



## **Radley Ash Disposal Site**

Application MW.0056/13  
(Amendments to Approved Restoration Scheme)

### **FURTHER ECOLOGICAL INFORMATION**

July 2013

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**Radley Ash Disposal Site (Phase 2)**  
Application MW.0056/13  
(Amendments to Approved Restoration Scheme)  
**FURTHER ECOLOGICAL INFORMATION**

July 2013

Bioscan Report No:  
E1340R6

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**Figure 1:**

**Location of Proposed Works**

**Appendix 1:**

**List of Application Drawings**

## **1 INTRODUCTION AND PURPOSE OF THIS REPORT**

- 1.1** RWE npower have submitted an application (ref: MW.0056/13) to Oxfordshire County Council to revise the approved restoration scheme for the Radley Ash Disposal Site (Phase 2 area) to provide for restoration primarily for nature conservation purposes by removing the current planning condition requiring restoration to agriculture and allow for the retention on a permanent basis of some existing structures on the site.
- 1.2** Bioscan produced a detailed report on the ecological assets of the Phase 2 area (report reference: E1340R5), which was submitted with the application. Bioscan were also consulted by RWE npower and involved in decisions on the amendments that should be made to the restoration scheme in recognition of the site's significant biodiversity value, including the presence of protected species.
- 1.3** Following submission of the application, objections have been raised by various parties on the basis that the extent to which impacts on ecological resources, and protected species in particular, may still arise as a consequence of implementation of the revised proposals is not explicitly clear from the submitted information.
- 1.4** This report addresses these concerns through assessing the type, level and significance of potential residual effects on key ecological receptors and the measures that will be taken to avoid, mitigate or compensate for any such effects. It therefore serves as an 'impact assessment' addendum to the submitted information on ecology contained within the submitted Bioscan report E1340R5.

## **2 WORKS WITH THE POTENTIAL TO GIVE RISE TO ECOLOGICAL IMPACTS**

### **2.1 Overview**

- 2.1.1 Figure 1 shows the locations of proposed engineering and demolition works around the site. The definitive set of application drawings upon which this impact assessment is based is listed at Appendix 1. In the light of comments received from consultees in response to the current application, certain minor revisions to some of these drawings have been made, and these revised drawings have been re-submitted to OCC. Appendix 1 contains a full list of the drawings submitted with the application, including those that have been revised in response to comments received.
- 2.1.2 Both the originally submitted and revised drawings accompanying the application show a vastly reduced level of proposed intervention as compared with the original approved restoration scheme. In particular, the previous approved proposals to topsoil and seed the ash disposal lagoons of G and H/I have been excluded from the revised scheme in recognition of the existing extent of vegetation development on the ash surfaces, the higher intrinsic value of such vegetation and exposed PFA substrate in biodiversity terms, and the use or assumed use of these areas by protected fauna.
- 2.1.3 Although the level of works required to achieve the restoration will be vastly reduced, the revised scheme still necessarily involves a number of discrete interventions at various locations around the Phase 2 site. These primarily comprise works to dismantle the above-ground parts of structures associated with the former operational use, works to direct or control surface water flows and alleviate flood risk and works to reduce the capacity of impounded areas to remove them from the provisions of the Reservoirs Act.
- 2.1.4 Each individual intervention is shown on the submitted drawings, but for the avoidance of doubt, each is also described further below. Construction access inside the Phase 1 and Phase 2 areas will exclusively be along existing well-used maintenance tracks or similar, and connected to the highway network by existing well-used tracks (see drawing UKP/DCD/0112/A).

### **2.2 Lake G (submitted drawing UKP/DCD/0102/E)**

- 2.2.1 Exposed pipework and concrete structures associated with 1no discharge chamber along the western lagoon bund, and 1no in the south-western corner will be removed to ground level and capped and/or buried. In the south western discharge chamber, the top 'ring' of the concrete receiving structure will be removed to ground level and the void then back-filled.
- 2.2.2 3no small sumps within the main body of the lagoon will also be backfilled.
- 2.2.3 Along the southern edge of G, by the gate to H/I, there will be pump-removal works to the culvert between G and H/I and new pipe installation to change this to a piped gravity system to allow overtopping flow from G to H/I in high water level conditions (see land between G and H/I below). The above-ground parts of the existing

structure, including railings are to be removed and the culvert void back-filled with stones to act as a filter. The slipway will be removed and there will be localised re-profiling of the adjoining bank to match levels.

