Ashfield Land Management and Gazeley GLP Northampton s.à.r.l

Annex J: Great Crested Newt Survey Report

Rail Central

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RSK GENERAL NOTES

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Author	Joseph Dyson	**Technical reviewer**	Roberta Epps
Signature		Signature	
Date:	8 February 2018	Date:	8 February 2018
Project Manager	Tom Coyne	**Quality reviewer**	Roberta Epps
Signature		Signature	
Date:	8 February 2018	Date:	8 February 2018

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EXECUTIVE SUMMARY

1. This report presents the results of Great Crested Newt *(Triturus cristatus)* surveys carried out in 2016 and 2017 in connection with a possible future rail development project on land located to the south of Milton Malsor, Northamptonshire (Ordnance Survey Grid reference: SP 73363 54488).

2. A Preliminary Ecological Appraisal (PEA) undertaken in March 2016 identified 24 ponds on or within 500 m of the Main SRFI Site. Access permission was not granted for five of the ponds, and Habitat Suitability Index (HSI) assessments discounted a further nine ponds due to them being assessed as unsuitable for Great Crested Newts.

3. eDNA surveys to test for presence/absence of Great Crested Newts were carried out in 2016 at nine of the ten 'suitable' ponds (one not being suitable for eDNA analysis). Of these, two returned positive results for Great Crested Newts, however no Great Crested Newts were found after the subsequent four population estimate surveys of these ponds.

4. Surveys of a further three ponds and a lake were carried out in 2017 in connection with proposed highway works at Junction 15a of the M1 motorway. Of these: one was dry at the time of survey, one was located beyond significant barriers to Great Crested Newt movement, access permission was not granted for four ponds, and the lake was found to be located beyond significant barriers and also heavily stocked with fish. Further surveys for Great Crested Newts were not required in connection with the Junction 15a highway works.

5. Surveys undertaken in 2017 recorded a medium population of Great Crested Newts in Pond 13 which is outside the boundary of the Main SRFI Site in 2017.

6. Common Frog (*Rana temporaria*), Common Toad *(Bufo bufo*), Smooth Newt (*Lissotriton vulgaris*) and Smooth/Palmate Newt hybrids were also recorded in several ponds during the presence/absence surveys.

1 INTRODUCTION

Purpose of this Report

This report presents the results of Great Crested Newt *(Triturus cristatus)* surveys carried out in connection with a proposed Strategic Rail Freight Interchange (Main SRFI Site) on land south of Milton Malsor, Northamptonshire (Ordnance Survey Grid reference: SP 73363 54488). RSK carried out the surveys during April and May 2016, and during April to June 2017.

The Preliminary Ecological Appraisal (PEA) identified 24 water bodies on or within 500 m of the Main SRFI Site. Presence/absence surveys of any of these ponds found to be suitable for Great Crested Newts were required to determine whether the proposals could affect Great Crested Newts and if necessary, inform a mitigation strategy to reduce any potential impacts on newts to non-significant levels.

A further four ponds were identified in 2017 within 500 m of proposed highway works at Junction 15a of the M1 motorway. This proposed development is required to improve access to the main SRFI site. Presence/absence surveys of those additional ponds assessed as being suitable for GCN were also undertaken to determine whether or not there were populations which could be affected by the proposals.

Ecological Context

The Main SRFI Site occupies gently undulating land on more-or-less neutral loams south of Milton Malsor in Northamptonshire. Like the surrounding area it has an intensively farmed landscape with most fields containing arable crops or improved grass in roughly equal proportions. Several fields located in the south-western part of the site have semi-improved (or perhaps unimproved) agricultural grassland. Field boundaries are mostly marked by species-poor *Crataegus monogyna* (Hawthorn) hedges and also have large ditches or small streams associated with them. The village of Milton Malsor lies to the north and there are houses, commercial premises and light industrial premises along Towcester Road which bisects the site from north to south. There is also an industrial estate adjacent to the north-western corner of the site. The remainder of the site includes scattered houses, farms and plant nurseries plus a disused dual-carriageway service area. Railway sidings largely bound the site to the east and south, and the A43 dual-carriageway main road does so to the east (all of these actually have some parts of the site lying beyond them). Adjacent to the south-western corner of the site is the canal and marina complex of Blisworth junction, and towpaths bound the site in some places.

The Junction 15a site lies to the north-west of the Main SRFI Site and the village of Milton Malsor and just south of the outskirts of Northampton. The site occupies an area of intensive arable farmland and pastoral grazing land and the Junction 15a services are adjacent to its western boundary. Both the M1 and A43 run through the site, west to east and north to south respectively, these are surrounded by roadside scrub and trees. The Grand Union Canal runs north to south through the site. Scattered areas of wet woodland and marshland also surround the canal.

The location and aerial images of both the Main SRFI Site and the Junction 15a Site can be found in *Figures J1.1 and J1.2*.

