



SCOTTISHPOWER
RENEWABLES

East Anglia ONE North and East Anglia TWO Offshore Windfarms

Ecology Survey Results

May 2021

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Author: Royal HaskoningDHV

Applicable to East Anglia ONE North and East Anglia TWO



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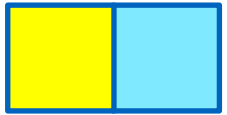
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Glossary of Acronyms

Cenv	Chartered Environmentalist
CGEOG	Chartered Geographer
CIEEM	Chartered Institute of Ecology and Environmental Management
CIWEM	Chartered Institute of Water and Environmental Management
CWEM	Chartered Water and Environmental Manager
DCO	Development Consent Order
EP1HS	Extended Phase 1 Habitat Survey
ExA	Examination Authority
FLS	Fellow of the Linnean Society
JNCC	Joint Nature Conservation Committee
PD	Procedural Decision
RGS	Royal Geographic Society



Glossary of Terminology

East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.



1 Introduction

1. This survey report has been prepared by East Anglia TWO Limited and East Anglia ONE North Limited (the Applicants) to clarify aspects of the East Anglia TWO project and the East Anglia ONE North project (the Projects) Development Consent Order (DCO) applications (the Applications).
2. This document is applicable to both the East Anglia ONE North and East Anglia TWO DCO applications, and therefore is endorsed with the yellow and blue icon used to identify materially identical documentation in accordance with the Examining Authority's (ExA's) procedural decisions on document management of 23rd December 2019 (PD-004). Whilst this document has been submitted to both Examinations, if it is read for one project submission there is no need to read it for the other project submission.

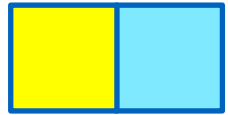
1.1 Purpose

3. This survey report presents the findings of an ecological walkover survey undertaken on Friday 28th May 2021. The relevant Work No. for the location subject to the survey is Work No. 19, which comprises the areas east and west of the Hundred River.
4. The aim of the survey was to verify, or update where required, the findings of the **Extended Phase 1 Habitat Survey** (APP-503 to APP-504) and **Ecology Survey Results February 2021** (REP6-035), particularly regarding the classification of habitats within Work No. 19, including the area of woodland and grazing pasture adjacent to the proposed Hundred River crossing location. The survey also included an updated assessment of suitable habitat for water vole *Arvicola amphibious*, otter *Lutra lutra* and hairy dragonfly *Brachytron pratense* within the Order limits at the location of the Hundred River crossing.
5. The target notes recorded, and corresponding photographs taken, during the survey are presented in **Table 1** within **Appendix A**. These should be read in conjunction with **Figure 1** in **Appendix B**. All areas subject to the survey are shown on **Figure 1** provided in **Appendix B**, denoted by the black dashed line and associated 'target note' references.
6. This report has been written in line with the guidelines as set out in the Chartered Institute of Ecology and Environmental Management's (CIEEM's) Guidelines on Ecological Report Writing (2nd Edition December 2017).



2 Methodology

7. The survey was undertaken on Friday 28th May 2021, by two suitably qualified Royal HaskoningDHV ecologists with over 10 years' combined experience of undertaking a range of terrestrial ecology surveys, including habitat surveys and assessments and species specific surveys (such as but not limited to water vole and otter). For consistency, the surveyors that undertook the survey were the same as those who undertook the survey in February 2021. The surveyors meet the appropriate CIEEM's survey competence requirements. Further details on the surveyors and their qualifications are set out below:
 - Ella Moseley, BSc (Hons), Full Member of the Chartered Institute of Water and Environmental Management (CIWEM), Chartered Water and Environmental Manager (CWEM), Chartered Environmentalist (CEnv), Fellow of the Royal Geographical Society (RGS), Chartered Geographer (CGEOG) and Fellow of the Linnean Society (FLS); and
 - Charlotte Clements, BSc (Hons), Associate Member of the CIEEM.
8. The survey was undertaken in accordance with the 'Extended Phase 1' methodology as set out in Guidelines for Baseline Ecological Assessment (Institute of Environmental Assessment, 1995) and included searching for suitable habitat for water voles, otters and hairy dragonfly within and adjacent to the Hundred River.
9. The survey was undertaken towards the end of May 2021, which is within the industry accepted survey window for undertaking Extended Phase 1 Habitat Surveys (EP1HSs).



