

Welsh Government

M4 Corridor around Newport

Environmental Statement Volume 3:
Appendix 10.27

Reptile Survey 2015

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Summary

- S.1** RPS has undertaken a reptile survey on land along the route of the proposed M4 Corridor around Newport (M4CaN) between Castleton and Magor to inform the ecological baseline for the Environmental Impact Assessment (EIA) of the Scheme. The EIA is reported in the M4CaN Environmental Statement (ES) of which this document is an appendix to the chapter on Ecology and Nature Conservation.
- S.2** A reptile survey undertaken by Arup on behalf of Welsh Government in 2014 is reported separately in Appendix 10.11 of the M4CaN ES.
- S.3** The 2015 reptile survey was carried out over the period 27th August to 8th October 2015 which falls within the optimum period for this type of survey.
- S.4** A good population of grass snake was recorded at the Tata Steelworks, with low populations of common lizard, grass snake and slow worm at ABP (Associated British Ports). No adders were recorded during the survey.
- S.5** Taking a precautionary approach (and in addition to the areas previously found to support grass snake and common lizard during the Arup 2014 survey) other areas along the route of the new section of motorway, comprising similar habitats to those where reptiles were found were identified during the survey.
- S.6** No surveys were carried out within the Gwent Levels as it is assumed that grass snakes are present throughout.
- S.7** As all reptiles are partially protected by the Wildlife and Countryside Act 1981 (as amended), mitigation measures need to be put in place prior to any construction works that could affect their habitats to ensure that no reptiles are harmed.
- S.8** Avoidance, retention and protection of reptile habitat should be considered the optimal strategy for protecting reptiles. Where this is not feasible it would be necessary to design and implement suitable mitigation measures to translocate reptiles outside of the construction area.
- S.9** A reptile mitigation strategy should be compiled in conjunction with the design to ensure reptiles are protected.

1 Introduction

- 1.1.1** RPS has undertaken a reptile survey on land along the route of the proposed M4 Corridor around Newport (M4CaN) between Castleton and Magor to inform the ecological baseline for environmental impact assessment (EIA) of the Scheme. The survey included land generally within 250 metres of the proposed alignment following the methodology set out in the Herpetofauna Worker's Manual (JNCC, 2003) and Froglife's Advice Sheet 10 (1999). The EIA is reported in the M4CaN Environmental Statement (ES) of which this document is an appendix to the chapter on Ecology and Nature Conservation.
- 1.1.2** A reptile survey previously undertaken by Arup on behalf of Welsh Government in 2014 is reported separately in Appendix 10.11 of the M4CaN ES. A review of that work was undertaken independently by Hyder (see Appendix 9.1 in the ES Scoping Report (ES Appendix 5.1)) and RPS (see ES Chapter 10). The conclusions of that review and the requirements for additional surveys in 2015 were set out in the Scope of Ecology Surveys Report (see Appendix 9.1 of the ES Scoping Report). This was discussed with Natural Resources Wales and they were further consulted on the scope of the proposed surveys through the consultation on the ES Scoping Report.
- 1.1.3** This document reports the findings of the 2015 reptile survey undertaken from 28th August to 8th October 2015 using the standard JNCC and Froglife methods.
- 1.1.4** This report outlines the previous survey carried out and the reasons for this additional survey (Section 2), describes the methods used in the survey (Section 3) and the findings of the survey (Section 4). A discussion of the survey findings is provided in Section 5.

2 Previous Surveys

2.1 Introduction

2.1.1 The 2014 reptile survey is reported in Appendix 10.11 of the ES.

2.1.2 The objectives of the survey were as follows.

- To gain an understanding of the reptile assemblage present within representative habitats within the study area, accessing the species present within different habitat types.
- To highlight any key species or habitats of particular value that may influence the design of the project.

2.1.3 The study area for the purpose of this survey was based on a 500 m buffer around the physical extents of the scheme alignment studied in 2007/8, including the route alignment proposed at that time, potential junctions and water treatment areas. The preferred route announced by Welsh Government in July 2014 is located within the centre of this corridor.