Structure of this Report

The remainder of the report is structured as follows:

- *Section 2* describes the survey methods;
- *Section 3* summarises the results;
- *Section 4* details the evaluations and conclusions; and
- *Section 5* lists the documents referenced in this report

Appendix A provides the relevant legislation; and
Appendix B provides the figures

2 METHODS

General

Although standing water is essential for breeding, Great Crested Newts (*Triturus cristatus*) occur in terrestrial habitats for most of the year and have been recorded up to 500 m from their breeding ponds. Therefore, RSK assessed the Main SRFI Site and J15a Site for their suitability to support both terrestrial and breeding Great Crested Newts. Suitable breeding ponds are described as those that are well vegetated, relatively clean and unpolluted, have few fish or wildfowl and are likely to retain water throughout most (but not necessarily all) summers. Highly suitable terrestrial habitats include woodland, scrub and tussocky grassland, although Great Crested Newts can be found in a broad range of sub-optimal habitats as well. Habitat connectivity between suitable areas was also considered using aerial photography, maps and during walkover surveys. Furthermore, an assessment of habitat suitability for other amphibians was undertaken.

Background Data Search

A search of Great Crested Newt records within 2km of the site was made using the Northamptonshire Biodiversity Records Centre (NBRC).

Scoping Surveys

Main SRFI site

Initial field scoping surveys of the main SRFI site were carried out in April 2016 to assess the suitability of the ponds for Great Crested Newts. 24 ponds were identified from aerial photographs and Ordnance Survey mapping. Access to five of the ponds was not possible for the scoping surveys. A summary of pond access situations can be found in *Table J1.*

Table J1: Pond access for the main SRFI site.

Pond Number	Access
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes

6	Yes
7	Yes
8	Yes
9	Yes
10	Yes
11	Yes
12	Yes
13	Yes (in 2017)
14	Yes
15	No
16	No
17	No
18	Yes
19	Yes
20	Yes
21	Yes
22	No
23	No
24	Yes

Junction 15a

Field scoping surveys of the nine ponds surrounding the Junction 15a site were carried out on 7 February 2017. Permission to access four of the ponds was not granted for the scoping surveys. A summary of pond access situations can be found in *Table J2*.

Table J2: Pond access for Junction 15a site.

Pond Number	Access
1	No
2	Yes
3	Yes
4	Yes
5	No
6	No
7	No

Habitat Suitability Index

All ponds where access permission was granted were assessed for their suitability to support Great Crested Newts using the Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000), which is derived from assessment systems developed by the US Fish and Wildlife Service. It is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the Great Crested Newt uses ten factors (suitability indices (SI) 1 to 10), which are thought to affect Great Crested Newts as follows:

- geographic location (SI 1);
- surface area (SI 2);
- hydrology (drying) (SI 3);
- water quality (SI 4);
- shade (SI 5);
- presence of water fowl (SI 6);
- presence of fish (SI 7);
- number of adjacent water features (SI 8);
- terrestrial habitat (SI 9); and
- macrophyte cover (SI 10).

Each factor is scored and the scores are converted to SI scores on a scale from 0.01 to 1 from graphs given in Oldham *et al.* (2000). The HSI result is calculated using the following formula:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

Further research by Brady (unpublished) has developed a system for using HSI scores to define pond suitability for Great Crested Newts according to the following categories:

- HSI <0.5 = poor
- HSI 0.5 – 0.59 = below average
- HSI 0.6 – 0.69 = average
- HSI 0.7 – 0.79 = good
- HSI > 0.8 = excellent

There is a positive correlation between HSI scores and presence and abundance of Great Crested Newts in ponds. Generally, ponds with high HSI scores are likely to support larger populations. However, the relationship is not sufficiently precise to conclude that a pond with a high HSI will definitely have a large newt population, or that a pond with a low HSI score will only have a small newt population or no newts at all.

Ponds that are separated from the site by significant barriers to newts were discounted at this stage. Significant barriers in the case of this site were the Grand Union Canal, River Nene and the A43 road.

Environmental DNA (eDNA) Analysis

Ponds found to be suitable for Great Crested Newts in 2016 (and where access permission for surveyors was granted) were then tested using the (eDNA) analysis technique. eDNA sampling followed the Natural England approved protocol, Biggs *et al*. (2014) and involves systematically taking water samples at each water body. These water samples were analysed for the presence of Great Crested Newt DNA by SureScreen Scientifics, an approved organisation for this type of analysis.

Ponds that returned a negative result for eDNA were discounted for further survey but ponds that returned a positive result were surveyed presence / absence surveys as described below.

eDNA analysis was not used on any of the ponds found to be suitable for Great Crested Newts surrounding the Junction 15a Site in 2017 due to the low number of ponds that required surveying.

Presence/ Absence Survey Techniques

Surveys to record presence or likely absence were carried out under the supervision of licensed surveyors and in accordance with English Nature survey guidelines (English Nature 2001), which are outlined below:

- four survey visits to be carried out between mid-March and mid-June;
- surveys to be carried out in suitable weather conditions;
- two of the four survey visits to be carried out between mid-April and mid-May; and
- surveys using at least three of four methods – egg searching, netting, torching and bottle trapping.

If Great Crested Newts are found to be present during any of the surveys a further two surveys will be required between mid-March and mid-June in order to estimate the population size class of a pond.