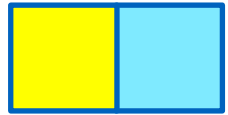
3 Survey Results

11. The survey focussed on the areas east and west of the Hundred River (as denoted by the black dotted line on **Figure 1, Appendix B**) and recorded the same habitats as those previously presented within the **Ecology Survey Results February 2021** (REP6-035). Habitats identified within the survey area comprise the following:

- Semi-natural broad-leaved woodland;
- Running water;
- Poor semi-improved grassland; and,
- Scattered trees.

3.1.1 Semi-Natural Broadleaved Woodland

12. Within the woodland to the west of the Hundred River, the upper canopy woodland species was noted to comprise of scattered oak *Quercus robur*, cypress *Cupressus spp.*, beech *Fagus sylvatica*, silver birch *Betula pendula* and sycamore *Acer pseudoplatanus*. Common alder *Alnus glutinosa*, red alder *Alnus rubra*, goat willow *Salix caprea* and bay willow *Salix pentandra* were recorded along the banks and adjacent to the Hundred River. Limited middle canopy species were noted consisting primarily of hazel *Corylus avellana* and blackthorn *Prunus spinosa*.
13. Ground vegetation consisted of broad leaf dock *Rumex obtusifolius*, cleavers *Galium aparine*, nettle *Urtica dioica*, teasel *Dipsacus fullonum*, ground ivy *Glechoma hederacea*, bramble *Rubus fruticosus*, ferns and a small patch of reed canary grass *Phalaris arundinacea*. Yorkshire fog *Holcus lanatus*, forget-me-not *Myosotis sylvatica*, horsetail *Equisetum arvense*, pin cushion moss *Leucobryum glaucum* and fern moss *Thuidium spp.* were also recorded.
14. The majority of the woodland consists of scattered trees with large open spaces dominated by ferns and bramble, comfrey *Symphytum officinale*, hybrid bluebell *Hyacinthoides x massartiana*, nettle *Urtica dioica*, perennial ryegrass grass *Lolium perenne*, cleavers, red campion *Silene dioica* and scattered flag iris *Iris pseudacorus*. Alder and willow were recorded along the edge of the Hundred River, where the topography of the woodland is relatively flat with low gradient banks alluding to some waterlogging should the river overtop, with the gradient rising upwards towards the Aldeburgh Road (B1122).
15. The alder present along the banks of the Hundred River were all noted as being mature trees and concentrated within their usual habitat (i.e. along the water's

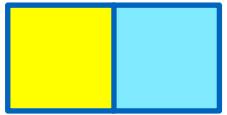


edge). Typically, within a wet woodland (or 'alder carr'), the alder is present in more dense thickets of young trees. Furthermore, particular key species are associated with wet woodlands, including golden saxifrage *Chrysosplenium oppositifolium*, marsh marigold *Caltha palustris*, common reed *Phragmites australis* and purple moor grass *Molinia caerulea*. None of these species were recorded during the May survey.

16. This habitat therefore remains to be classified as a **semi-natural broad-leaved woodland**, in accordance with the Joint Nature Conservation Committee (JNCC) habitat guidance.