- 2.2.4 Along the south-east section of bund, a 5m long section of the bund will be breached/lowered in height to allow overflow to the Radley Brook in extreme conditions, thereby preventing the possibility of impoundment of sufficient water volume which would invoke statutory requirements under the Reservoirs Act (see submitted drawing UKP/DCD/0118/B).
- 2.2.5 A temporary contractors' compound will be sited on an area of existing disturbed and largely bare ground to the NW of Lake G.

### **2.3 Land between G and H/I (drawings UKP/DCD/0107/C and UKP/DCD/0111/A)**

- 2.3.1 Construction of gravity outfall from Area G to H/I, involving trench excavation, pipe installation and backfill and connection to existing inlet/outfall structures, including construction of 2no new manholes and removal/capping of existing pipework (see drawing UKP/DCD/0111/A).
- 2.3.2 Overflow ditch linking Radley Brook/waterbody P26 (as referred to in Bioscan E1340R5) to Area H/I, with associated footbridge. This will allow high-level flows in Radley Brook/P26 to over-top to H/I (without draining waterbody P26) and then find a route to the Thames via H/I and through removed flap valve structure in SE corner of H/I.
- 2.3.3 Pigging station (415v switch room) to be demolished and associated concrete above-ground structures to be broken up and removed.

### **2.4 Lake H/I (see drawing UKP/DCD/0103/B)**

- 2.4.1 Along the northern edge of Lake H/I are 4no former slurry infill points, all which will have the top ring of concrete structure removed and the remaining void backfilled. Any exposed pipe work at these locations will also be removed/capped below ground level.
- 2.4.2 Along the south-eastern bund, a 10m section will be breached/lowered to allow overtopping in any times of high water levels in Lake H/I before the volume of impounded water reaches 10,000 m<sup>3</sup> and allow flood water passing through the adjacent bridge under the railway to enter Lake H/I (see drawing UKP/DCD/0103/B). In addition, the easternmost of 5no flood relief structures (flap valve and pipework) in the SE section of bund will also be removed (see drawing UKP/DCD/0125/A) to form a further 10m breach and outlet route for flow from Radley Brook to the Thames.

## **2.5 Phase 1 Ash Disposal Site (drawings UKP/DCD/0114/A and UKP/DCD/0109/B)**

- 2.5.1 In the Phase 1 ash disposal area east of the railway, works are limited to the vicinity of the settling and discharge ponds and their outlet to an arm of the Pumney Farm Ditch. They include the following:
- 2.5.2 Break out of 5 no concrete footing slabs at the northern end and ground re-instated to original level.
- 2.5.3 1no outlet structure at the north-western corner of the settling pond to be removed in similar fashion as others (i.e. remove above ground components).
- 2.5.4 At the south-western side of the discharge pond is a weir and pumping station that controls discharge of water from the discharge pond to Pumney Farm Ditch. At this location, the security fencing is to be replaced and pipework is to be removed to ground-level and/or capped off.

## **2.6 SOM (Sandy Overburden material) stockpile NW of Area H/I (UKP/DCD/0128/A)**

- 2.6.1 The existing overburden stockpile adjoining the north-western part of Area H/I, which was formerly to be used for topsoil and sub-soil cover over PFA as part of the previously approved scheme, will now be retained *in-situ*. To address problems with its unsanctioned use for motorcycle scrambling, it will be subject to localised interventions to create terraces to break up the smooth banks and thereby obstruct such use, with these being planted up with native shrub species (notch-planting by hand is envisaged) to further deter access. Post and rail type fencing will also be installed.

