (MSF 11523) including pottery, building material, an iron knife and a lead musket ball, much of which was burnt, was discovered on the field surface adjacent to the proposed site. Medieval pottery sherds (MSF 11524, MSF 12096, MSF 12097) and eight Henry II pennies (MSF 26809) have been recovered from the surface of the field to the north.

4.5.8 A bridge is shown crossing a small stream on the eastern edge of the wetland habitat creation area on Hodskinson's map (dated c. 1783), although the date of its construction remains unknown, a Post-medieval bridge (MSF 16889), is recorded on the HER.

4.5.9 A number of archaeological watching briefs, within the immediate vicinity of the site, have revealed no archaeological features or finds, including the Sewage Works on Valley Road, (ESF 21927), No. 81 Abbey Road, Leiston (ESF 21279, MSF 29480) and the former coal yard on Carr Avenue, (ESF 21923, AMIE 1367932).

b) Proposed Studies

4.5.10 Although it has been demonstrated that thick horizons of peat are present on the Aldhurst Farm site, the nature of its formation, its age and palaeoenvironmental potential is currently unknown.

4.5.11 It is therefore proposed that a geoarchaeological study of the wetland habitat creation area is carried out ahead of submission of the planning application. The scope of this work has been agreed with Suffolk County Council's Archaeology Service (SCCAS) and will comprise twelve boreholes taken in four transects across the area, from which a deposit model will be created. A further two boreholes will be taken for radiocarbon dating, assessment and analysis (if appropriate) of the archaeobotanical and zooarchaeological remains.

4.5.12 Following this work, a site visit will be held with SCCAS at which the need and scope for further work on the wetland habitat creation area will be discussed. This may include further pre-application field work such as trial trenching.

4.5.13 The impact on archaeology on the land onto which it is proposed to redistribute the excavated material will depend on the plough depth required. If the depth of ploughing is no greater than for the current arable land then there will not be any additional archaeological impacts.

4.5.14 If the plough depth for the acid grassland creation is greater than for the current arable land or if there is a need for topsoil removal for the creation of bunds, trackways or other landscape features then there may be impacts on buried archaeology. In this case, a programme of geophysical survey followed by trial trenching will be undertaken to identify the presence / absence of archaeology and characterise any remains.

4.5.15 Following the pre- application fieldwork, appropriate mitigation will be proposed if required. The scope of any fieldwork and subsequent mitigation will be agreed in advance with SCCAS.

c) Planning Application Documentation

4.5.16 It is proposed that a Heritage Statement will be submitted with the planning application. This will be informed by a desk study, the results of the pre-application fieldwork and through consultation with SCCAS and shall describe the archaeological context of the site and immediate environs. The Heritage Statement will assess the potential for archaeological effects resulting from the development and detail any appropriate measures of additional investigation, mitigation and protection to be undertaken.

4.5.17 A Written Scheme of Investigation (WSI) will also accompany the planning application. This will describe the approach to mitigation for any areas where significant physical disturbance to the Site could occur. The scope of the WSI and any related mitigation measures will be agreed in consultation with SCCAS.

5. OTHER PERMITS, LICENCES AND CONSENTS

5.1.1 The Scheme will require the following permits, licences and consents:

- Retention of an abstraction licence for groundwater (currently for spray irrigation) from the Environment Agency. The licence would relate to decommissioning of existing boreholes and pumphouse and the creation of a new abstraction facility, for 'stream support', created elsewhere within the Site (location to be determined);
- Land Drainage Consent from Suffolk County Council and/or the Internal Drainage Board for works that may affect the flow in ordinary watercourses within the Site;
- Discharge Permit from the Environment Agency to allow for discharge of surface water run-off or groundwater from dewatering into the existing watercourses; and
- A Water Transfer License, together with an Impoundment License, the impoundment of flow and the transfer of water from one source into the same source at a different location.

5.1.2 In addition, dewatering carried out during construction may require an abstraction license. This would not be required under current legislation, but may be required in the future subject to the Environment Agency's reform of abstraction regulations.

6. PLANNING APPLICATION INFORMATION

6.1.1 The planning application will be supported by a number of documents which will provide details on the Scheme design, environmental information and proposed management measures; these documents are detailed in Table 4 below.

