



AQUIND Limited

AQUIND INTERCONNECTOR

Environmental Statement – Volume 3 – Appendix 16.5 Aquatic Ecology Scoping Assessment

The Planning Act 2008

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

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EXECUTIVE SUMMARY

This report has been prepared on behalf of AQUIND Limited (the ‘Applicant’) to support an application (the ‘Application’) for a Development Consent Order (‘DCO’). AQUIND Interconnector is a proposed electricity Interconnector between France and the UK. The Application for the DCO is made in respect of the UK elements of AQUIND Interconnector (referred to as the ‘Proposed Development’).

WSP was commissioned by the Applicant to undertake a scoping survey with respect to aquatic ecology.

An aquatic ecology scoping assessment was carried out at the land south of Anmore Road in May 2019 in warm and dry conditions. The survey covered all watercourses within the Survey Area which contains a statutory waterbody, namely the Purbrook Stream. This stream and other associated waterbodies on this Survey Area have the potential to support fish species, individual, or populations of European eel, significant invertebrate assemblages and macrophyte species.

The aquatic ecology scoping assessment determined that the northern section of the Survey Area, which includes Kings Pond, were dry at the time of survey. Observations suggest that this may not represent the character these sections would exhibit at other times of year and, in fact, it is likely that Kings Pond area could be inundated for extended periods of the year. As these areas were dry at the time of surveying, they are not currently considered to support any legally protected species, and as such have not been recommended for further assessment.

Water was recorded in sections 3, 4, 5 and 6 at the time of the walkover assessment. These waterbodies showed characteristic signs such as built infrastructure and in-channel gravel deposition, suggesting that they do, at times, carry significantly more water than was seen during the walkover assessment. However, even exhibiting lower flows than normal, it is considered that these waterbodies do have the potential to support legally protected species such as European eel. As a result, recommendations have been made to conduct further surveys to establish the presence or likely absence of legally protected species in these waterbodies, including fish, eels and aquatic macroinvertebrates.

Outcomes of the proposed surveys will identify the need for avoidance, mitigation, compensation or enhancement measures in relation to the potential effects of the Proposed Development on these features.

1. INTRODUCTION

1.1. BACKGROUND

- 1.1.1.1. This report has been prepared on behalf of AQUIND Limited (the 'Applicant') to support an application (the 'Application') for a Development Consent Order ('DCO'). AQUIND Interconnector is a proposed electricity Interconnector between France and the UK. The Application for the DCO is made in respect of the UK elements of AQUIND Interconnector (referred to as the 'Proposed Development').
- 1.1.1.2. The Proposed Development is described in detail in Chapter 3 (Description of the Proposed Development) of the Environmental Statement ('ES') Volume 1 (document reference 6.1.3).
- 1.1.1.3. Consultation feedback for the Proposed Development has highlighted that a statutory watercourse runs through the section of land shown in the Order Limits indicated in Plate 1 (the 'Study Area'), it has been referred to as the North Purbrook Stream.
- 1.1.1.4. As part of the Development design, High Voltage Direct Current ('HVDC') Cables will be constructed below ground (via trenching and Horizontal Directional Drilling ('HDD')) running south-north and will cross part of the watercourse.
- 1.1.1.5. As a result of the potential for the watercourse to be directly affected by the Proposed Development, an aquatic ecology scoping assessment was conducted in order to assess the watercourse for its potential to support species of conservation importance and make further survey recommendations where required.

1.2. SCOPE OF REPORT

- 1.2.1.1. The Applicant commissioned WSP to complete an aquatic ecology scoping assessment of the Survey Area in May 2019 to undertake an aquatic ecology scoping assessment of land south of Anmore Road to the east of Denmead, approximate central grid reference SU 66606 11477.
- 1.2.1.2. The brief was:
- To provide baseline ecological information about the waterbodies within the Survey Area with reference to the potential for them to support legally protected and/or notable species and to inform recommendations of further survey;
 - To provide recommendations to enable compliance with relevant nature conservation legislation, planning policy; and
 - If necessary, to identify the need for avoidance, mitigation, compensation or enhancement measures.

1.3. RELEVANT LEGISLATION AND POLICY

1.3.1.1.

This assessment has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England.