2.2 Survey Method

2.2.1 It was agreed with NRW that a survey of all habitats within the study area that could support reptiles was not appropriate, as it was assumed that grass snake is likely to be present throughout the Gwent Levels in suitable habitats, particularly along reens and associated riparian corridors.

2.2.2 As agreed with NRW, a representative sample of habitats was selected based on the results of the desk study records, previous survey information and assessment of habitat quality/potential from the Phase 1 surveys undertaken. On this basis ten areas were selected for survey, which are detailed below and reported in ES Appendix 10.11.

- An area of waste ground which contains a large pond. Refugia were placed close to spoil heaps in grassland and scrub habitat.
- An area of waste ground with established scrub, tall ruderal and grassland habitats. Refugia was placed within areas of grassland which bordered the scrub.
- Grassland and scrub habitat adjacent to railway line, and used as storage area for vehicles (car park). Refugia were placed within marginal grassland vegetation.
- Mosaic of habitat types including scrub, tall ruderal and open grassland.
- Site was previously industrial, now overgrown with dense scrub, open grassland habitat. Refugia were placed in grassland adjacent to scrub.
- Mosaic of scrub and pond habitat with grassy areas. Refugia were placed in open areas adjacent to an access track, close to scrub and ponds.
- Refugia were placed alongside reens and ditches within land south of Tata steelworks. Habitats included scrub, waste ground, reens and tall grassland.
- Area of scrub and grassland lying adjacent to reen. Refugia were placed along the reen banks and in open grassland areas.

- Broad-leaved woodland and open grassland mosaic. Refugia were placed in open sunny areas.
- Mosaic of scrub and grassland habitats. Refugia were placed in open sunny parts of the area adjacent to the scrub.

2.2.3 The methodology used in the survey followed standard guidance for reptile surveys (Froglife, 1999). The methodology involved the placement of artificial refugia within suitable areas of habitat for reptiles. The refugia were made from rectangles of roofing felt measuring approximately 1 m x 0.5 m with a placement density of approximately 5-10 refugia per hectare within suitable habitat in each area. Areas of suitable reptile habitat were targeted for survey and included south facing slopes, areas of short vegetation close to scrub and suitable hibernation habitat including rubble/wood piles and mounds of crushed aggregate where present.

2.2.4 A total of 300 refugia were installed on 15th-18th July 2014, at least four weeks prior to survey commencement, to allow the refugia to settle and increase the chance of use by reptile populations.

2.2.5 Seven subsequent survey visits were carried out between 27th August and the 30th September 2014, by ecologists experienced in conducting reptile surveys. The refugia were checked during early to late morning and/or early afternoon with a starting air temperature of between 13°C until a maximum of 19°C.

2.2.6 Any pre-existing suitable artificial or natural refugia on site were also checked as part of the survey. Each refuge was lifted carefully to search for reptile species and, where feasible, details of the reptile species, sex, age class and condition of the reptiles encountered were recorded. Once the reptiles had been allowed to escape, the refugia were replaced.

2.2.7 Additional signs of reptile presence such as sloughed skins were also recorded where evident and any live animals observed away from refugia were also recorded.

2.2.8 At the completion of the survey, all refugia were removed from the study area.

2.3 Results

2.3.1 Two species of reptiles were recorded within the survey areas, grass snake *Matrix natrix* and common lizard *Zootoca vivipara*. Grass snake was frequently recorded in five of the survey areas and common lizard less frequently in two of the survey areas. Locations of results are shown on Plans 8-13 of ES Appendix 10.11.

2.3.2 As a precautionary approach it is assumed that grass snakes are present in low numbers throughout the study area within suitable habitats.

Limitations

2.3.3 The survey report does not refer to any specific limitations other than those which relate to species surveys generally. However, surveys could only be carried out in areas to which access was available.

2.4 Desk Study

2.4.1 Historic data was provided by the South East Wales Biodiversity Records Centre (SEWBRc). This included a search of all reptile records from the study area and a 2 km buffer.

2.4.2 Slow worm *Anguis fragilis*, grass snake, adder *Vipera berus* and common lizard have been recorded within the search area.