## **2.7 Lake N (drawing UKP/DCD/0097/B)**

- 2.7.1 Finally, restoration works have been completed on the 'causeway' constructed across Lake N in 2007 as part of the commencement of implementation of a previous consent for disposal of ash into Lake E (now Thrupp Lake) (which was not fully implemented). This involved some re-profiling and landscape treatments, including native shrub planting, as well as blocking of an existing duct. It formed part of the restoration obligations arising from the abortive scheme to develop an ash lagoon in Thrupp Lake and was undertaken at the same time as the restoration of filled Lake J(east)/P north of the filled Lake G .

## **2.8 Summary**

- 2.8.1 It can be seen from the above, and from Figure 1, that the works necessary to achieve the revised restoration scheme comprise discrete and predominantly low-magnitude engineering, demolition or landscaping interventions scattered around a large area of land. The following sections of this report assess the likelihood of these works having significant effects on biodiversity resources, and indicate how legal provisions in respect of protected species will be met.

### **3 IMPACTS AND MITIGATION – GREAT CRESTED NEWTS**

#### **3.1 Direct impacts**

- 3.1.1 Figure 1 shows the locations of proposed engineering and demolition works imposed onto the known distribution of great crested newts on the Phase 2 site.
- 3.1.2 The greatest potential for impacts on great crested newts is very clearly where former inlet/pumping structures along the northern side of H/I and southern edge of G will be dismantled and back-filled, as great crested newts have been found in these structures where they retain standing water. Whilst measures were taken at the time the surveys were done to allow them to escape<sup>1</sup>, there remains a good chance of newts being present at the time of works.
- 3.1.3 Prior to any works, these structures will therefore need to be checked for great crested newts and if any are found they will need to be captured and removed before the water is pumped out. This will be done by hand-netting, possibly in conjunction with overnight torch searches to ensure efficient capture of animals. Such works will require a derogation licence to be obtained from Natural England to account for the fact that newts will be being captured and relocated for reasons associated with development. It would not be possible to carry out these works legally under standard survey or conservation licensing provisions.
- 3.1.4 The process of dismantling the above-ground parts of these structures may also present a risk to great crested newts, which may for example shelter in loose backfill surrounding the concrete ‘rings’ (where these are present). A ‘destructive-search’ approach will therefore need to be taken in these areas, involving licensed ecologist supervision and direction of hand or machine excavations, and the capture and relocation of any newts found to safe areas well away from the works zone. Again, these works will need to come under the provisions of the derogation licence.
- 3.1.5 A similar approach will be taken to the lower risk of newts being encountered in other discrete areas of excavation, including those more remote from the known/assumed core range (e.g. bund lowering works at the SE edges of G and H/I and the localised re-profiling of the SOM stockpile NW of H/I). There is assessed to be little risk of newts being affected by the proposed planting and fencing works on the SOM provided these are done by hand as proposed.
- 3.1.6 The relatively small and discrete nature of the various elements mean that techniques such as exclusion fencing and pitfall trapping are rendered impractical, as well as (in the case of the more remote works) disproportionate to the level of risk of newts being encountered. Licences have previously been granted by Natural England on the Radley Lakes site for this type of approach to be taken to discrete foci of engineering activity and there are no indications that one would not be granted again in this instance, particularly as the scope for significant negative effect on overall ‘favourable conservation status’ is negligible given that the key breeding sites will remain unaffected.

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<sup>1</sup> Planks were put in at as shallow an angle as possible to provide a means for newts to escape



## **3.2 Indirect impacts**

- 3.2.1 In the short term (e.g. 5 years post-completion of restoration activities), because the magnitude of change from existing conditions is small, there are predicted to be no particular consequences for great crested newt populations on the site. Addressing the entrapment hazard imposed by the open and steep-sided concrete structures along the southern edge of G and northern edge of H/I may however deliver a minor benefit.
- 3.2.2 In the long-term, ongoing succession and maturation of the habitats on the site (see drawings UKP/DCD/0115/C and UKP/DCD/0116/B) is likely to improve the terrestrial habitat quality for great crested newts and may facilitate population expansion into the currently rather hostile areas on the lagoons themselves. It is worth comparing this predicted situation under the revised proposals to that under the original approved restoration scheme for Lakes G and H/I, where the likelihood of significant impacts on terrestrial phase animals and conservation status was much higher due to the amount of earth moving and habitat change attendant on the restoration process, and the rather more bland nature of the eventual end-product in habitat diversity terms.

