Brooks Ecological
Grounded advice

Preliminary Ecological Appraisal
Newark Lock

Report reference: R-3649-01
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Report Title:	Preliminary Ecological Appraisal Newark Lock
Report Reference:	R-3649-01
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Summary Statement

The proposals, as designed, do not present any significant ecological issues.

Minor risks of impacts on protected fauna or the pollution of watercourses can be dealt with through the conditioning of a CEMP (Biodiversity), the proposed contents of which are outlined in this report.

Introduction

1. Brooks Ecological Ltd was commissioned by Derwent Hydroelectric Power Ltd to carry out a Preliminary Ecological Appraisal[1] of a proposed Hydro Electricity (HEP) scheme along at Newark Lock, Newark, Nottinghamshire.

2. The application Site comprises a redundant lock off a navigation stretch of the River Trent, bypassing a weir on the main river. The watercourse is canalised along this stretch, with pedestrian access to both sides.

Site Proposals and Ecological Zone of influence

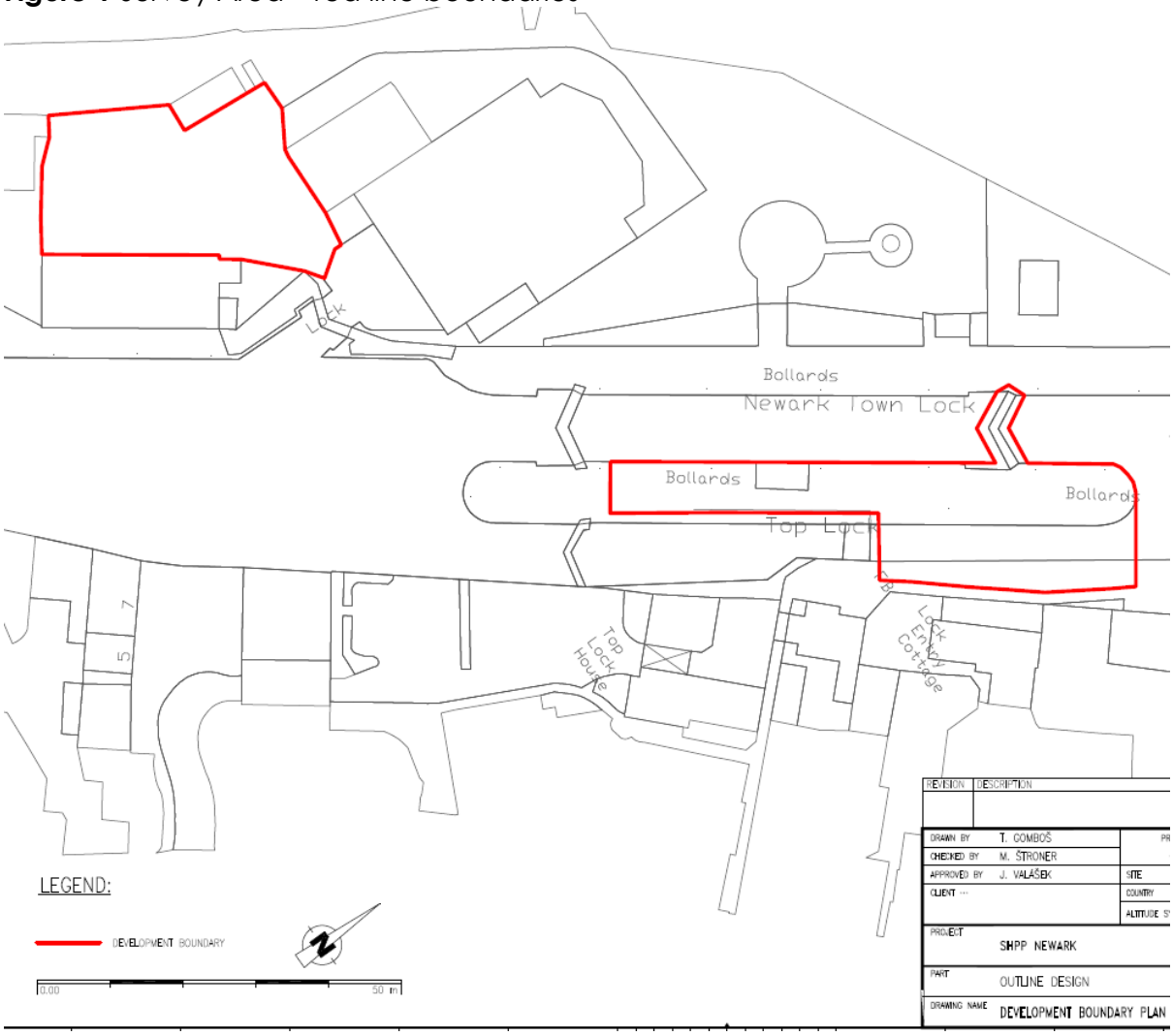
3. Our assessment of impacts is based on the plan illustrated in figure 1 which shows the location of a proposed vertical screw, turbine house and temporary construction site facility.