2.5 Requirements For Further Survey

2.5.1 The Arup 2014 report makes no recommendations regarding any requirements for further surveys.

2.5.2 At the Hyder/NRW meeting on 30th January 2015 it was agreed that any reptile surveys in 2015 could focus on areas not previously surveyed (owing to access restrictions) that are considered (upon review of the Phase 1 habitat survey and aerial photographs) to be potentially valuable for reptiles.

2.5.3 NRW suggested that some of the habitats in the Llanwern/Tata area were likely to be suitable, along with brownfield sites that may not yet have been surveyed.

2.5.4 It was also agreed that grass snakes could be considered to be present across the Gwent Levels, and that further surveys for this species would not help inform the assessment (which should assume presence across the Levels).

2.5.5 Having considered the report of the previous reptile survey in this context, additional areas of reptile survey of three areas within and adjacent to the proposed new section of motorway were identified. These were an area of brownfield land within the ABP estate at Newport Docks that was not previously accessible, a long south facing bank of the former steel works lagoons, and a field of scattered scrub to the south of the steel works access road (survey of this last area was not completed, as discussed in Section 3).

3 Survey Methods

3.1 Introduction

3.1.1 The reptile survey was carried out over the period 27th August to 8th October 2015, which falls within the optimum period for this type of survey.

3.1.2 Three areas were identified for survey. These areas were:

- an area of brownfield land within the ABP estate at Newport Docks which was not previously accessible and other suitable accessible habitat within the Docks;
- along a south facing bank of the former Tata steel works lagoons; and
- a field of scattered scrub to the south of the steel works access road.

3.1.3 The reptile survey was not carried out in the field of scattered scrub to the south of the steel works access road, as this area had become overgrown with small trees and willow scrub. The area was bordered by steep ditches that were overgrown with reeds. It was considered that this area was unsuitable for reptiles as there were no south facing slopes, areas of short vegetation close to scrub or suitable hibernation habitat including rubble/wood piles and mounds of crushed aggregate (Photograph 1 and 2).

3.1.4 The locations of the reptile refugia on the other two sites are shown in Figure 1.

3.2 Methodology

3.2.1 The reptile survey followed the methodology described in the Herpetofauna Worker's Manual (JNCC, 2003) and Froglife's Advice Sheet 10 (1999).

3.2.2 The reptile survey was conducted using artificial refugia made from roofing felt measuring 50 cm x 50 cm. These provide shelter and basking opportunities for reptiles, which can be recorded on or under the refugia in suitable weather conditions.

3.2.3 The placement density of approximately 5-10 refugia per hectare was used within areas of suitable habitat at each location. Areas of suitable habitat include south facing slopes and areas of short vegetation close to scrub or suitable hibernation habitat such as rubble/wood piles.

3.2.4 On the 15th July 2015, 150 reptile refugia were placed in areas within Newport Docks identified as most suitable for reptiles and which had optimal basking opportunities.

3.2.5 On the 13th August 2015, 90 reptile refugia were placed in areas within Tata steelworks land identified as most suitable for reptiles and which had optimal basking opportunities.

3.2.6 The refugia were left undisturbed for several weeks prior to the first survey being undertaken in order to allow them to bed down and to allow time for reptiles to find them.

3.2.7 Reptiles are best surveyed from April following hibernation until June and/or in September and into mid-October if suitable weather persists. During these times

of year the sun is often shining but air temperatures are low so reptiles spend a long time basking and are therefore more easily observed. High temperatures reduce the amount of basking time needed by reptiles so surveying using refugia can be ineffective in July and August when temperatures are typically higher.

3.2.8 In accordance with best practice guidelines, seven survey visits were undertaken between 27th August and 8th October to inspect the refugia and a visual search was undertaken when the refugia were being laid. On each of the seven visits each refuge was inspected for reptiles basking on top and was then lifted in order to identify any reptiles beneath. The number, species, age class and where possible, sex of each reptile observed would be recorded.

3.2.9 Visit times were selected to coincide with suitable weather conditions and times of day when refugia would be acting as heat traps which would attract reptiles to use them whilst basking. Periods of strong wind or heavy rain were avoided and surveys were undertaken during periods of sunshine and when air temperatures were between 10 and 20°C.