- The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- Salmon and Freshwater Fisheries Act 1975;
- Countryside Rights of Way Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003;
- The Eels (England and Wales) Regulations 2009;
- Global International Union for Conservation of Nature (IUCN) Red List;
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services (DEFRA, 2011);
- UK Biodiversity Action Plan (UKBAP)¹; and
- The National Planning Policy Framework (NPPF) 2012 (DCLG, 2012);

¹ The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

2. METHODS

2.1. WALKOVER ASSESSMENT

- 2.1.1.1. An aquatic ecology scoping assessment was carried out at the land south of Anmore Road on 31 May 2019 in warm dry conditions with scattered cloud, BF 2-3². The survey covered all watercourses within the Survey Area indicated in Plate 1. In addition, consideration was given to surface water connectivity beyond the Survey Area boundary using digital mapping and on-site observations. The scoping assessment was carried out by an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with over eight years professional consultancy experience.
- 2.1.1.2. A walkover was carried out of all waterbodies, which were described and mapped from a visual inspection. Notes were made in relation to approximate width and depth, dominant in-channel and bank vegetation as well as any other notable characteristics of the waterbody or channel structure.
- 2.1.1.3. A list of dominant plant species was compiled and is listed within the waterbody section descriptions. The scientific names for plant species follow those in the New Flora of the British Isles (Stace, 2010).
- 2.1.1.4. Any invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) which were evident during the walkover were also noted. Detailed mapping of such species; or a full survey of the Survey Area for all invasive plant species is beyond the scope of this commission.

2.2. NOTES AND LIMITATIONS

2.2.1.1.

Every effort has been made to provide a comprehensive description of the waterbodies; however, the following specific limitations apply to this assessment:

- Ecological survey data is typically valid for two years unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management.
- The walkover assessment was carried out over the period of a single day, as such only a selection of all species that occur within the Survey Area will have been recorded. In particular, the presence of invasive non-native species cannot be confirmed from this assessment.
- 2019 has experienced a particularly dry spring. As a result, a large proportion of the surface water system through the Survey Area was dry, which may have been uncharacteristic for this time of year. Built infrastructure and some in channel vegetation implied that the system frequently carried significantly more water than at the time of assessment.
- Plate 1 has been reproduced from field notes and plans. Whilst this provides a sufficient level of detail to fulfil the requirements of this assessment, this figure is not intended to provide exact locations of key habitats.

² BF stands for Beaufort Scale, an empirical measure of wind speed based on observed conditions on land or at sea.