4. Impacts assessed relate to:

- Site preparation including vegetation and habitat removal both to gain access and to install infrastructure
- Direct effects on significant faunal groups or protected species
- Effects on adjacent habitats or species such as through disturbance and pollution
- Operational effects on wildlife such as noise and light disturbance.

[1] This Report has been prepared during September 2018 following visits to the site in August 2018 and our findings are based on the conditions of the site that were reasonably visible and accessible at that date. We accept no liability for any areas that were covered, unexposed or not reasonably visible or accessible, nor for any subsequent alteration, variation or deviation from the site conditions which affect the conclusions set out in this report.

Figure 1 Survey Area – red line boundaries



Drawing base provided by Client

Extended Phase 1 Habitat Survey

Method

5. The survey was carried out on the 30th August 2018 and is adapted from Phase 1 habitat survey methodology (JNCC, 2010). This involves walking the Site and identifying and describing different habitats. The survey method was "Extended" in that evidence of fauna and faunal habitat was also recorded (for example droppings, tracks or specialist habitat such as ponds for breeding amphibians). This modified approach to the Phase 1 survey is in accordance with the approach

recommended by the Guidelines for Baseline Ecological Assessment (IEA, 1995) and Guidelines for Preliminary Ecological Appraisal (CIEEM 2017).

Results

Redundant Lock

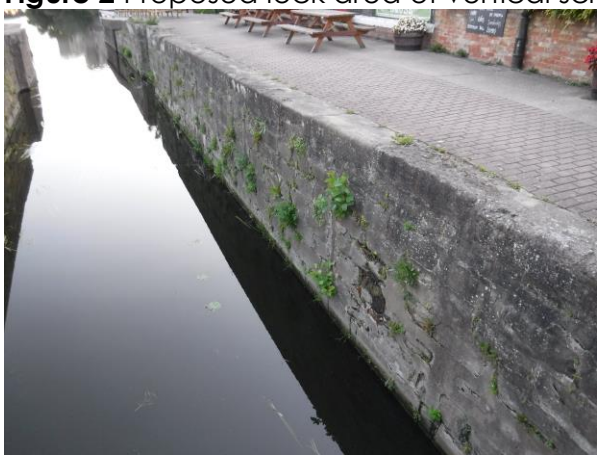
6. The River Trent divides into two sections to the west of Newark. The eastern section has been canalised and further split into two; a working lock to the west and the Site for development to the east. This comprises a redundant lock, with boundaries including commercial development associated with Newark to the east, with pedestrian access around the Site, with the working lock to the west of this.

7. Observable aquatic vegetation in the lock is scarce and limited to duckweed (Lemnoideae sp.), water lily (Nuphar/Nymphaea sp.) and arrowhead (Sagittaria latifolia).

8. Opportunist marginal vegetation has colonised small gaps within the bank wall, these include large stands of trifid bur-marigold (Bidens tripartita), gypsywort (Lycopus europaeus), small willowherbs (Epilobium spp.). Above the water line is found ivy-leaved toadflax (Cymbalaria muralis), smooth sowthistle (Sonchus oleraceus), daisy (Bellis perennis), buddleia (Buddleia davidii), broad-leaved dock (Rumex obtusifolius), common nettle (Urtica dioica), dandelion (Taraxacum vulgaris agg.), and Mexican fleabane (Erigeron karvinskianus). Patches of Yorkshire fog (Holcus lanatus) are seen along the tops of the bank.