Reptile Population Size Assessment

3.2.10 Froglife (1999) provides a basic index of relative abundance of reptiles based on peak survey counts (Table 3.1). Figures in the table refer to the maximum number of adults seen whether in the open or on or under refuges by one person in one day.

Table 3.1: Reptile Population Size Class

	Low population	Good population	Exceptional population
Adder	<5	5-10	>10
Grass snake	<5	5-10	>10
Common lizard	<5	5-10	>20
Slow-worm	<5	5-10	>20

3.3 Limitations

3.3.1 Within ABP land two of the surveys were split over two separate days as access was not possible along the railway line due to trains being present and access restricted to the reedbed, due to locked gates.

4 Results

4.1 Introduction

4.1.1 The results of the survey are described in this section. Dates, weather conditions and reptiles found at each survey area are provided in Tables 4.1 and 4.2. Locations of reptiles found are shown on Figure 2.

4.2 Results

4.2.1 Survey visits when the artificial refugia were checked and visual searches made were undertaken on the following dates.

- Tata Steelworks – 27th August, 4th, 11th, 17th, 18th, 25th and 30th September 2015.
- ABP – 10th, 11th, 17th, 18th, 24th, 28th, 29th and 30th September and 8th October 2015.

Table 4.1: Survey Results Tata Steelworks

Survey	Date	Weather	Reptiles found
1	27 th August 2015	Dry, sunny, no wind 12-14C	6 grass snakes (3 juvenile, 2 males, 1 female)
2	4 th Sept 2015	Dry, mostly sunny, no wind 12-14C	5 grass snakes (3 juvenile, 1 male and 1 adult)
3	11 th Sept 2015	Dry, overcast, no wind 20C	1 adult grass snake
4	17 th Sept 2015	Dry, sunny, light wind 15C	1 male grass snake
5	18 th Sept 2015	Dry, sunny, no wind, 14-18C	1 male grass snake
6	25 th Sept 2015	Dry, sunny, no wind, 16C	1 female grass snake
7	30 th Sept 2015	Dry, sunny, strong wind, 17C	2 female grass snakes

Table 4.2: Survey Results ABP

Survey	Date	Weather	Reptiles found
1	10 th Sept 2015	Dry, sunny, no wind, 16C	None
2	11 th Sept 2015/ 28 th Sept 2015	Dry, sunny, light wind, 18C/ dry, sunny, no wind	1 adult grass snake
3	17 th Sept 2015/ 29 th Sept 2015	Dry, sunny, no wind, 16C/ Dry, cool, no wind, 16C	1 female slow worm, 1 common lizard
4	18 th Sept 2015	Dry after a brief shower, sunny with brief shower during survey, no wind	1 female slow worm
5	24 th Sept 2015	Light showers with sunny intervals, no wind, 15C	1 female slow worm

Survey	Date	Weather	Reptiles found
6	30 th Sept 2015	Dry, sunny, light wind, 15-16C	1 adult grass snake
7	8 th October 2015	Dry, sunny, light wind 10-14C	None

Tata Steelworks

4.2.2 Only grass snakes were observed basking under artificial refuges. The full results are provided in the table above and the distribution of these observations is shown on Figure 2.

4.2.3 The peak count of grass snakes was 6 indicating a good population within the area.

4.2.4 Male, female and juvenile grass snakes were observed indicating that a breeding population is present within the survey area.

ABP

4.2.5 Common lizard, grass snake and slow worm were observed basking under artificial refuges. The full results are provided in the table above and the distribution of these observations is shown on Figure 2.

4.2.6 The peak counts of 1 common lizard, 1 grass snake and 1 slow worm indicate that low population size classes of these reptiles are present within the survey area.

4.2.7 The rest of the ABP land in the vicinity of the new section of motorway did not comprise suitable habitat for reptiles and therefore the populations are likely to be confined to the grassland and open scrub within the ABP site. However, they are likely to extend further northwards within grassland and scrub areas within the adjoining landfill site and bank of the River Ebbw outside the survey boundary.