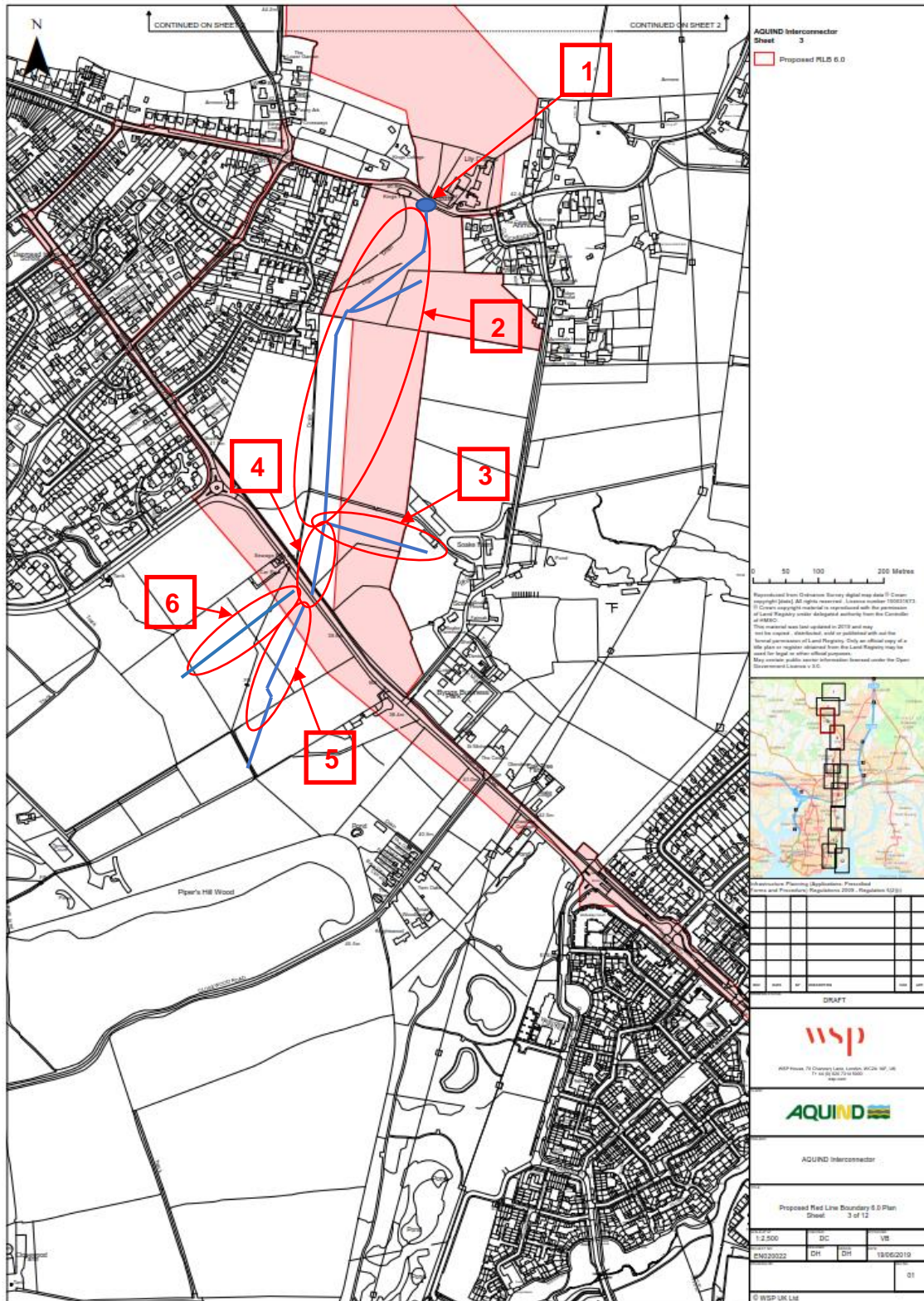


Plate 1 – Proposed Survey Boundary and Survey Sections

3. RESULTS

3.1. OVERVIEW

3.1.1.1. The Survey Area was divided into discrete sections based on observed characteristics during the walkover assessment. These are detailed in Plates labelled 2-7. Each section is described below with photographs intended to be representative of each section.

3.2. SECTION 1 – KINGS POND

3.2.1.1. At the time of the aquatic ecology assessment, Kings Pond was very dry with a deeply cracked bed. Some areas were observed in the middle of the pond where the ground still appeared to be wet, however, no standing water was visible (Plate 2).

3.2.1.2. The pond was bordered by a mix of loosely scattered trees, including ash *Fraxinus excelsior*, willow *Salix* sp. and birch *Betula pendula* of varying ages. The bank vegetation was predominantly a mix of ruderal herbs, dominated by nettle *Urtica dioica*, common thistle *Cirsium vulgare*, rosebay willowherb *Chamaenerion angustifolium*, cow parsley *Anthriscus sylvestris* and cleavers *Galium aparine*.

3.2.1.3. Some emergent vegetation was still present, particularly in the margins and wetter areas of ground within the dry pond bed. Notable species were sedge *Carex* sp., reedmace *Typha latifolia* and yellow iris *Iris pseudacorus*, present as single plants or dotted around in small groups.

3.2.1.4. To the south of the pond was a ground depression before leading into the confines of the start of the linear surface water network. This depression appeared to be the area in which the pond overtopped during periods of greater inundation. This area was dominated by yellow iris, dock *Rumex* sp. and grasses (Plate 3).

3.2.1.5. Anmore Road passes closely around Kings Pond to the North, with a concrete and metal post and rail fence separating the pond from the pedestrian paving. This provides some indication that this is a long-established pond, due to built infrastructure being constructed around it and that on the day of the assessment it may not have represented its predominant ecological character (Plate 2).



Plate 2– Section 1, Kings Pond.



Plate 3 – Section 1, Kings Pond southern bankside depression.

3.3. SECTION 2

Table 1 – Section 2 data

~Width (m)	~Depth (m)	Left bank Dominant Vegetation	Right bank Dominant Vegetation	In-Channel Vegetation
1	Dry	Hawthorn <i>Crataegus monogyna</i> , blackthorn <i>Prunus spinosa</i> , willow, wild dog rose <i>Rosa canina</i> , scattered mature oak <i>Quercus</i> sp.	Grasses, nettle, bramble <i>Rubus fruticosus</i>	Rush <i>Juncus</i> sp., dock, grasses, yellow iris

Comments:

The northern end of this section, past the confluence depicted in Plate 4 below Kings Pond, took the form of a ground depression. The in-channel vegetation was characteristic of terrestrial vegetation, and that of the adjacent land assemblages (Plate 4). Much of it was very overgrown with bramble and there was a short section of culvert beneath this dense vegetation stand (Plate 5).