9. Activities in this area will include installation of vertical screw and construction of the enclosing building onto the water course. The canalised nature of the banks and high levels of human disturbance makes it unlikely for any protected species to use this section of the waterway, particularly with abundance of higher value riparian corridor to the west. Care will need to be taken to prevent pollution of the water course during these works.

Figure 2 Proposed lock area of vertical screw

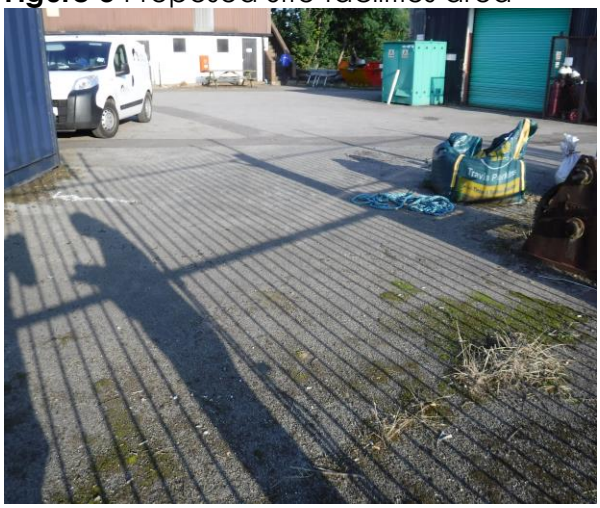


Site Facility Area

10. This comprises hardstanding devoid of significant vegetation. Cracks within the ground support dandelion, small willowherbs and herb robert (Geranium robertianum) along with acrocarpous mosses.

11. Activity here will be temporary throughout development – long term direct impacts on the landscape are not expected. However, care will need to be taken to prevent pollution run off due to the proximity to the river.

Figure 3 Proposed Site facilities area



Desk Study

12. Desk studies look for records of protected or listed wildlife sites and protected or locally important species that could be impacted by development. They can also identify local conservation priorities and when assessed against the baseline established through field survey build a more complete picture of the Site's existing and potential ecological value.

Designated Sites

13. A search has been made to identify any nationally designated sites within a 2km radius of the Site, and for internationally designated sites within a 10km radius. These are detailed below.
Statutory Designations

14. One national statutory site is seen within 2km of the Site; Devon Park Pastures designated as a Local Nature Reserve (LNR) some 0.9km upstream to the south west. This area comprises grassland, marginal river vegetation and deciduous woodland.

15. No impacts are expected to arise as a result of the proposals; the designated site is sufficiently separated from the area subject to alteration, and any indirect impacts would not travel upstream.

16. No international statutory designations are seen within 10km of the Site.

Local Non-statutory Designations

17. There is one relevant local designation to the Site, encompassing part of the Site.

    (i) 5/178: Trent Banks/Wharves, Newark Local Wildlife Site (LWS). This comprises c.6ha of the River Trent, mainly downstream of the Site. The site comprises a mosaic of emergent, ruderal and tall herb communities along the banks of the River Trent. No priority species or habitats are detailed. The LWS continues 1.7km downstream of the Site and 0.25km upstream, encompasses part of the River Trent which comprises the Site. This LWS is not at significant risk from the proposals but any potential impacts to the LWS arising through waterway pollution should be avoided by suitable measures being established prior to construction.

18. Twenty-two other LWS have been returned for within 2km of the Site, however no functional links are seen between these and the Site, and the proposals are of a scale and nature that no impacts are anticipated.

Species Records

19. The local records provider Nottingham Biological and Geological Records Centre has been asked to provide information on protected or notable species and locally designated sites within 2km of the application site. These records have been reviewed and those relevant to the consideration of the proposals have been used to inform the following faunal appraisal.

Faunal Appraisal

Bats

20. Local bat records relate to common and soprano pipistrelle, Daubentons, noctule, brown long-eared, and myotid species – the closest detailing a ground brown long-eared bat 100m east of the Site. The closest roost details common pipistrelle c.500m south west of the Site.

21. The Site provides no suitable roosting habitat.

22. The Site generally provides good foraging habitat for bats, encompassing the river. However, lack of vegetation within the Site and abundance of higher value habitat elsewhere (vegetated banks further up and down stream) indicate the likely absence of any reliance on the Site by local populations for foraging.

23. Although the Site's use as a commuting corridor is likely, the proposals are unlikely to impact upon local bat populations.