## **4 IMPACTS AND MITIGATION – OTHER PROTECTED SPECIES**

### **4.1 Bats**

- 4.1.1 The possible bat roost reported in Bioscan report E1340R5 is associated with the supports of the railway over-bridge carrying the Oxford-Reading line over the Thames. As can be seen from Figure 1, it is thus remote from any of the areas of discrete engineering or demolition activity and there is no scope for direct or indirect (e.g. disturbance) effect on any roost at this location.
- 4.1.2 Similarly, and as reported in E1340R5, because no mature trees or other structures capable of supporting bat roosts will be affected by the proposed works, there is no scope for direct or indirect impact on any hitherto unconfirmed roosting sites.
- 4.1.3 In the short term, the low magnitude of overall change in terms of the habitat composition and extents on the site means that there is negligible scope for indirect effects on bats through significant alteration of foraging habitat. In the longer-term, bats are likely to benefit from maturation of habitats, including in terms of increases in suitable insect prey (e.g. Lepidoptera – the relative biomass of which is likely to increase with more vegetated and mature habitats) and also, in time, roosting opportunities.

### **4.2 Reptiles**

- 4.2.1 As indicated in Bioscan report E1340R5, grass snake occurs across the site at low densities. The supervised destructive search and watching brief approach taken to the discrete areas of works, as described above under great crested newts, will be sufficient to ensure individuals of this species at risk of direct impact are identified by supervising ecologists, captured and relocated, thus ensuring compliance with the provisions of the Wildlife and Countryside Act 1981 (as amended). This is assessed to be particularly important in respect of the works to the Pumney Farm Ditch outfall, which is a known locus for this species in the area. Importantly, however, it is understood that the overgrown concrete platform either side of the outfall structure itself, which is a likely grass snake hibernation site, will be retained *in situ*.

### **4.3 Water vole**

- 4.3.1 The only area where works to the Radley Brook system are proposed (construction of a connecting ditch system to take overflow into H/I from area P26 in times of flood) is remote from the locations further north along the Radley Brook where water voles have been found and in an area that does not provide suitable habitat in any event. There is therefore adjudged to be no significant scope for impact on this species from the implementation works.
- 4.3.2 Similarly, the short term habitat changes imposed by the works will be highly localised, remote from areas used by the species and of low magnitude. Longer term habitat change as a consequence of the restoration is not anticipated to materially

change the suitability of the Radley Brook for this species. Consequently no significant indirect effects are predicted.

#### **4.4 Badgers**

- 4.4.1 The established badger sett on the south-facing embankment of the disused Abingdon Branch railway line (see E1340R5) is a minimum of 25 metres from the nearest location of proposed works. The nature of the topography, with the sett dug into an upstanding embankment, means that there is zero risk of breaching tunnels and no significant scope for effects from vibration. There is no direct line of sight between the sett entrances and the works locations, due to obscuring foliage and/or the presence of the embankment itself. Consequently there is assessed to be no requirement for licensing in accordance with prevailing guidance and no predicted negative effect on badgers during the restoration works.
- 4.4.2 Post completion of restoration, in the short-term because the habitat changes imposed by the works will be highly localised and of low magnitude, there are not anticipated to be any significant consequences for the local badger population. In the longer term, habitat change as a consequence of the restoration can be expected to improve foraging opportunities for this species as soil fauna (in particular earthworms) become more established in maturing habitats on PFA.