Field Methods

Torching

This technique is carried out at night, when newts are most active. Negative results are only meaningful if the surveys are carried out in suitable weather. Ideal weather conditions are given by English Nature (2001) as a night-time air temperature of more than 5˚C, little or no wind, and no rain. Torchlight surveys involved walking slowly around the edge of the pond and scanning the water with a high-powered spotlight (Clulite, 1,000,000 candle power) where access and safety permitted. Using this method, Great Crested Newts can be easily identified from Smooth or Palmate Newts in clear water and counted. Bright light may cause newts to seek cover where they will be undetected, but the technique is appropriate to establish presence and for estimating populations. The species, sex (if possible), number of newts, and survey times were determined and recorded.

Bottle Trapping

This method involves trapping newts at night and if not carried out correctly, can be harmful to the trapped newts. Because of this, strict guidelines from Natural England were followed in accordance with Natural England licence conditions.

The method is reliable for detecting presence of Great Crested Newts, and is especially useful in weedy or turbid water where visibility is poor or the vegetation is too dense to for torch surveys to give reliable results. 'Funnel traps' constructed from plastic bottles attached to bamboo canes are immersed in the pond after dusk and removed early the following morning. Newts enter through the funnel entrance but cannot find their way back out again. Length of deployment is dependent on whether or not an air bubble is provided and on air temperature. For this survey, air bubbles were provided in all traps allowing a 12 hour window between deployment and collection. The recommended density of traps is one trap for every 2 m of margin, placed 2 m from the pond edge, although this depends upon habitat suitability and substrate as well as the shore incline and depth of the pond. Traps were checked in the early morning before the temperature rose, and the trapped newts were sexed, counted, and released.

A precautionary approach to this method was used because there is a risk that newts may be harmed, even following standard trapping protocol as described by English Nature (2001), and questions have therefore been raised regarding the welfare associated with this technique. The technique is also unsuitable during periods of hot weather when dissolved oxygen levels in water decrease markedly, where water-levels were too low, or where there was a risk of vandalism. At sites where the risks were low, bottle trapping was continued until the end of the survey period.

Egg Searching

Egg searches involve searching both live and dead submerged vegetation for Great Crested Newt eggs. The eggs are characteristically laid in a folded leaf, and the large size and yellowish/white coloration readily distinguishes the eggs of Great Crested Newts from those of smaller species. Eggs are unwrapped from folded leaves to confirm identification, and the developmental stage of eggs is noted. Once a Great Crested Newt egg is reliably identified, the search is terminated because this method does not give any meaningful quantitative information on population size and can harm the eggs.

Netting

Netting is carried out using a long-handled dip-net with a fine mesh of 2-4 mm. The perimeter of the water body is walked, and 15 minutes of netting is carried out for every 50 m of water-margin. The method is less effective than bottle trapping and torching when surveying for adult Great Crested Newts, but is very useful when searching for larvae. This method is used as an alternative or extra method of survey when weather conditions or other constraints did not allow bottle trapping to be carried out efficiently or safely. If a pond has significant quantities of dead leaf litter on the bottom, netting would not be carried out due to the amount of disturbance that would be caused and subsequent impact upon the water quality of the pond.

Population Estimate

Population size class estimates are calculated from the maximum number of newts caught or seen using one survey method during one visit. The maximum count breaks down into three size classes, presented in *Table J3*.

Table J3: Population Size Classes.

Maximum Count recorded from any single survey method	Population Size Class
1-9	Small
10-99	Medium
100+	Large

Population estimate data is needed for European Protected Species (EPS) licence applications, where these are required.

Personnel

The surveys in 2016 were carried out by Tom Coyne and Alice Clarke; senior consultant and consultant ecologists at RSK respectively. Tom and Alice were assisted by Charles Geary and Ben Lappage. Both Tom and Alice are members of the

Chartered Institute of Ecology and Environmental Management and both hold Natural England licenses to surveys for Great Crested Newts (Tom: 2015-16962-CLS-CLS, Alice: 2015-19313-CLS-CLS).

The surveys in 2017 were carried out by Tom Coyne, Alice Clarke, Joseph Dyson and Dean Lefeuvre of RSK. All are members of the Chartered Institute of Ecology and Environmental Management and hold Natural England licenses to surveys for Great Crested Newts.

3 RESULTS

Background Data Search

Records of Great Crested Newt, Palmate Newts and Common Toad within 1 km of the sites were returned from the data search.

Records show that a previous survey of one of the ponds (Pond 13) recorded 'an isolated large population of Great Crested Newts' FPCR (2014). This pond is located to the east of the red line area that denotes the proposed site (*Figure J1.1*).

Scoping Surveys

Main SRFI site

Nine of the remaining nineteen ponds surveyed in 2016 (where access was permitted) were deemed to be unsuitable for Great Crested Newts and were discounted from further surveys. Reasons for discounting these ponds can be found in *Table J4*.

Table J4: Results of the 2016 scoping surveys and the need for further surveys.