Otter

24. Records of otter couches, sightings, tracks and spraints have been returned for within 2km of the Site. The most recent of these relate to tracks and latrines within 250m of the Site, downstream of the River Trent and to the west of the river along the adjacent stretch which splits off further upstream.

25. The Site presents canalised banks not suited to holting and impacts on holts would not be expected from the proposals. The scheme will not affect the movement of fish and will have minimal impacts on flow rates. Other than minimal and temporary impacts associated with noise and visual disturbance during construction, it would not be expected to impact on otters use of the river here.

Water Vole

26. Records of water vole latrines, footprints and have been returned for within 2km of the Site. The closest of these relate to latrines within 250m of the Site along a stream

within Parnham's Island, which sits 200m west of the Site, separating the two parts of the river.

27. The Site canalised banks present very limited habitat for water vole, and presence of higher value habitat in close proximity would indicate the absence of water vole along this stretch of the river, where human disturbance is high and vegetation cover extremely low.

Polecat

28. One record of polecat has been returned from 2014, some 1.3km from the Site. No details are provided on the type of record. The canalised section of the river, where human development and disturbance is high, does not include suitable den habitat for this species - impacts on polecat can reasonably be ruled out.

Badger

29. Local records of badger have been returned for within 2km of the Site detailing two setts from 2017, 2km from the Site. Sightings and signs of badgers are seen from 0.4km away. The Site does not provide suitable habitat for the species which is excluded from potential impacts

Amphibians

30. Records of common frog, common toad, smooth and great crested newt have been returned for within 2km of the Site, the closest being 1km north east from the Site.

31. The closest standing waterbody is found 1km north east downstream of the Site. With the Site being upstream, and amphibians dispersal unlikely to reach over 500m, the risk of direct impacts upon the protected great crested newt, is unlikely.

32. Indirect impact arising through waterway pollution should be avoided by suitable measures being established prior to construction.

Birds

33. The Site provides no suitable nesting habitat for birds, being only a small section of canalised river and hardstanding site facility area.

34. There is little chance of disturbance of important species or assemblages which will breed above and away from the zone of influence of the proposals.

35. Indirect impact arising through waterway pollution should be avoided by suitable measures being established prior to construction.

Reptiles

36. There are records of grass snake locally, the closest some 1km from the Site. Habitats proposed for development provide little breeding or foraging habitat, as such impacts upon the group are unlikely.

Fish

37. The Trent at this location is a lowland river and will support a mixed head of fish, predominantly coarse fish such as chubb, roach, perch and bream. Migratory salmonids are increasing in the Trent and eels, though undergoing serious decline will make use of the Trent. However, the proposals do not place new barriers to the movement of fish and so long as standard precautions are in place to prevent construction pollution fish should not be significantly affected.

38. Construction is likely to directly affect resident fish caught in any dammed off area to be drawn down and measures to humanely remove them from the construction area will be necessary.

White clawed crayfish

39. There are no records of white clawed crayfish (Austropotomobius pallipes). Given the location and presence of anglers, lack of records is likely to mean lack of A. pallipes. However, the site presents suitable habitat for this protected species, which would be affected by the works if present, hence precautions are recommended.

Evaluation and Recommendations

40. The Site is mostly low value habitats affected by the activities of man, although the river itself constitutes an important wildlife corridor in the wider area particularly due to its designation as a Local Wildlife Site.

41. There are issues to deal with at the Site in relation to the potential impacts on fauna and potential impacts through waterway pollution, particularly on the LWS. The proposals should be subject to a standard condition requiring an approved Construction Environment Management Plan (CEMP) – suitable wording for such a condition can be found in Appendix D of the British Standard BS42020. The CEMP would be expected to include the following features:

- Provision of suitable silt and pollution containment measures
- Measures to rescue fish from the construction area

Depending upon time of construction commencement either;

- A survey to demonstrate absence of Austropotomobius pallipes or,
- Provision of an Ecological Clerk of Works (ECoW) to check the Site prior to for crayfish during drawdown.

References

IEA. (1995). *Guidelines for Baseline Ecological Assessment*. Chapman and Hall

Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey: A technique for environmental audit*.

CIEEM. (2016). *Guidelines for Preliminary Ecological Appraisal*. CIEEM