3.1.2 Running Water

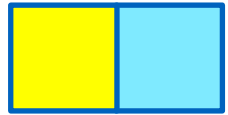
17. The Hundred River flows through the Projects' Order limits, with a varying width of between 2 to 5m (approximately). The east bank consists of steep, earthy banks with limited vegetation and low species diversity. The west bank consists of low gradient earthy banks with alder sporadically growing along the edge.
18. Both banks of the Hundred River were fully surveyed within the Projects' Order limits at the time of the survey for their suitability for and/or evidence of water voles. No signs of water vole were recorded (i.e. burrows). The banks of the Hundred River were assessed as providing sub-optimal habitat for water vole due to the low gradient of the west bank and the consistency of the substrate (i.e. soft material) of the east bank. These characteristics do not provide the structural viability for water voles to burrow into the banks. Furthermore, there are limited food sources within the proposed Hundred River crossing location and a lack of emergent vegetation for cover from predators.
19. The Hundred River corridor was also surveyed for the presence of and suitability for otters. No signs of otter activity were observed during the May survey (i.e. spraints, holts or couches), which suggests the habitat is less favourable for otter other than potentially for commuting along the Hundred River.
20. The Hundred River and its associated riparian habitats were also surveyed for potential to support hairy dragonfly. The habitat requirements for this species consist of clean and still water with lots of emergent vegetation including common clubrush *Schoenoplectus lacustris*, fen sedge *Cladium mariscus* and true bulrush *Scirpus Lacustris*.
21. The hairy dragonfly also requires open sunny areas with dense vegetation for protection and are susceptible to poor water conditions. Their preferred habitat usually consists of ditches within grazing marsh, neither of which are present. With flowing water, and bankside vegetation noted during the May survey as having limited species diversity, the habitats present within and along and the



Hundred River are not considered optimal for hairy dragonfly and as such it is unlikely to be present.

3.1.3 Poor Semi-Improved Grassland

22. The area of grassland on the east bank of the Hundred River was recorded as being poor semi-improved grassland. This habitat classification is in accordance with JNCC habitat guidance (as stated within **Section 2**). The key species recorded comprise but are not limited to perennial rye grass and Yorkshire fog. Sward height varied across the survey area with no ditches, wet grassland or depressions. The location does not provide suitable habitat for hairy dragonfly.

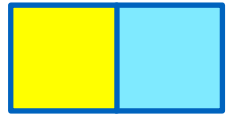


4 Conclusion

23. An ecological walkover survey of the Hundred River and adjacent habitats within Work No. 19 was undertaken by two suitably qualified ecologists from Royal HaskoningDHV on Friday 28th May 2021.
24. The survey was undertaken following representations received from Interested Parties during the Examinations with the specific aim of re-evaluating the habitat classification of the area of woodland and grazing pasture adjacent to the location of the Hundred River crossing. This survey also included an updated assessment of suitable habitat for water vole, otter and hairy dragonfly at the east and west of the proposed river crossing location.
25. The ecologists identified and assessed the habitats present within the Order limits of Work No. 19 as **semi-natural broadleaved woodland** (to the west of the Hundred River), running water (the Hundred River) and **poor semi-improved grassland** (to the east of the Hundred River), in line with what was determined and reported within the **Extended Phase 1 Habitat Survey** undertaken in 2018 (APP-503 to APP-504), and during the site visit undertaken in February 2021 (REP6-035).
26. The willow and alder present along the banks of the Hundred River were all noted as being mature trees and concentrated within their usual habitat (i.e. along the water's edge). Typically, within a wet woodland (or 'alder carr'), the alder is present in more dense thickets of young trees. Ground conditions underfoot were dry, and no wet areas were visible which would be typical of wet woodland.
27. Furthermore, the particular key species associated with wet woodlands, including golden saxifrage *Chrysosplenium oppositifolium*, marsh marigold *Caltha palustris*, common reed *Phragmites australis* and purple moor grass *Molinia caerulea*, were not found during the survey. This habitat therefore remains to be classified as a semi-natural broad-leaved woodland, in accordance with the JNCC habitat guidance.
28. The riparian habitats associated with the Hundred River were also assessed for their suitability to support water vole, otter and hairy dragonfly. No signs of water vole presence were recorded (i.e. burrows) and the habitats present were assessed as sub-optimal for water vole due to a lack of species diversity and food source as well as inadequate substrate and gradient for burrowing. No additional signs of water vole presence were recorded during the survey.
29. No signs of otter were observed during the survey (i.e. holts, couches or spraints); however, it is acknowledged that otter could potentially use the river for commuting purposes.