#### **4.5 Otter**

- 4.5.1 As reported in E1340R5, away from the Thames there are relatively scant habitat opportunities within the study area for otters, with those that there are being rather isolated, or subject to high levels of human and dog disturbance. The Radley Brook could however be used by this species, at least intermittently, but there is likely to be insufficient habitat present to support breeding animals there, or indeed anywhere within the study area.
- 4.5.2 The only area where works are in close proximity to watercourses are proposed are i) the construction of a connecting ditch system to take overflow into H/I from area P26 in times of flood and ii) works to the outfall structure at the head of the Pumney Farm Ditch. Legal contravention could only become a risk if holt sites were either directly affected or disturbed as a consequence of works. In both instances, the areas affected have never shown signs of being used by this species and at P26 are unsuitable in any event due to the high level of dog-walking use of the adjacent informal path. There is therefore adjudged to be no significant scope for impact on this species from the implementation works. Pre-commencement checks will be made by the supervising ecologists in any event prior to the commencement of works.
- 4.5.3 Similarly, the short term habitat changes imposed by the works will be highly localised, remote from areas used by the species and of low magnitude. Longer term habitat change as a consequence of the restoration is not anticipated to materially change the suitability of the locality for this species. Consequently no significant indirect effects are predicted.

#### **4.6 Schedule 1 birds**

- 4.6.1 Suitable breeding habitats for Schedule 1 bird species are remote from any of the areas of discrete engineering or demolition activity and consequently there is assessed to be no scope for direct or indirect (e.g. disturbance) effect on any Schedule 1 bird species. Pre-commencement checks will be made by the supervising ecologists in any event prior to the commencement of works.

#### **4.7 Other nesting birds**

- 4.7.1 In all instances, woody or groundcover vegetation capable of harbouring birds' nests is either absent from the areas affected by the proposed engineering or demolition works, or has already been removed outside the bird nesting season under instruction from Bioscan in early 2012. The current anticipated implementation programme, subject to consent, will also avoid the bird nesting season. There is therefore assessed to be no significant scope for legal contravention in respect of nesting birds. Pre-commencement checks will be made by the supervising ecologists in any event prior to the commencement of works.

## **5 IMPACTS AND MITIGATION – OTHER BIODIVERSITY RESOURCES**

### **5.1 Compatibility of restoration scheme with retention of LWS interest features**

5.1.1 As reported in E1340R5, restoration of the site in blanket accordance with the original approved schemes would result in landscape treatments being implemented that include topsoiling and extensive tree planting. This would have the potential to significantly reduce or compromise both the site's extant biodiversity interest and its potential future value, as well as having a much higher risk of impact on protected species.

5.1.2 Following completion of the restoration activities, the exposed areas of PFA can be entirely expected to continue to follow the characteristic trajectory of vegetation succession that has been witnessed in those parts of the Phase 1 site that escaped topsoiling, and which is associated with populations of county rare plants and invertebrates. The reduced level of intervention attendant with the revised proposals therefore offers a means to better secure the continuity of interest features underpinning the site's LWS designation, including not only the populations of protected species, but also those of scarce and rare invertebrates and plants.