Pond Number	Further survey required?	Reason
1	Yes	Suitable
2	Yes	Suitable
3	Yes	Suitable
4	Yes	Suitable
5	Discounted	Dry at the time of survey and considered highly unlikely to hold water during the Great Crested Newt breeding season
6	Discounted	Dry at the time of survey and considered highly unlikely to hold water during the Great Crested Newt breeding season
7	Yes	Suitable
8	Yes	Suitable
9	Discounted	Dry at the time of survey and considered highly unlikely to hold water during the Great Crested Newt breeding season
10	Yes	Suitable
11	Yes	Suitable
12	Discounted	Dry at the time of survey and considered highly unlikely to hold water during the Great Crested Newt breeding season

13	Yes	Suitable
14	Yes	Suitable
18	Discounted	Beyond significant barriers (canal and dual carriageway).
19	Discounted	Beyond significant barriers (canal and dual carriageway).
20	Discounted	Beyond significant barriers (canal and dual carriageway).
21	Discounted	Beyond significant barriers (canal and dual carriageway).
24	Discounted	Dry at the time of survey and considered highly unlikely to hold water during the Great Crested Newt breeding season

Junction 15a

All four ponds within 500 m of the Junction 15a Site were deemed unsuitable for Great Crested Newts and were discounted from further survey. Reasons for discounting these ponds can be found in *Table J5*.

Table J5: Results of the Junction 15a scoping surveys and the need for further survey.

Pond Number	Further survey required?	Reason
1	Discounted	No access provided to this pond. In addition, it is situated beyond significant barriers to Great Crested Newt movement including the Grand Union Canal and the A43.
2	Discounted	Dry at the time of survey and considered highly unlikely to hold water during the Great Crested Newt breeding season.
3	Discounted	Beyond significant barriers to Great Crested Newt movement including the Grand Union Canal and the A5123.
Lake (4)	Discounted	Beyond significant barriers to Great Crested Newt movement including the Grand Union Canal. Heavily stocked with fish. Unsuitable for Great Crested Newts.
5	Yes	No access to date. Surveys required to inform detailed design of mitigation area.
6	Yes	No access to date. Surveys required to inform detailed design of mitigation area.
7	Yes	No access to date. Surveys required to inform detailed design of mitigation area.

Other Minor Highways Works

No ponds will be directly affected by the minor highway works. Terrestrial habitat affected by the minor highway works is likely to be unsuitable for Great Crested Newts, being highly disturbed and adjacent to major roads and usually isolated from natural habitat by buildings and hard standing. However, in the absence of survey, all habitat will be hand searched by an ecologist, prior to removal, where appropriate.

Water Feature Descriptions

Main SRFI Site

Pond 1 is roughly oval in shape with approximate dimensions of 3 m by 3.5 m. It has a silty substrate and, at the time of the survey, the water clarity was good. The pond is lightly shaded by a tree on the bank. The pond was choked with aquatic vegetation such as *Callitrichacea* (Water Starwort *sp*.) and *Juncus inflexus* (Hard Rush) growing as an emergent plant.

Pond 2 is roughly oval in shape and *c.*4 m by 5 m. It has a silty substrate and a large quantity of leaf litter and dead stems of vegetation; however, at the time of the survey the water clarity was good. The pond is lightly shaded on all sides by the dense scrub and trees. The pond has very little aquatic vegetation.

Pond 3 is separated into two main pools that are approximately *c.2* m by 3 m and *c.5* m by 5 m. The substrate is dominated by silt and there is a large quantity of leaf litter due to the heavily shaded banks. There is very little aquatic vegetation. Water clarity was good during the surveys but it is possible that agricultural run-off may impact this pond due to the connecting ditches.

Pond 4 is located within a woodland strip adjacent to Barn Lane. A farm ditch runs adjacent to the lane and it is evident that the water from the ditch flows into the pond during high rainfall events. The pond is approximately *c.5* m by 5 m. Despite being heavily shaded, the pond has a large covering of aquatic vegetation, dominated by *Typha latifolia* (Bulrush).

Pond 7 is located approximately 20 m from the southern boundary of the site. The pond is approximately *c.2* m by 2 m. The pond is heavily shaded by dense scrub and trees and as a result has a high amount of leaf litter and very little aquatic vegetation.

Pond 8 is located within 2 m of the northern boundary of the site. The pond was dug buy the landowner in the recent past and is approximately *c.5* m by 2m. The pond is steep sided in most areas and the substrate is dominated by silt. There is very little aquatic vegetation.

Pond 10 is located to the north east of the site. The substrate is dominated by silt and is approximately *c.6* m by 2 m. There is very little aquatic vegetation and the banks are

dominated by bramble scrub. The pond was turbid at the time of the visit and was inhabited by wildfowl.

Pond 11 is located to the east of the site within a small copse. The substrate is dominated by silt and the pond measures approximately 8 m by 6 m. The pond is heavily shaded by the surrounding trees.

Pond 13 is located to the east of the site within an area of land used as a clay pigeon shooting range with a mixture of grassland, scrub and woodland. The pond is approximately 25 m by 10 m. The pond is lightly shaded by surrounding trees and there is aquatic vegetation dominated by Water Starwort *sp*, Hard Rush and Bulrush.

Pond 14 is located to the south-east of the site in a pasture field. The banks are shaded for approximately half the perimeter and in addition there is evidence of animal poaching of the banks. The pond is approximately 7 m by 5 m.