Table 4 : Environmental Information

Document	Description
'Wet Reedbed & Lowland Ditch' Habitat Design Statement	This document will describe the detailed design and functionality of the wet reedbed and lowland ditch habitat to be created.
Design and Access Statement	The DAS will describe the underpinning design principles and the process undertaken in the development of the Scheme design, and design of the wetland habitat and wider landscaping.
Ecology and Landscape Management Plan	This document will detail the short, medium and long-term ecological and landscape management measures to be adopted.
Construction Management Strategy	This document will set out the construction methods, and specific requirements to manage environmental risks and to protect downstream receptors during construction, including any control measures to prevent erosion and protect water quality.
Materials Management Plan	This document will set out how the excavated materials would be managed in accordance with the CL:AIRE Code of Practice.
Ecological Appraisal	This document will provide a biodiversity evaluation and impact assessment of potential effects during construction and management.
Landscape Appraisal	This document will provide a landscape evaluation and appraisal of potential effects during construction and management.
Tree and Hedgerow Assessment	This document will describe the results of the tree survey, identify any trees for retention and removal, and set out the direct and indirect effects the Scheme would have, giving justification for removal and mitigation measures (if required).
Contamination Risk Assessment	This document will determine any existing contaminated land risk and detail how these risks would be managed. The assessment will inform the Construction Management Strategy.
Heritage Statement and a Written Scheme of Investigation (WSI)	This document will detail the results of the desk study, pre-application fieldwork, describe the archaeological context, and assess the potential for archaeological effects detailing any appropriate measures of additional investigation, mitigation and protection to be undertaken. A Written Scheme of Investigation (WSI) will describe the approach to mitigation for any areas where significant physical disturbance could occur, which will be agreed in consultation with SCCAS.
Flood Risk Assessment	This document will assess the risk of flooding from all sources and evaluate the impact of the Scheme on flood risk elsewhere. It will also demonstrate that the Scheme is compatible with the level of flood risk and can proceed safely in flood risk terms.
Water Framework Directive Assessment	This document will demonstrate that the Scheme would not lead to deterioration in the ecological status of waterbodies on or near the site.

Document	Description
'Shadow' Habitats Regulations Assessment Screening Report	This document will provide information to inform an appropriate assessment on the potential for the Scheme to effect Natura 2000 sites in the area, for example the Minsmere to Walberswick Heaths and Marshes SAC, SPA and Ramsar site.

7. CONCLUSION

7.1.1 EDF Energy has undertaken a 'shadow' screening exercise in accordance with the EIA Regulations. EDF Energy considers that the Scheme is not Schedule 1 development but is potentially Schedule 2 development. The Scheme has therefore been appraised in line with the requirements of Schedule 3 of the EIA Regulations to determine whether it is likely to have any significant environmental effect.

7.1.2 EDF Energy has consulted with key environmental stakeholders from an early stage of the of design development process. In doing so, there is agreement that the Scheme can be developed without compromising water supplies to downstream users and habitats, notably Sizewell Marshes SSSI.

7.1.3 In summary, the Scheme would not give rise to any likely significant adverse environmental effects. It is considered that it would result in a positive change to an area which is predominantly arable farm land of limited biodiversity value, into a mix of habitats that would support rare wetland vascular plant and invertebrate assemblages, as well as a variety of other species. The proposals will also result in enhancement of the landscape character of the area. It is therefore concluded that an EIA and Environmental Statement is not required in support of the planning application for the proposed Aldhurst Farm Habitat Creation Scheme.

FIGURES

643000 644000 645000 646000 647000 648000

266000 265000 264000 263000 262000

THEBERTON CP

LEISTON CP

Theberton

LEISTON

Eastbridge

Minsmere Bird Reserve

Minsmere Level

Dunwich Forest

The Walks

Sizewell

Power Station

N W E S

INTERNAL BUSINESS COLLABORATOR REFERENCE
NOT APPLICABLE FOR ALL FIGURES

NOTES:

KEY

- ALDHURST FARM PROPOSED APPLICATION SITE
- WETLAND HABITAT
- SIZEWELL MARSHES SSSI

REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION/COMMENTS	APPROVED

DOCUMENT:

ALDHURST FARM HABITAT CREATION SCHEME
EIA SCREENING REPORT

DRAWING TITLE:

SITE LOCATION

DRAWING NO: FIGURE 1
REVISION: 1.0
DATE: AUG 2014
DRAWN: C.L
SCALE: 1:20000@A3

SCALE BAR

DRAWING SECURITY CLASSIFICATION:

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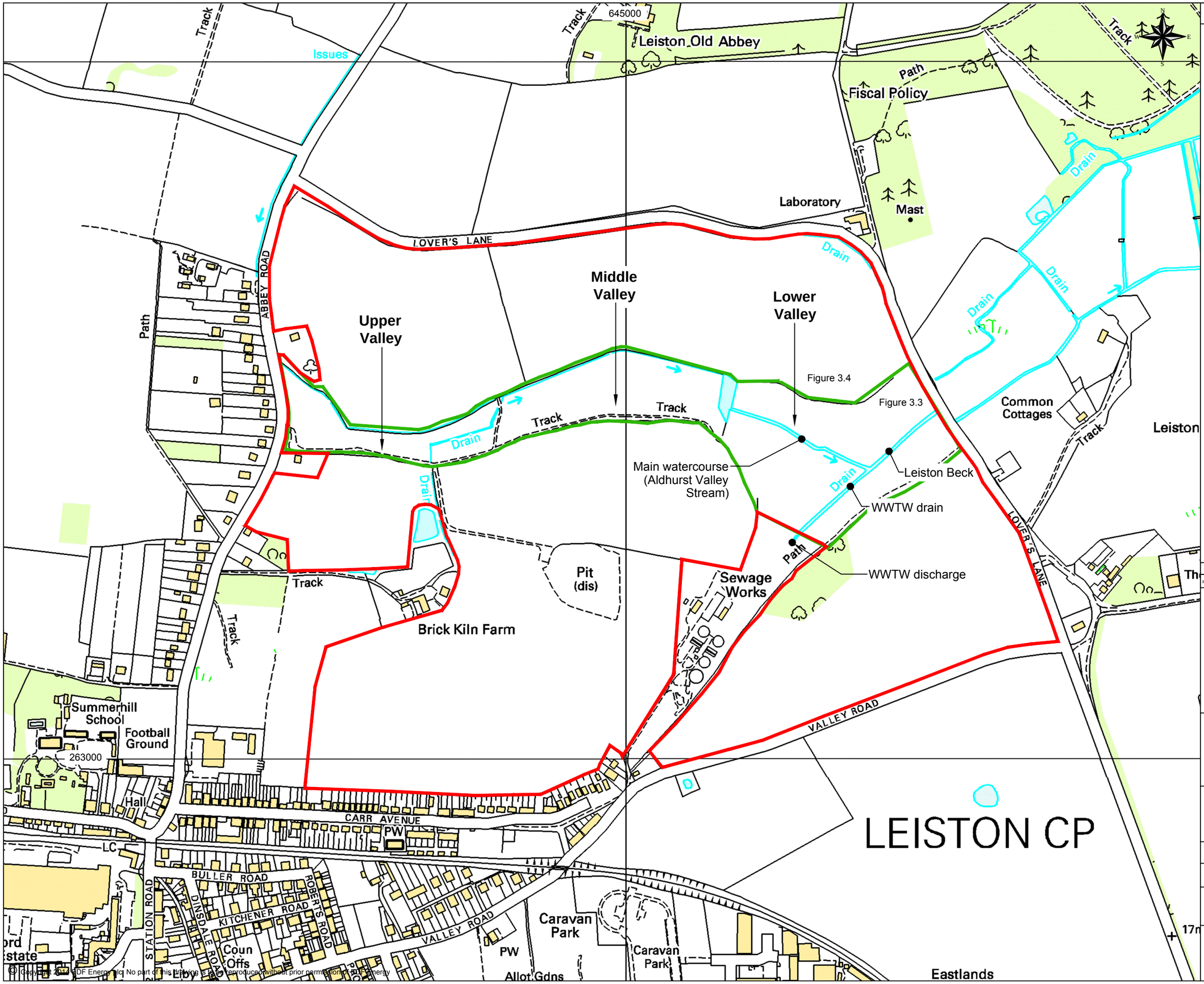
☒ NOT PROTECTIVELY MARKED