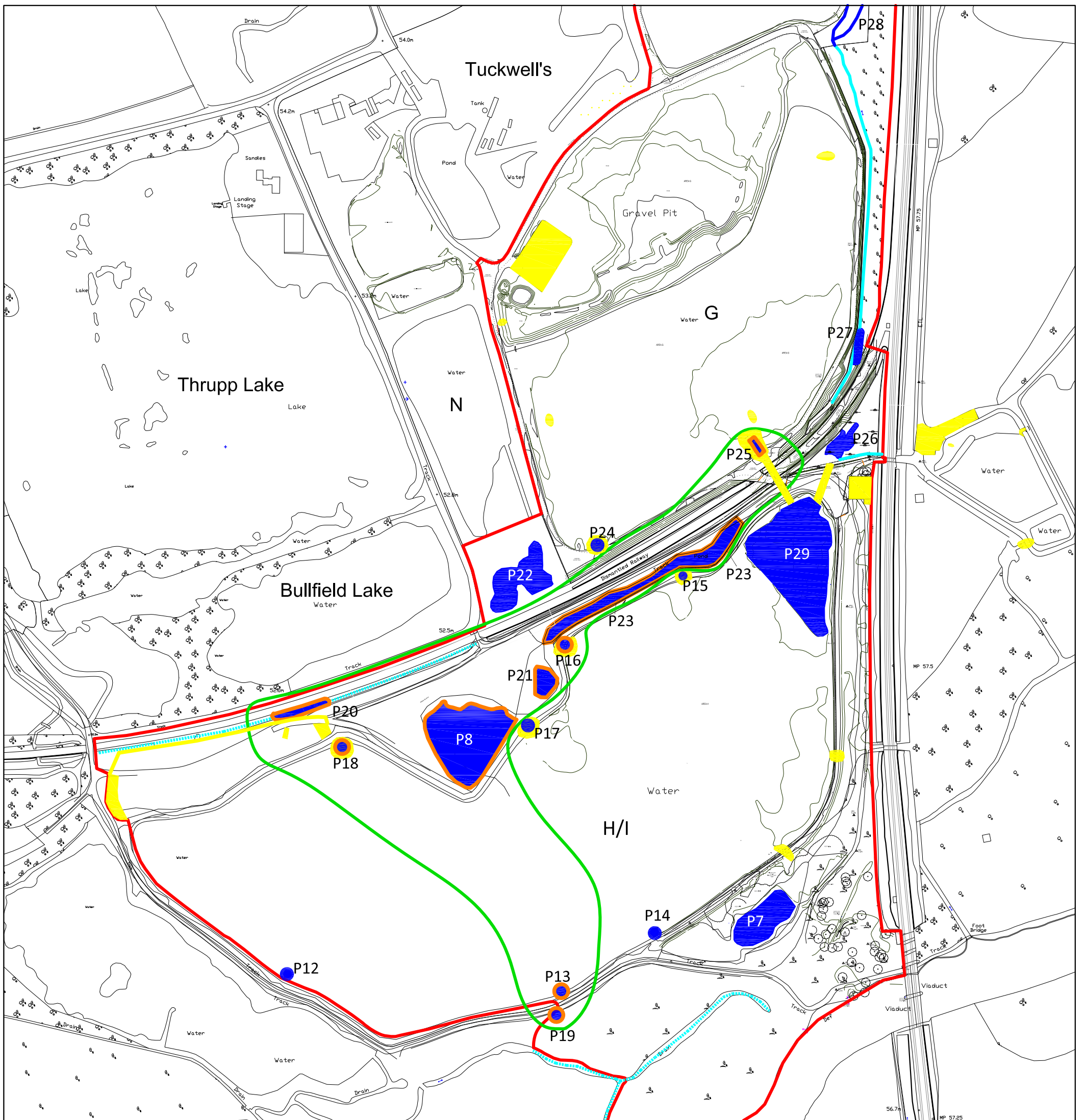
### **5.2 Long term vision for the site**

5.2.1 Submitted drawings UKP/DCD/0115/C and UKP/DCD/0116/B indicate how areas G and H/I are expected to develop following the completion of restoration activities and predominantly as a consequence of the expected sequence of vegetation succession on PFA and low-fertility subsoil surfaces. This process will secure local representations of such habitats at a time when unchecked succession and maturation may be starting to denude their presence in the Phase 1 area east of the railway. At some future point, subject to the long-term objectives of the relevant landowning interests, a co-ordinated proposal for the various ash disposal and former minerals workings areas could be developed to secure their biodiversity interests, implement appropriate long-term management to perpetuate those interests and potentially open up more of the site to public access. Such aspirations are not within the power of RWE npower to deliver, as RWE npower is merely a leasehold occupier of the Phase 1 and Phase 2 sites, but they could potentially be realised through a partnership between the various landowning interests and a conservation body such as the Earth Trust in the same way that RWE npower has been able to deliver at the adjoining Thrupp Lake.