Junction 15a Site

Following scoping surveys four ponds were removed from further survey in connection with the Junction 15a Site. The remaining three ponds which are more than 500m from active construction areas, will be surveyed in order to inform the detailed plans and habitat creation in the mitigation area.

Other Minor Highways Works

No pond surveys have been undertaken.

Habitat Suitability Index (HSI)

HSI Assessments were carried out on the remaining suitable ponds at the main site (*Figure J2.1*). The results of these can be found in *Table J6* below.

Table J6: Habitat Suitability Index (HSI) summary of Main SRFI Site.

Pond Number	Suitability
1	Below Average
2	Average
3	Below Average
4	Average
7	Below Average
8	Poor

Pond Number	Suitability
10	Poor
11	Average
13	Average
14	Average

eDNA

eDNA analysis was carried out on the ten ponds identified as suitable for Great Crested Newts on the Main SRFI Site. Previous surveys carried out by FCPR (2014) identified 'an isolated large population of Great Crested Newts' in Pond 13 and therefore an eDNA sample was not taken.

Two ponds (Ponds 3 and 4) tested positive for eDNA. A summary of the eDNA results can be found in *Table J8*.

The results of the eDNA analysis, as well as the results of the further presence/absence and population estimate surveys for all ponds on both the Main SRFI Site can be found in *Figure J3.1*.

Table J8: Results of the eDNA surveys.

Pond Number	eDNA Result
1	Negative
2	Negative
3	Positive
4	Positive
7	Negative
8	Negative
10	Negative
11	Negative
13	Not suitable for eDNA – known population recorded in 2014.
14	Negative

Population Estimate Surveys

Main SRFI Site

Population estimate surveys were carried out on Ponds 3 and 4 in 2016. However, after four surveys at both of the ponds; no Great Crested Newts were recorded and no further population estimate surveys were carried out.

Common Frog (*Rana temporaria*) larvae were observed in Pond 4. Summaries of the population estimate surveys can be found in *Tables J9* and *J10* below.

Table J9: Population estimate survey results for Pond 3.

	Visit 1	Visit 2	Visit 3	Visit 4
Date	03/05/2016	09/05/2016	13/05/2016	16/05/2016
Air temperature at dusk (˚C)	4.8	17	14	10
Water temperature at dusk (˚C)	n/a	n/a	n/a	n/a
Vegetation Cover (0-5)	1	2	2	2
Turbidity (0-5)	0	1	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	n/a	n/a	n/a	n/a
Netting	0	0	0	0
Other species recorded	0	0	0	0
Number of methods	3	3	3	3
Notes	Too cold and shallow to trap.	Too shallow to trap.	Too shallow to trap.	Too shallow to trap.

Table J10: Population estimate survey results for Pond 4.

	Visit 1	Visit 2	Visit 3	Visit 4
Date	03/05/2016	09/05/2016	13/05/2016	16/05/2016
Air temperature at dusk (˚C)	4.8	17	13	10
Water temperature at dusk (˚C)	n/a	n/a	n/a	n/a
Vegetation Cover (0-5)	5	5	5	5

Turbidity (0-5)	0	1	1	1
Egg search	0	0	0	0
Torching	0	0	0	0
Bottle trapping	n/a	n/a	n/a	n/a
Netting	0	0	0	0
Other species recorded	Rt larvae	Rt larvae	Rt larvae	Rt larvae
Number of methods	3	3	3	3
Notes	Too cold and shallow to trap.	Too shallow to trap.	Too shallow to trap.	Too shallow to trap.

Access to Pond 13 was granted for population estimate surveys in 2017. Six surveys were carried out between April and June. A medium population of Great Crested Newts was confirmed as well as Smooth Newts (*Lissotriton vulgaris*), Smooth/Palmate Newt hybrids, Common Toads (*Bufo bufo*) and Common Frogs. A summary of the population estimate surveys can be found in *Table J11*.

Table J11: Population estimate survey results for Pond 13.

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	20/04/2017	05/05/2017	11/05/2017	18/05/2017	08/06/2017	14/06/2017
Air temperature at dusk (˚C)	11	9	12	12.3	15.4	18.1
Water temperature at dusk (˚C)	n/a	9	10	10	15.8	19.2
Vegetation Cover (0-5)	4	3	2	4	4	5
Turbidity (0-5)	2	3	3	2	0	2
Egg search	Yes	No	No	No	No	No
Torching	**Tc: 27 M, 13 F.** Lv: 4 F	**Tc: 7 M, 3 F.**	**Tc: 19 M, 19 F.** Lv: 3 F.	**Tc: 1 M, 3 F.** Lv/Lh: 1 M, 1 F.	**Tc: 18 M, 10 F.** Lv: 1 M. Lv/Lh: 16 F.	**Tc: 4 M, 3 F.** Lv/Lh: 5 M, 6 F.
Bottle trapping	n/a	**Tc: 3 M, 7 F.** Lv : 1 M, 1 F.	**Tc: 4 M, 4 F.**	**Tc: 1 M, 1 F.** Lv/Lh: 1 M, 1 F.	**Tc: 5 M, 7 F.** Lv: 1 M, 2 F.	**Tc: 3 M, 11 F.** Lv: 1 M, 1 F.
Netting	0	n/a	0	0	n/a	n/a
Other species recorded	0	0	Bb: 2 Adult.	Rt: 1 Adult.	0	Rt: 1 Adult
Number of	3	3	3	3	3	3

methods						
Notes	Too cold to trap.	60% torched and trapped due to scrub.				