INTERNAL BUSINESS COLLABORATOR REFERENCE
NOT APPLICABLE FOR ALL FIGURES

NOTES:

KEY

- ALDHURST FARM PROPOSED APPLICATION SITE
- WETLAND HABITAT

REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION/COMMENTS	APPROVED

DOCUMENT:

ALDHURST FARM HABITAT CREATION SCHEME
EIA SCREENING REPORT

DRAWING TITLE:

SITE PLAN

DRAWING NO: FIGURE 2
REVISION: 1.0
DATE: AUG 2014
DRAWN: C.L
SCALE: 1:5000@A3

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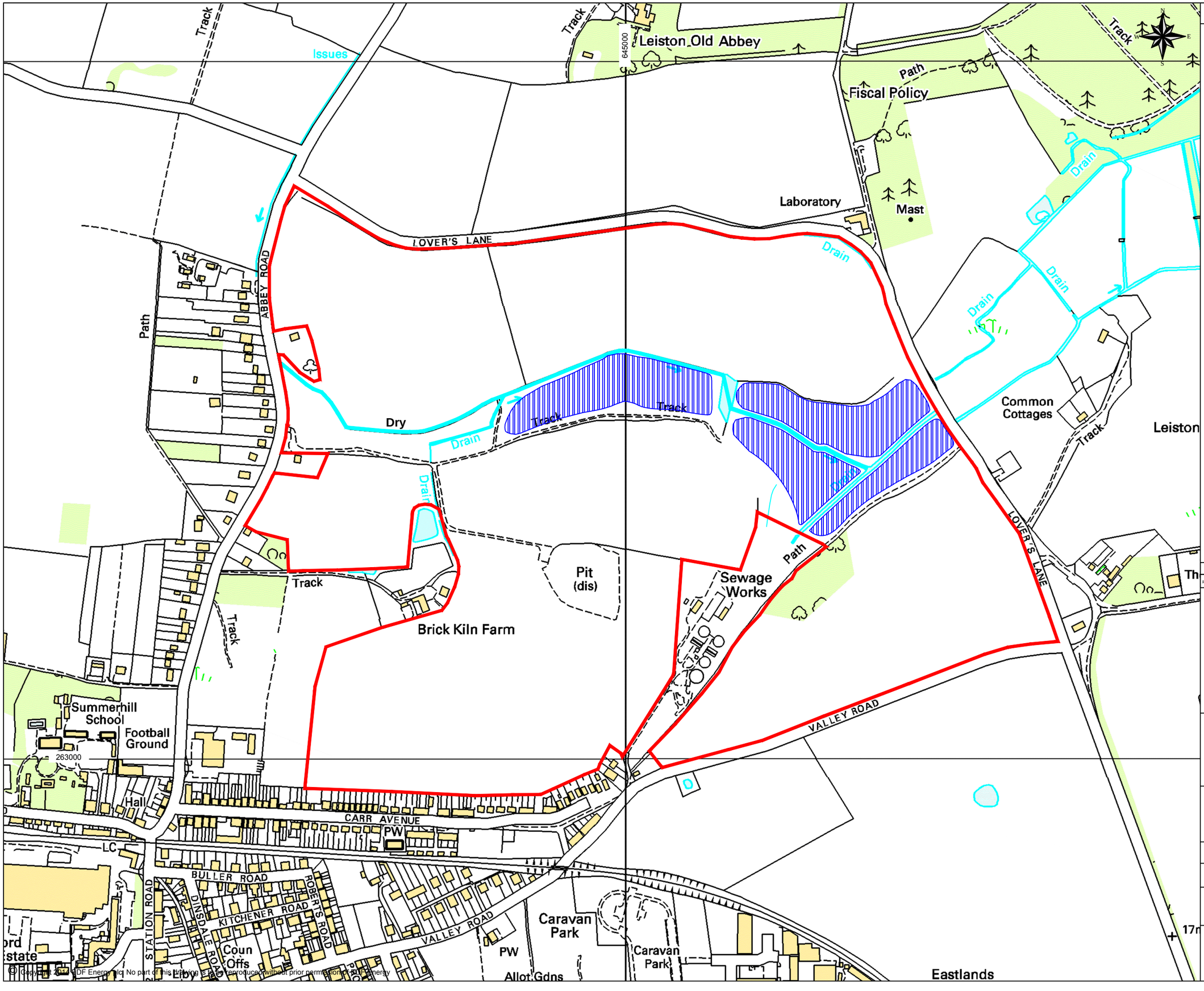