## 6 CONCLUSIONS

- 6.1.1 The revised restoration scheme comprises only discrete and localised interventions for necessary engineering or demolition works, with a small component of minor landscaping and associated shrub planting associated with an overburden stockpile.
- 6.1.2 Because there is still some (albeit much reduced) potential for individual great crested newts to be encountered when carrying out such works, licensed ecologist supervision will be required to find, capture and relocate newts from working areas.
- 6.1.3 In evident recognition of the impracticality of ring-fencing such discrete areas of intervention with herpetofauna barriers, this approach to ensuring engineering works do not impact on great crested newts was previously licensed by Natural England in 2007 when the Lake N causeway was constructed. There is therefore no reason for OCC to suppose a licence would be unlikely to be granted in this instance.
- 6.1.4 The approach also allows measures to be taken to similarly check for, find, capture and relocate any grass snakes and to confirm the absence of any other protected species in these areas, where indeed there is any residual scope for them to be present at all.
- 6.1.5 Beyond issues of legal compliance in respect of protected species, the vastly reduced amount of engineering and landscaping intervention adopted in the revised approach generally, serves to harness the momentum towards valuable habitat development that has already built up since the cessation of operational activities, and which is already delivering populations of county rare plants and invertebrates. This ensures that the restoration proposals are entirely in keeping with preserving and enhancing the interest features underpinning the site's LWS designation.

**Figure 1**



## Key

-  Study area
-  Watercourse
-  Drainage ditch
-  Notional core area for GCN
-  Waterbody surveyed
-  Waterbody confirmed to hold GCN
-  Demolition/Excavation/Re-Profiling works

### Title

Restoration Interventions and Great Crested Newt Distribution

### Project

Phase 2 Ash Disposal Site - Radley - Revised Restoration Scheme

### Client

RWE npower

### Drawing No.

Figure 1

### Revision

1a

### Project No.

E1340R6

### Drawn

KP

### Checked

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### Date

July 2013

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## **Appendix 1**

## Drawings Submitted as part of this Application

Drawing No.	Rev.	Subject
UKP/DCD/0035*	C	General Key Plan
UKP/DCD/0089	B	Overall Plan of Restoration Scheme
UKP/DCD/0097	B	Restoration Area N Affected by Lake E Works
UKP/DCD/0100	A	Overall Plan of Restoration Scheme with Survey Data
UKP/DCD/0102	E	Restoration Plan Proposal Area G
UKP/DCD/0103	B	Restoration Plan Proposal Area H & I
UKP/DCD/0107	C	Restoration Plan Watercourse Works
UKP/DCD/0109	B	Restoration Plan Area 1 Pumney Weir Structure
UKP/DCD/0111	A	Restoration Plan Drainage Pipe Area G to Area H
UKP/DCD/0112	A	Restoration Plan Access Routes and Site Compound
UKP/DCD/0114	A	Restoration Plan Area 1 (Lake A) East of Railway Line
UKP/DCD/0115	C	5 year habitat development plan proposal Lake H&I
UKP/DCD/0116	B	5 year habitat development plan proposal Lake G
UKP/DCD/0117	B	Gravity Out Fall Radley Brook Overflow Ditch to River Thames
UKP/DCD/0118	B	Restoration Plan Details of Break in Perimeter Bank Area G
UKP/DCD/0119 S1 and S2	B	Area to which proposed changes to Conditions A11, A17 and A18 would apply
UKP/DCD/0125	A	Area H&I Breached Bank at Flood Relief Structure
UKP/DCD/0126	A	Area H&I Details of breach opposite underpass under railway
UKP/DCD/0127*	A	Areas covered by previous relevant planning permissions
UKP/DCD/0128	A	Proposed Works on Sandy Overburden Material Stockpile
C11020-IN-001	-	Filled ash lagoon surface levels
RWE-2013-SV-101	-	Topographical Survey – SOM Stockpile
UBWSF-5.5-1.2-0222		Foot Bridge Details
UBWSF-5.5-1.2-175		Foot Bridge Details

All the above drawings form part of the submitted restoration scheme apart from those indicated by \*.

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