The depression, south of Kings pond where the pond overtops during periods of greater inundation (Plate 3), as described in section 3.2 above, adjoined the top end of this section.

Further down this section, above the confluence with section 3, the channel was uniform and straight (Plate 6). It had primarily dry gravel substrate, with very few damp areas, save for that near a culverted field boundary crossing, where a clump of iris was observed (Plates 7 & 8).



Plate 4 - Section 2, northern reach



Plate 5– Section 2, northern reach. Short section of culvert.



Plate 6 - Section 2, southern section Plate 7 Section 2, southern section



Plate 8– Section 2, wetted area next to field boundary crossing.

3.4. SECTION 3

Table 2 – Section 3 data

~Width (m)	~Depth (m)	Left bank Dominant Vegetation	Right bank Dominant Vegetation	In-Channel Vegetation
0.6	0.15	Bramble, nettle, wild dog rose, grasses	Blackthorn, hawthorn, wild dog rose	Rush, iris, sedge, water parsnip <i>Sium latifolium</i> , water plantain <i>Alisma plantago-aquaticae</i>
<p>Comments:</p> <p><i>This section was very straight and had a high depth to width ratio (Plates 10 & 11). It was very overgrown in places which made it difficult to view the entirety of the watercourse.</i></p> <p><i>The water clarity was good, and the substrate predominantly appeared to be silt over gravel (Plates 9 & 11).</i></p>				



Plate 9 – Section 3, Lower

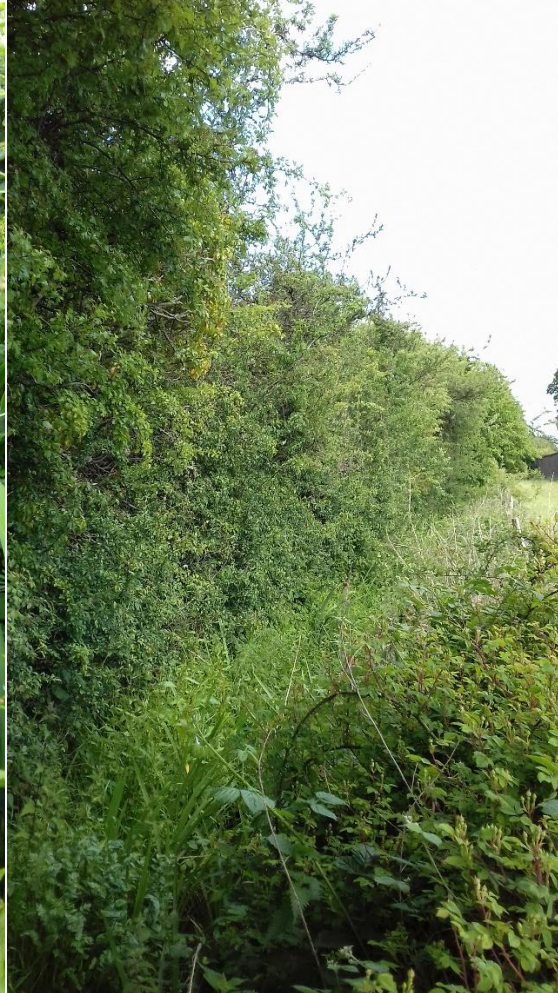


Plate 10 – Section 3, Middle



Plate 11 – Section 3, Upper

3.5. SECTION 4

Table 3 - Section 4 data

~Width (m)	~Depth (m)	Left bank Dominant Vegetation	Right bank Dominant Vegetation	In-Channel Vegetation
1	0.15	Hawthorn, blackthorn, willow, common holly <i>Ilex aquifolium</i> , wild dog rose, scattered mature oak	Bramble, hawthorn, blackthorn, nettles, cleavers, grasses.	Water parsnip

Comments:

Section 4 was very overgrown and over shaded (Plate 12). Due to the dense vegetation, much of this section was inaccessible to view the in-channel features. Predominant substrate appeared to be gravel and silt (Plate 13).

At the confluence between sections 3 and 4 was an exposed gravel point bar with extensive undercutting of the right bank, indicating that this channel experiences much higher flows than were visible on the day of the assessment (Plate 14). Further evidence of this was the culvert design which passed under Hambledon Road (B2150). This was constructed as a double culvert where the inline opening was set lower than the off-channel opening, apparently designed to improve conveyance under the road in high flow conditions (Plate 15).