INTERNAL BUSINESS COLLABORATOR REFERENCE
NOT APPLICABLE FOR ALL FIGURES

NOTES:

KEY

- ALDHURST FARM PROPOSED APPLICATION SITE
- WATERCOURSE
- GROUNDWATER BASIN - REED BED HABITAT

REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION/COMMENTS	APPROVED

DOCUMENT:

ALDHURST FARM HABITAT CREATION SCHEME
EIA SCREENING REPORT

DRAWING TITLE:

WETLAND HABITAT

DRAWING NO: FIGURE 3
REVISION: 1.0
DATE: AUG 2014
DRAWN: C.L
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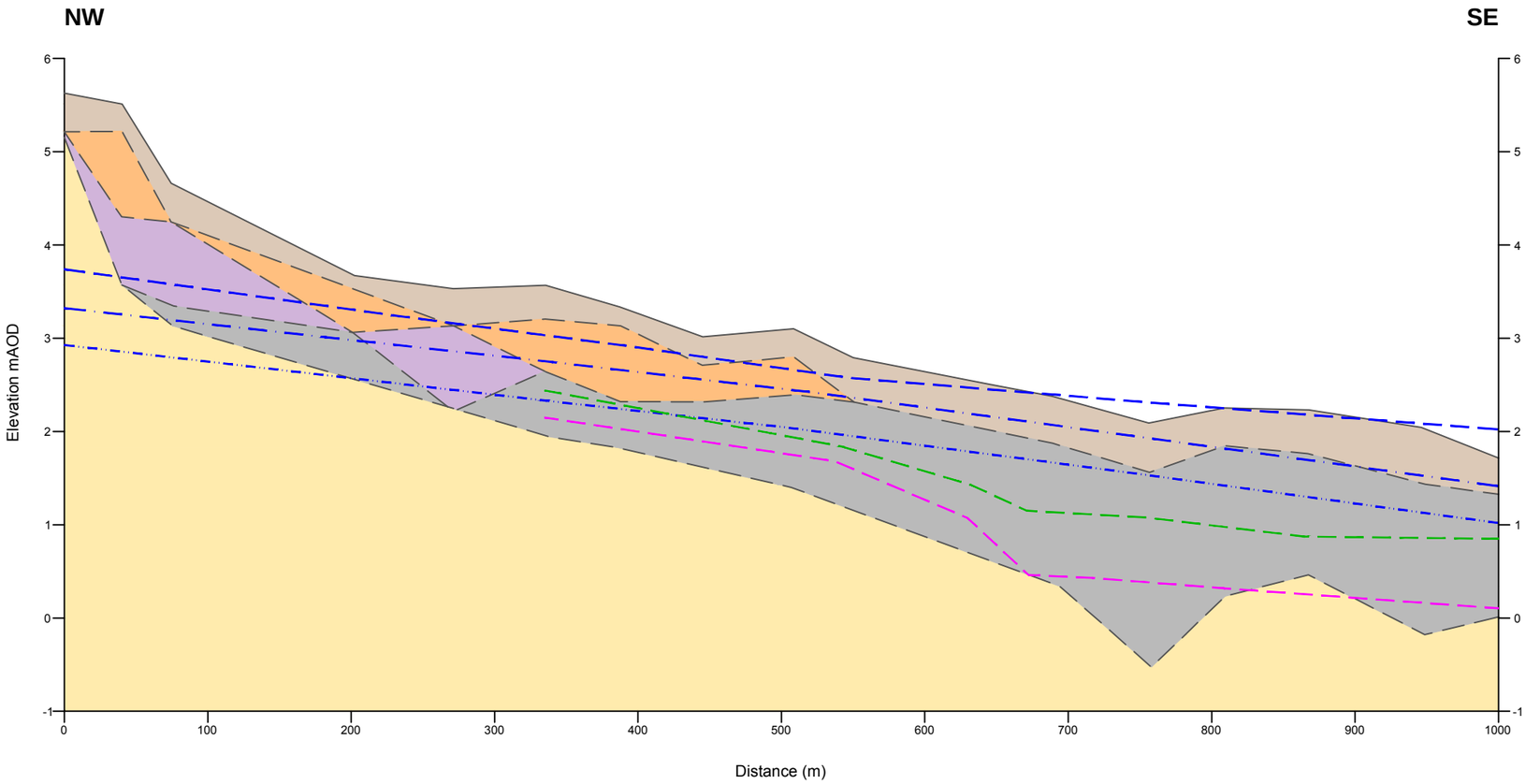