Junction 15a Site

Presence/absence surveys were not required on ponds where access was available at the Junction 15a Site. Surveys of ponds 5, 6 and 7 may be undertaken following HSI surveys if considered suitable.

Minor Highway Works

No surveys were completed.

4 EVALUATION AND CONCLUSIONS

Great Crested Newts

A medium population of Great Crested Newts was recorded in Pond 13 which is outside the red line boundary of the Main SRFI Site.

No Great Crested newts were recorded in any of the ponds within the red line boundary of the Main SRFI Site and no suitable ponds for Great Crested Newts were recorded on or within 500 m of the Junction 15a Site.

Two ponds (Ponds 3 and 4 of the main SRFI site) returned positive result for eDNA however, no Great Crested newts were recorded after four surveys using traditional presence/absence methods. It can be assumed that the eDNA results of these ponds were false positives.

Pond 13 is approximately 240 m from the red line boundary of the Main SRFI Site and is beyond the railway that runs parallel to the site boundary however; the railway is not considered a complete barrier to the movement of Great Crested Newts. There is the possibility that newts may be present on site and that the works could potentially affect newts.

European protected species legislation is currently under review by Natural England and may change over the next few years. Under the current guidance a European Protected Species (EPS) licence will be required in order for works to proceed. Mitigation is likely to include:

- Exclusion of the site using drift fencing to ensure any Great Crested Newts that might attempt to enter the site are excluded prior to any works commencing.

- All initial topsoil removal will be carried out under a watching brief provided by a suitably experienced ecologist.

Full details of additional mitigation will be provided in the method statement that will accompany the licence application.

Other Species

Other amphibian species recorded during the surveys included: Common Toad, Common Frog, Smooth Newts and Smooth/Palmate Newt hybrids.

Common Toads are a UK BAP species and the population of Smooth/Palmate Newts identified in several ponds is of interest owing to their rarity in the local area. These, as well as other amphibian species will also benefit from the mitigation from Great Crested Newts.

5 REFERENCES

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APPENDIX A: LEGISLATION

Great Crested Newt

Great Crested Newt (*Triturus cristatus*) is listed on *Schedule 5* of the Wildlife and Countryside Act 1981 (as amended), and receive full protection under *Section 9*. This species is also listed as European Protected Species on *Schedule 2* of the Conservation of Habitats and Species Regulations 2010 (SI 2010/490) which gives it full protection under Regulation 41. Protection was extended by the Countryside and Rights of Way Act 2000 (the CRoW Act).

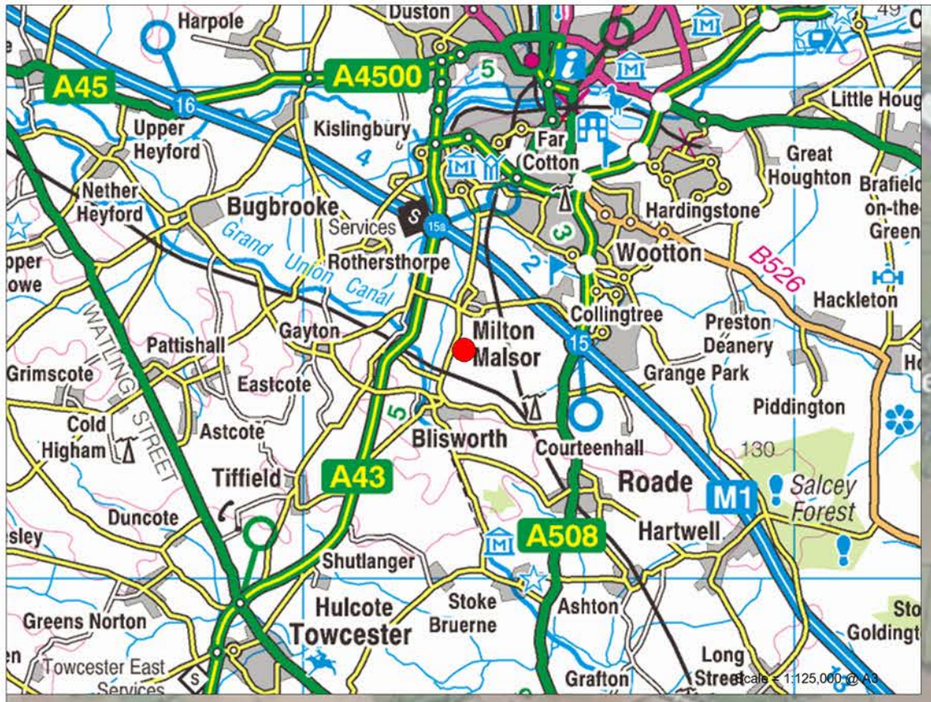
Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

The Great Crested Newt is included as Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as species of principal importance for the conservation of biological diversity in England under Section 74 of the CRoW Act.