Incidental Sightings

4.2.8 Several other incidental sightings of grass snake were recorded across the survey area during other surveys. These are detailed in the table below and on Figure 2.

Table 4.3: Incidental Sightings of Reptiles

Date	Location	Reptiles observed
5 th June 2015	Whitecross Farm ST30258457	Adult grass snake
29 th June 2015	Wales Coast Path west of Pye Corner	Adult grass snake
July 2015	Near Bareland Street Reen	Adult grass snake
11 th August 2015	Tata reedbed attenuation area ST36028583	Adult grass snake
25 th September 2015	ABP	Female grass snake

4.2.9 In addition to reptiles, great crested newts were also recorded during the survey. A female and a juvenile (recorded under the same mat twice) were observed within the eastern survey area within the Tata steelworks land. These findings

are reported within the Great Crested Newt survey report and shown on Figure 1 within Appendix 10.22 of the ES.

5 Discussion

5.1 Introduction

- 5.1.1** The 2015 reptile surveys focused on areas that were not previously surveyed, due to access restrictions, and which were considered to be potentially valuable for reptiles. These areas were determined from a review of the findings of the Phase 1 habitat survey and aerial photographs.
- 5.1.2** The areas selected were brownfield land within the ABP estate at Newport Docks which was not accessible to Arup in 2014 and a long south facing bank of the Tata Steelworks lagoons.
- 5.1.3** A field of scattered scrub near the Tata Steelworks entrance originally proposed for survey was not completed as site inspection showed it was not suitable for reptiles.

5.2 Survey Findings

- 5.2.1** Survey sites within the proposed survey areas were selected that were considered to have most potential as reptile habitat. The areas of land within the ABP land that were considered as suitable habitat consisted of a brownfield land, scrub, waste ground and tall grassland. The area of land surveyed in Tata ownership was a south facing bank between the lagoons and reens.
- 5.2.2** Three species of reptile were recorded during the survey: grass snake within the Tata land; and common lizard, grass snake and slow worm within the ABP land.
- 5.2.3** A good population of grass snake was recorded at Tata Steelworks and low populations of common lizard, grass snake and slow worm were recorded at ABP. No adders were recorded during the survey.
- 5.2.4** Taking a precautionary approach (and in addition to the areas previously found to support grass snake and common lizard during the Arup 2014 survey) other areas along the alignment of the new section of motorway comprising similar habitats to those where reptiles were found may also support these species, particularly areas near to the populations identified during the survey.
- 5.2.5** No surveys were carried out within the Gwent Levels as it is assumed that grass snakes are present throughout.

5.3 Key Considerations

- 5.3.1** As all reptiles are partially protected by the Wildlife and Countryside Act 1981 (as amended) mitigation measures need to be put in place prior to any construction works that could affect their habitats to ensure that reptiles are not harmed.
- 5.3.2** Avoidance, retention and protection of reptile habitat should be considered the optimal strategy for protecting reptiles. Where this is not feasible it would be necessary to design and implement suitable mitigation measures to translocate reptiles outside of the construction area.
- 5.3.3** A reptile mitigation strategy should be compiled in conjunction with the design of the Scheme to ensure reptiles are protected.

5.4 Further Surveys

5.4.1 No further requirement for reptile surveys has been identified.

6 References

Edgar, P., Foster, J. and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.