30. The habitats associated with the River Hundred and adjacent grassland were again assessed as providing sub-optimal conditions for hairy dragonfly, which are therefore unlikely to be present.



5 References

Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing, 2nd Edition, December 2017).

Institute of Environmental Assessment (1995). Joint Nature Conservation Committee, (2010) Handbook for Phase 1 habitat survey: A technique for environmental audit.

Natural England (2014). Standing advice for local planning authorities who need to assess the impacts of development on invertebrates. Published 9 October 2014, last updated 10 August 2015.

Natural England (2014). Standing advice for local planning authorities to assess the impacts of development on otters. Published 6 October 2014, last updated 5 April 2019 (accessed: September 2019).

Natural England (2015). Standing advice for local planning authorities who need to assess the impacts of development on water voles. Published 9 October 2014, last updated 28 March 2015.

Strachan, R., Moorhouse, T., and Gelling, M (2011). Water Vole Conservation Handbook, 3rd Edition. Wildlife Conservation Unit, University of Oxford.




Appendix A – Target Notes



31. **Table 1** presents the target notes and photographs that were taken during the May survey and should be read in conjunction with **Figure 1** presented in **Appendix B**.




Table 1 Target Notes and Photographs Recorded During the May 2021 Survey

Target Note Number	Description	Photographs
1	Grassland meadow with long and short sward grass, no ditches, wet grassland or depressions. Unsuitable habitat for hairy dragonfly. Survey undertaken during active period and no signs observed.	



Target Note Number	Description	Photographs	
2	No ditches present within grassland meadow, therefore no suitable habitat for hairy dragonfly.		





Target Note Number	Description	Photographs
3	Frog hopper beetles noted in vegetation.	





Target Note Number	Description	Photographs	
4	Large area cleared, consisting of comfrey, hybrid bluebell, nettle, perennial ryegrass grass, cleavers, red campion and scattered flag iris.		



Target Note Number	Description	Photographs	
5	Tree cover and under storey not consistent with those associated with a wet woodland. No wet areas underfoot, or visible. No species such as golden saxifrage or wood horsetail present. Willow and alder present along the banks of the river hundred.		




Target Note Number	Description	Photographs	
6	Area looks to have been burned/cleared since last visit		





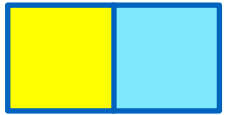
Target Note Number	Description	Photographs
7	Discarded rubbish.	