NOTES:

KEY

- TOPSOIL
- SAND
- CLAY
- PEAT
- SAND AND GRAVELS
- HIGH GROUNDWATER LEVEL (2010-2011)
- LOW GROUNDWATER LEVEL (2010-2011)
- LOW GROUNDWATER LEVEL (1997 FULLY LICENSED)
- DITCH WATER LEVEL
- BASE OF DITCH

REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION/COMMENTS	APPROVED

INTERNAL BUSINESS COLLABORATOR REFERENCE
NOT APPLICABLE FOR ALL FIGURES

DOCUMENT:

ALDHURST FARM HABITAT CREATION SCHEME
EIA SCREENING REPORT

DRAWING TITLE:

SCHEMATIC GEOLOGICAL SECTION ALONG ALDHURST VALLEY

DRAWING NO: FIGURE 4
REVISION: 1.0

DATE: AUG 2014
DRAWN: C.L
SCALE: 1:4000@A3

SCALE BAR

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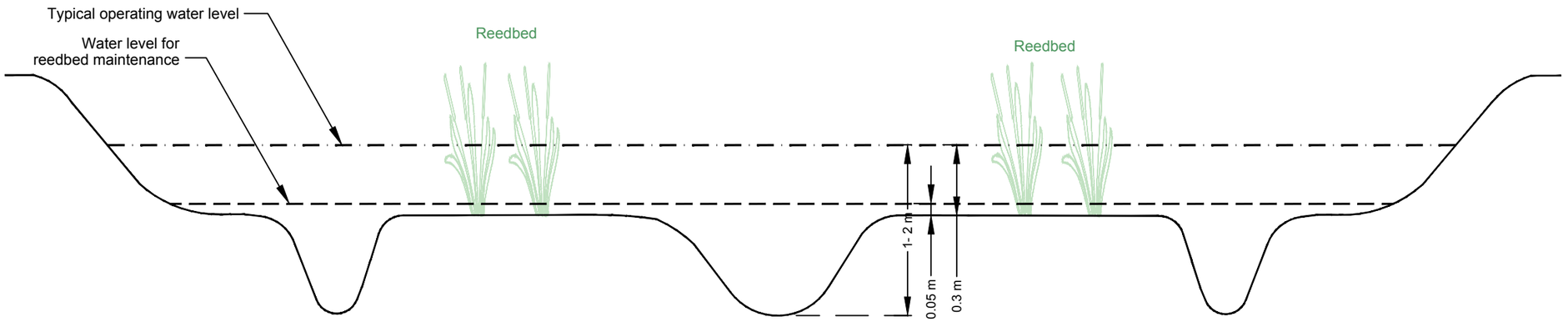

INTERNAL BUSINESS COLLABORATOR REFERENCE
NOT APPLICABLE FOR ALL FIGURES

NOTES:

REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION/COMMENTS	APPROVED

DOCUMENT:

ALDHURST FARM HABITAT
CREATION SCHEME
EIA SCREENING REPORT

DRAWING TITLE:

SCHEMATIC SECTION ACROSS BASINS

DRAWING NO: FIGURE 5
REVISION: 1.0

DATE: AUG 2014
DRAWN: C.L
SCALE: NTS

SCALE BAR

DRAWING SECURITY CLASSIFICATION:

☐ PROTECTIVE MARKING REQUIRED
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