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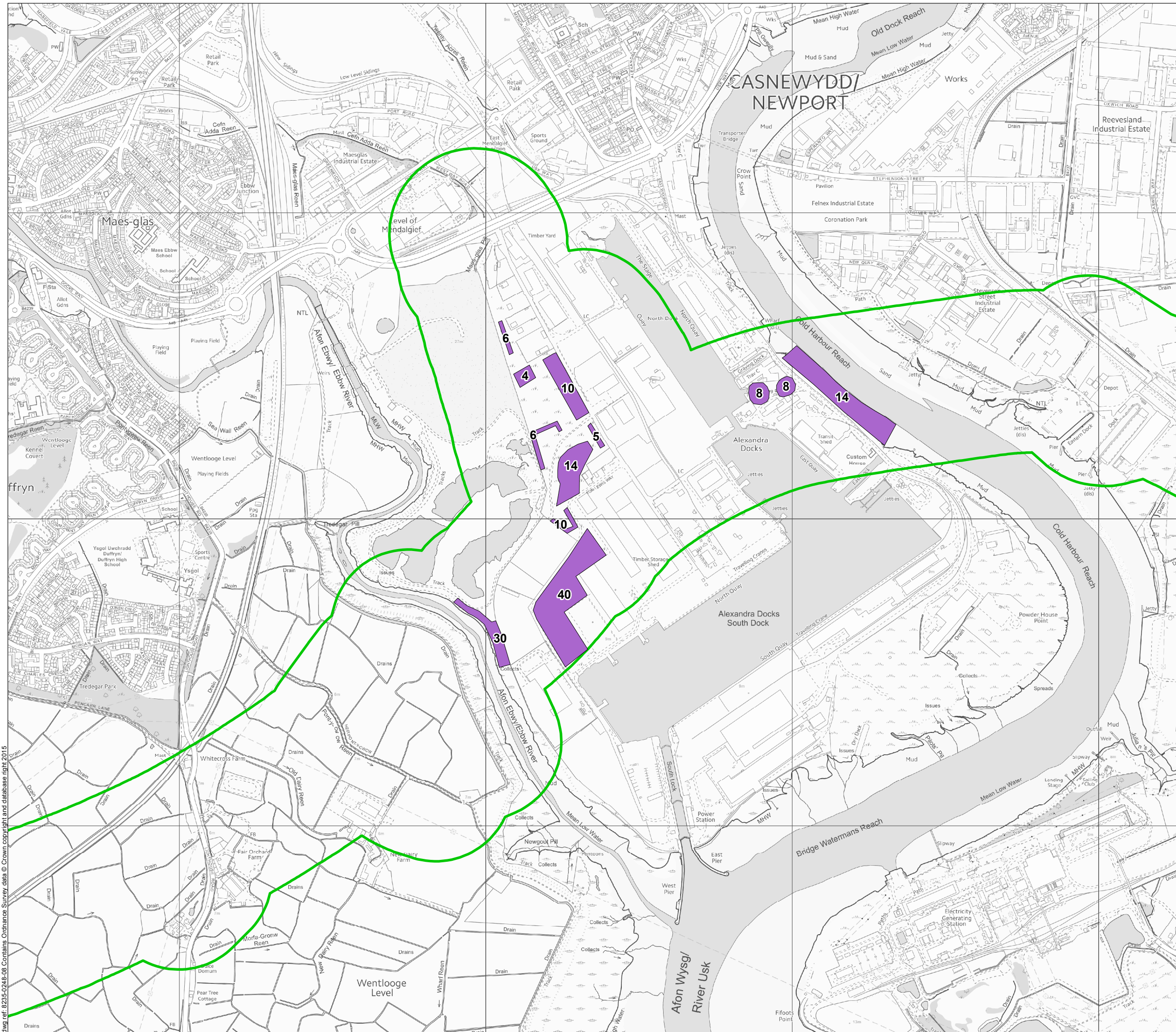
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Figures



Legend

Refugia

- ABP
- Tata steelworks
- 250m Study Area

Study area shown reflects the scheme design at the time of the survey

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Appendix 10.27 Reptile Survey