APPENDIX B: FIGURES

Figure J1.1 – Main Site Location Plan
Figure J1.2 – J15a Site Location Plan
Figure J2.1 – Main Site HSI Survey Results
Figure J2.2 – J15a HSI Survey Results
Figure J3.1 – GCN Results



Site boundary (July 2017)

Rev	Date	Description	Drn	Chk	App
00	13.07.17	855950	SP	RG	RE

Rail Central

RSK

Figure J1.1

Main SRFI Site
Site Location Plan

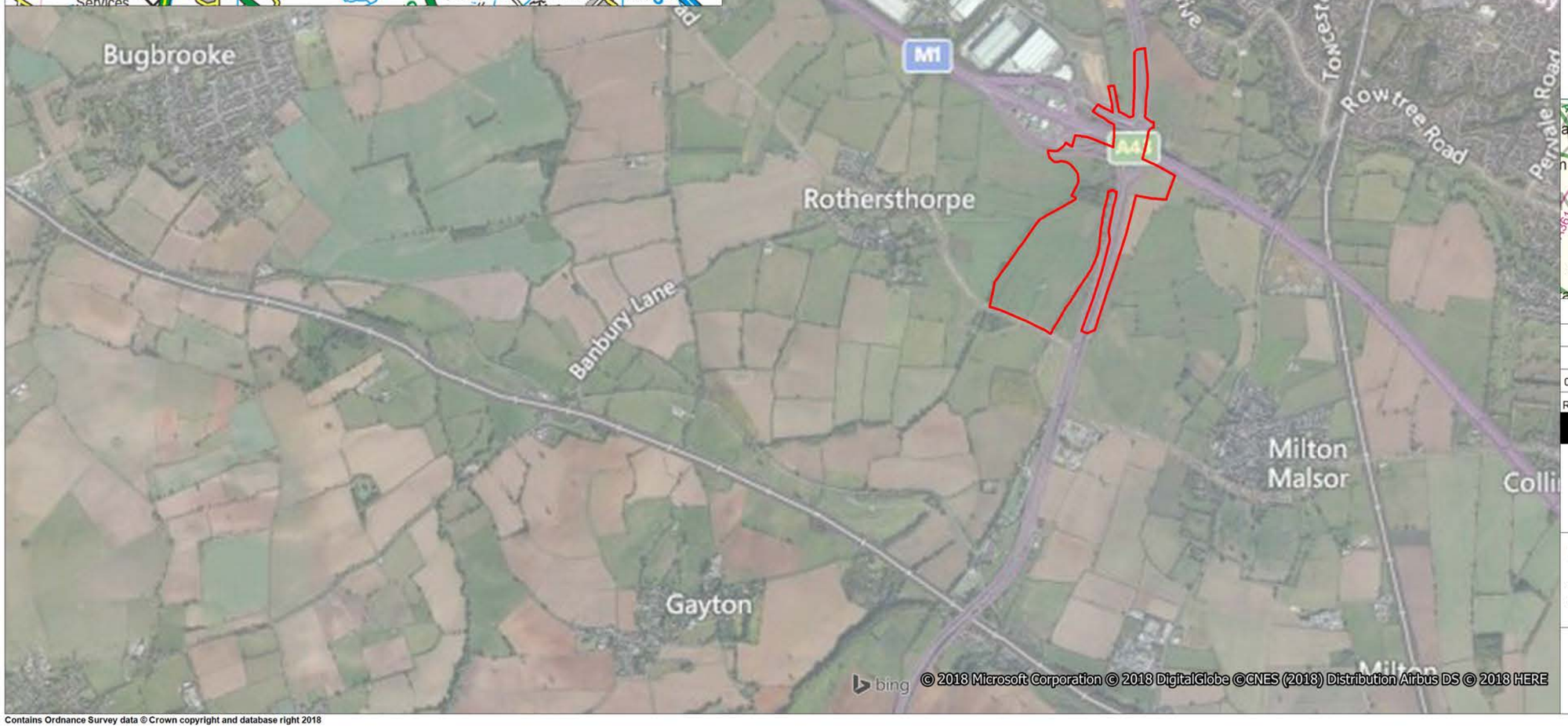
0 750
Metres
Scale = 1:25,000 @ A3

N W E S

REV 00

File Name : T:\Projects\Projects 855941 - 855960\855950 - Armtrack\07 GIS\10 - Workspaces

Site boundary (Jan 2018)



Rev	Date	Description	Drn	Chk	App
00	29.01.18	855950	SP	RG	RE

Rail Central

RSK

Figure J1.2

Junction 15a
Site Location Plan

0 750
Metres
Scale = 1:25,000 @ A3

N W E S

REV 00

File Name : U:\Ecology\855000s\855950 - Armtrack (Rail Central)

Site boundary (July 2017)