Plate 12 -- Section 4, overgrown channel.



Plate 13 – Section 4



Plate 14 – Section 4, gravel bar



Plate 15 – Section 4, double culvert

3.6. SECTION 5

Table 4 – Section 5 data.

~Width (m)	~Depth (m)	Left bank Dominant Vegetation	Right bank Dominant Vegetation	In-Channel Vegetation
0.5	0.1	Grasses, oak saplings, gorse <i>Ulex europaeus</i>	Bramble, nettle, gorse, cow parsley, wild dog rose, rosebay willowherb, cleavers	Water parsnip, yellow iris
<p>Comments:</p> <p><i>The top of this section, leading from Hambledon Road, was very overgrown with bramble, making the channel inaccessible in places (Plate 16). The wider Survey Area was well used by dog walkers and there was evidence of this on the banks of the channel with significant poaching in areas (Plates 18 & 21). It was also clear that amenity vegetation management practises were undertaken on this Survey Area (Plate 20).</i></p> <p><i>There was a clear and obvious flow in this section as the watercourse began to widen and take on more riverine characteristics (Plates 17 & 19).</i></p> <p><i>Substrate was silt over gravel (Plate 19).</i></p>				



Plate 16 – Section 5, Overgrown Plate 17 – Section 5, Public crossing Plate 18 – Poaching



Plate 21 – Section 5

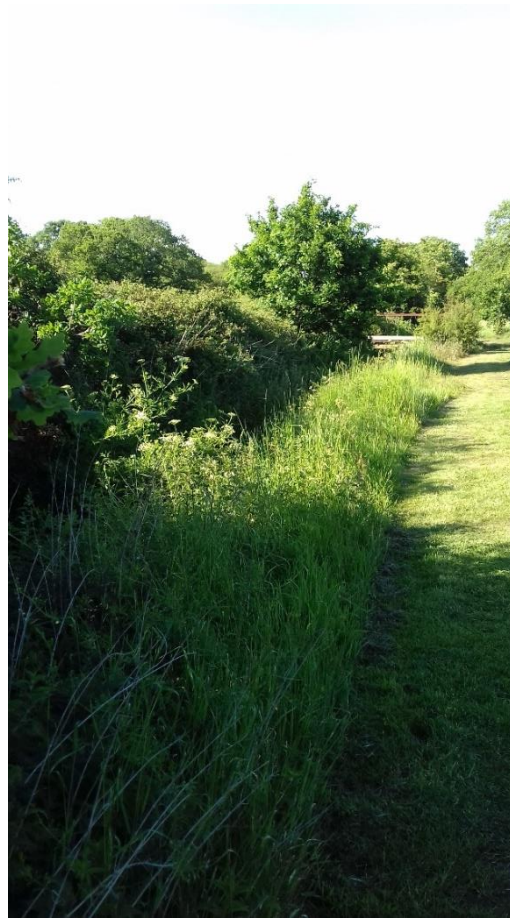


Plate 19 – Section 5, vegetation Management

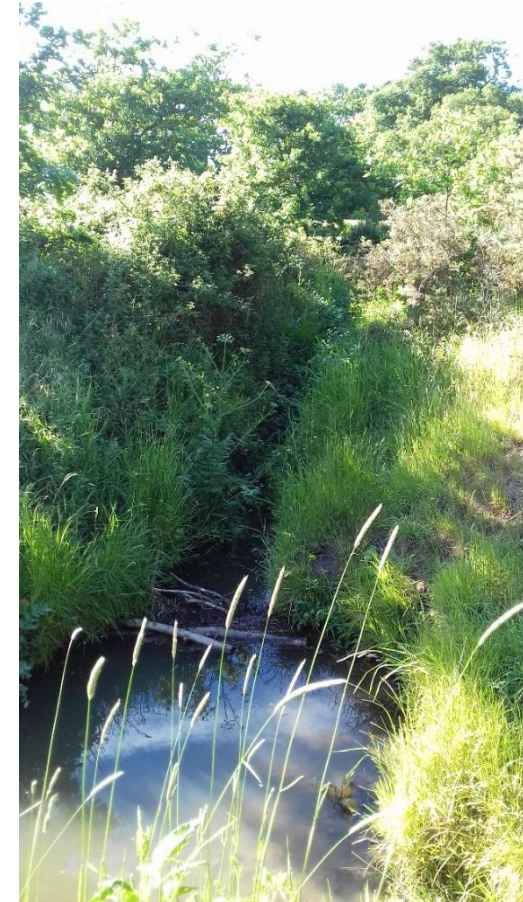


Plate 20 – Section 5, Poaching

3.7. SECTION 6

Table 5 – Section 6 data.