Survey Area Locations of Reptile Refugia

Figure: 1.a	Revision: -
Date: March 2016	Status: AT ISSUE
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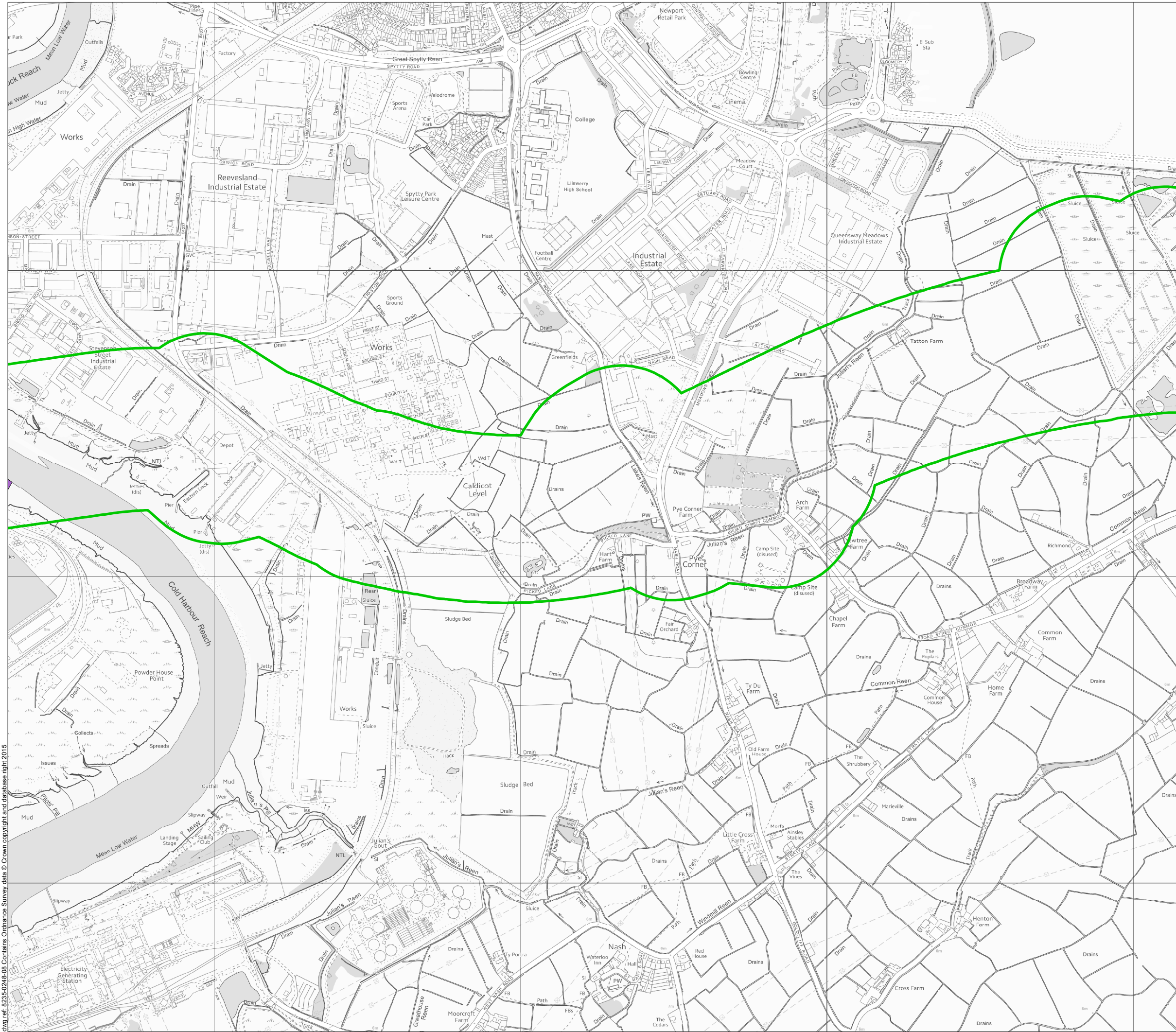
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dwg ref: 8235-0248-08