500m buffer

HSI Score 2015 - Average

HSI Score 2015 - Below average

HSI Score 2015 - Poor

Dry 2015

No Access 2015

Behind major barrier to movment - no further survey

Rev	Date	Description	Drn	Chk	App
00	13.07.17	855950	SP	RG	RE

Rail Central

RSK

Figure J2.1

HSI Survey Results

0 450

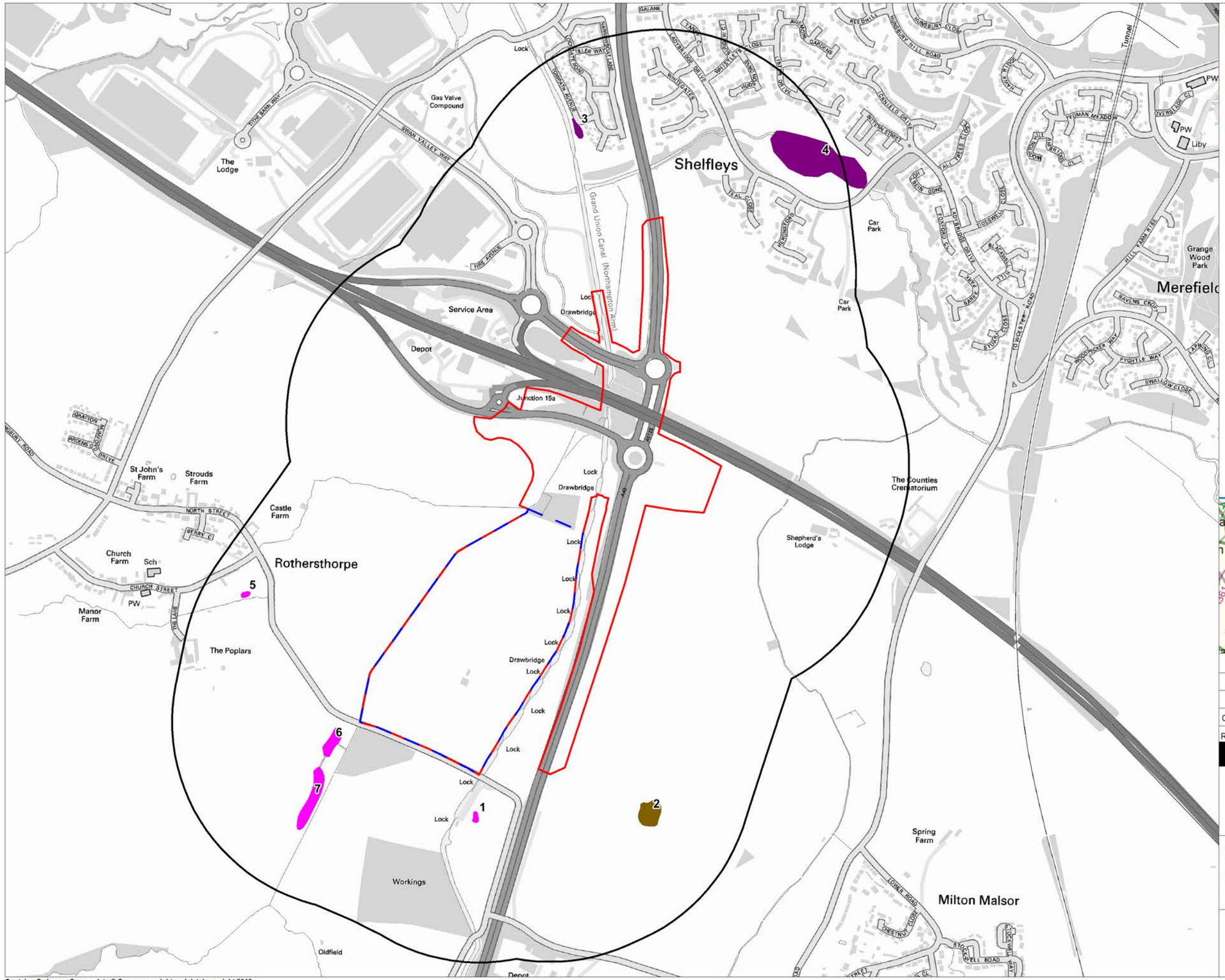
metres

Scale = 1:15,000 @ A3

N W E S

REV 00

File Name : T:\Projects\Projects 855941 - 855960\855950 - Armtrack (Rail Central)\07 GIS



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Rev	Date	Description	Drn	Chk	App
00	29.01.18	855950	SP	RG	RE

Rail Central

RSK

Figure J2.2

HSI Survey Results

0 300

metres

Scale = 1:10,000 @ A3

N W E S

REV 00

File Name : U:\Ecology\855000s\855950 - Armtrack (Rail Central)

Site boundary (July 2017)

500m buffer

Surveyed 2014 (FPCR) - Large Great Crested Newt Population
Surveyed 2017 (RSK) - Medium Great Crested Newt Population

eDNA 2015 - Possitive
Field Surveys 2015 - Negative

eDNA 2015 - Negative, no futher survey

Dry 2015

No Access 2015

Behind major barrier to movment - no further survey

Rev	Date	Description	Drn	Chk	App
00	04.12.17	855950	SP	RG	TC

Rail Central

RSK

Figure J3.1

Pond Survey Results

0 450

metres

Scale = 1:15,000 @ A3

N W E S

REV 00

File Name : U:\Ecology\855000s\855950 - Armtrack (Rail Central)\07 GIS