~Width (m)	~Depth (m)	Left bank Dominant Vegetation	Right bank Dominant Vegetation	In-Channel Vegetation
0.5	0.1	Nettles, cleavers, grass, row of mature oak	Grasses, blackthorn	None visible

Comments:

Section 6 emerged from Hambledon Road, moving south through the Survey Area. At the northern end, the water clarity was good (Plate 22 & 23) but the impacts of dog and human poaching appeared to have increased turbidity as the watercourse moved south (Plates 24 & 26).

An overland flow joined this section about half way down, emanating from the direction of section 5 (Plate 25). There was also heavy poaching in the area where this drained into section 6 (Plate 26). Not far below this, the channel had dried up completely (Plate 27).

Visible substrate was predominantly silt.



Plate 22 – Section 6, Upper



Plate 23 – Section 6, Upper



Plate 24 – Section 6, Turbid middle



Plate 25 – Section 6, Overland flow

Plate 26 – Section 6, Poaching

Plate 27 – Section 6, Dry



Plate 28 – Section 6

4. DISCUSSION & RECOMMENDATIONS

4.1.1.1. This section considers the potential for effects on legally protected species, notable species and notable habitats as a consequence of the Proposed Development. Where further surveys or detailed assessment of potential effects are required, in order to design suitable mitigation, this is identified.

4.2. PROTECTED AND NOTABLE SPECIES

4.2.1.1. The Survey Area contains a statutory waterbody, namely the Purbrook Stream. This stream and other associated waterbodies on this Survey Area have the potential to support fish species, individual, or populations of European eel, significant invertebrate assemblages and macrophyte species. It is considered that the potential exists for these species to be affected by the Proposed Development and as such, further survey is recommended to establish the significance of any species population, potential effect pathways and any mitigation required as a result.

4.3. FURTHER SURVEY REQUIREMENTS

4.3.1.1. Potential ecological constraints for which further surveys are required to ensure legal and planning policy compliance are listed below:

4.3.2. FISH SURVEYS

4.3.2.1. It is recommended that an assessment of fish populations is undertaken in representative sections of each of the watercourses to determine the potential presence of European eel and other fish species.

4.3.3. AQUATIC MACROINVERTEBRATE SURVEYS

4.3.3.1. It is recommended that aquatic macroinvertebrate surveys are undertaken in the Purbrook Stream and associated watercourses within the vicinity of the proposed Onshore Cable Corridor route options. Samples would be collected in line with best practice, preserved on-site and returned to our laboratory for analysis to mixed taxon (TL5) level. Ideally, aquatic macroinvertebrate sampling should take place during the spring (March to May inclusive) and autumn (September to November inclusive), however owing to the Proposed Developments timescales, it is only possible to collect a sample during the summer seasonal sampling window.

4.4. CONCLUSION

- 4.4.1.1. The aquatic ecology scoping assessment determined that the northern section of the Survey Area, i.e. sections 1 and 2, which includes Kings Pond, were dry at the time of conducting the walkover assessment. Observations suggest that this may not represent the character these sections would exhibit at other times of year and, in fact, it is likely that Kings Pond and the lower reaches of section 2 could be inundated for extended periods of the year. As sections 1 and 2 were dry at the time of surveying, they are not currently considered to support any legally protected species, and as such have not been recommended for further assessment.
- 4.4.1.2. Water was recorded in sections 3, 4, 5 and 6 at the time of the walkover assessment. Again, these waterbodies showed characteristic signs such as built infrastructure and in-channel gravel deposition, suggesting that they do, at times, carry significantly more water than was seen during the walkover assessment. However, even exhibiting lower flows than normal, it is considered that these waterbodies do have the potential to support legally protected species such as European eel. As a result, recommendations have been made to conduct further surveys to establish the presence or likely absence of legally protected species in these waterbodies, including fish, eels and aquatic macroinvertebrates.
- 4.4.1.3. Outcomes of the proposed surveys will identify the need for avoidance, mitigation, compensation or enhancement measures in relation to the potential effects of the Proposed Development on these receptors.