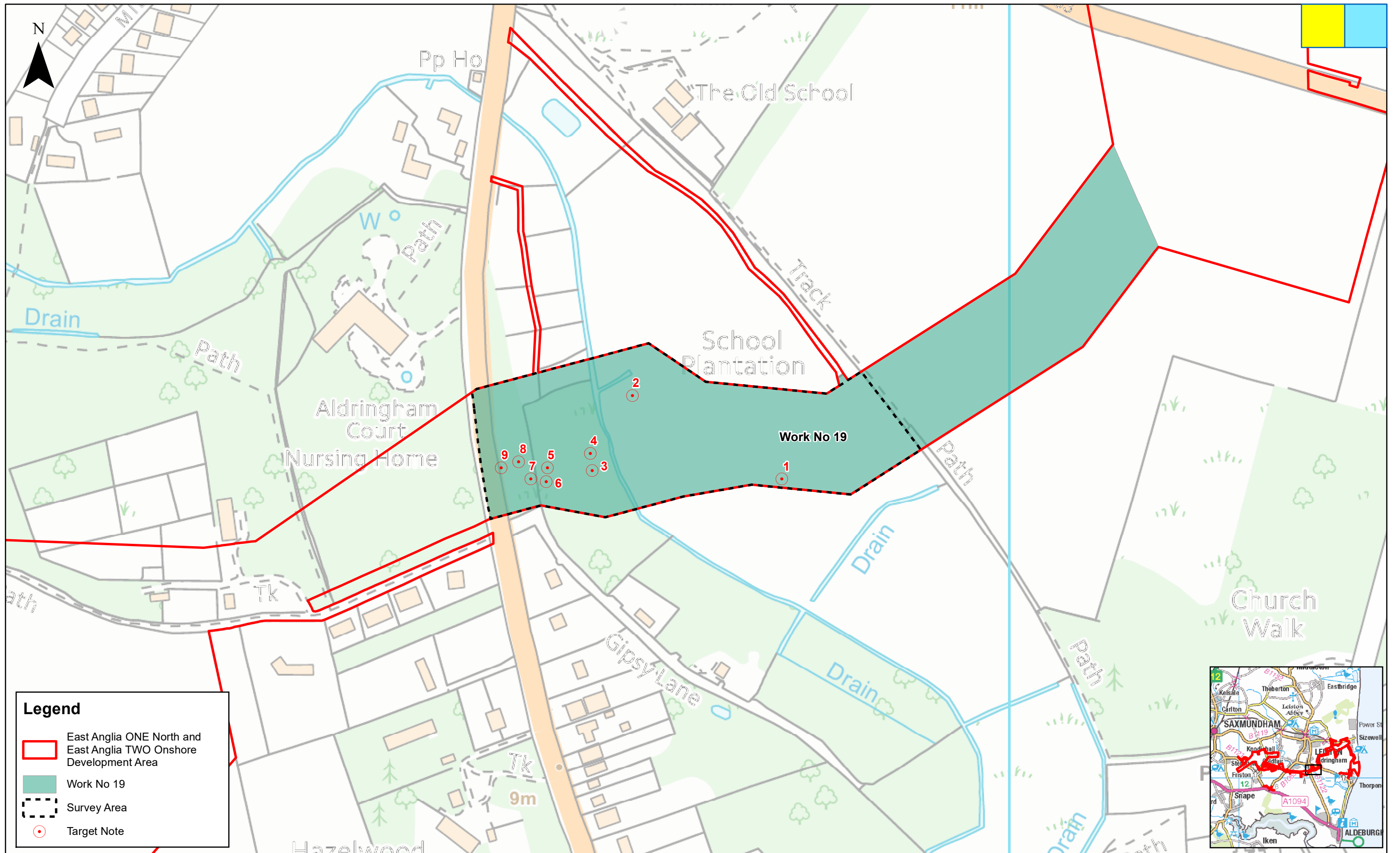
Target Note Number	Description	Photographs
8	Lots of ground ivy present, in flower.	


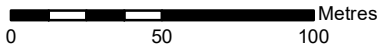


Target Note Number	Description	Photographs	
9	Woodland more overgrown than during last visit, species include nettle, garlic mustard, cleavers, ferns, bramble.		



Appendix B – Figures



				1:2,500 Scale @ A3				East Anglia ONE North and East Anglia TWO Hundred River Updated Ecology Survey - Target Notes		Drg No	EA1N-EA2-DEV-DRG-IBR-001312	
2	07/06/2021	FC	Second Issue.	Prepared:	FC	<small>This map has been produced to the latest known information at the time of issue, and has been produced for your information only. Please consult with the SPR Onshore GIS team to ensure the content is still current before using the information contained on this map. To the fullest extent permitted by law, we accept no responsibility or liability (whether in contract, tort (including negligence) or otherwise in respect of any errors or omissions in the information contained in the map and shall not be liable for any loss, damage or expense caused by such errors or omissions.</small>				Rev	2	Coordinate System: BNG Datum: OSGB36
1	02/06/2021	FC	First Issue.	Checked:	CC					Date	07/06/21	
Rev	Date	By	Comment	Approved:	BD					Figure	1	