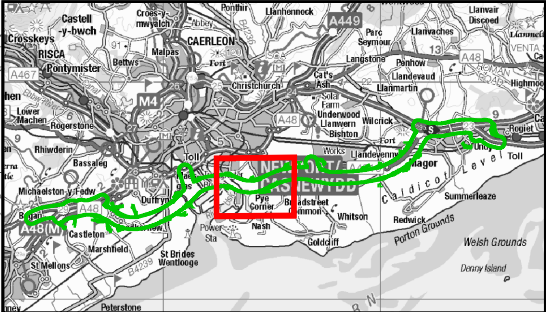


Legend

Refugia

- ABP
- Tata steelworks
- 250m Study Area

Study area shown reflects the scheme design at the time of the survey

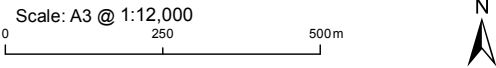


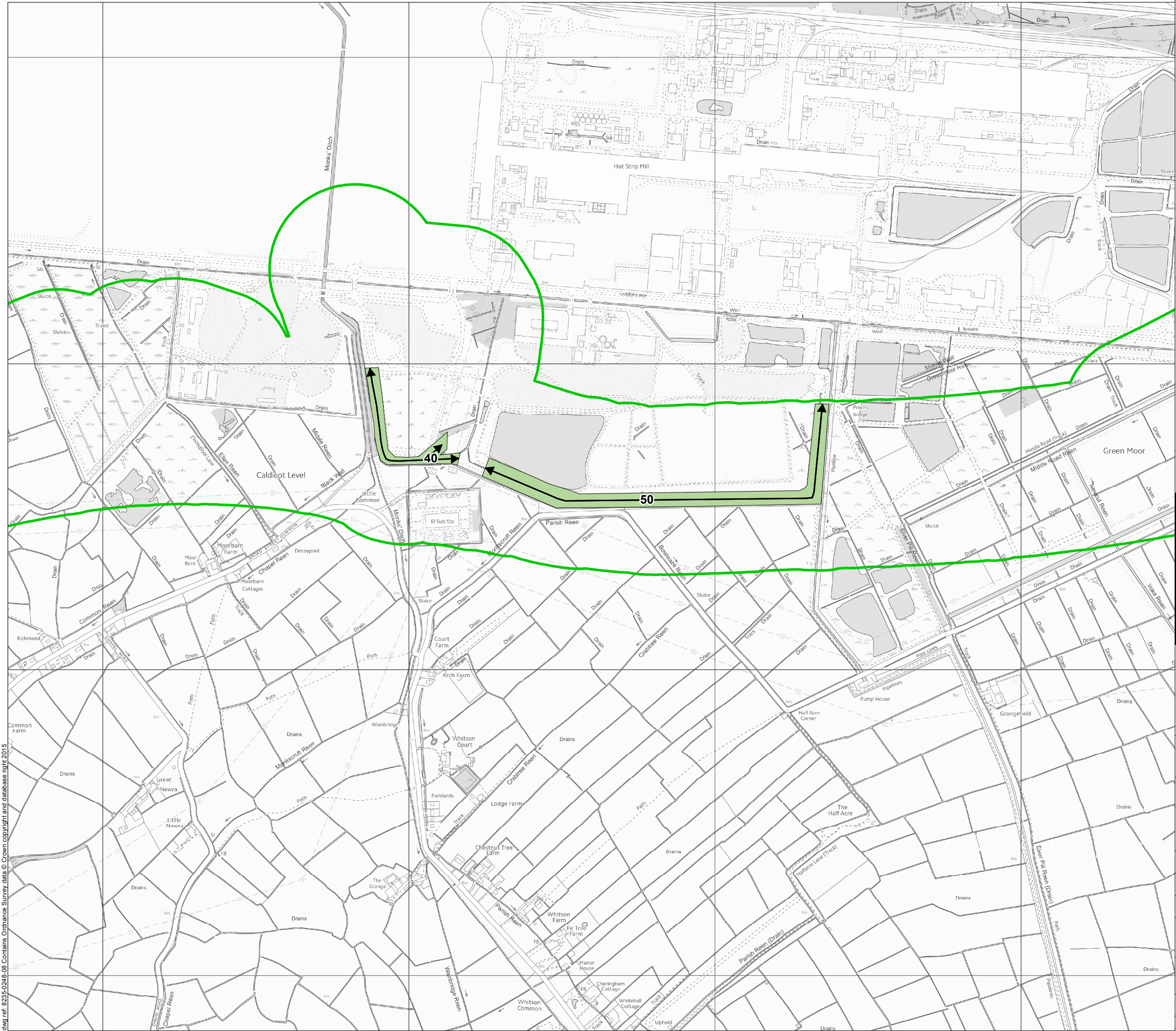
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Appendix 10.27 Reptile Survey

Survey Area Locations of Reptile Refugia

Figure: 1.b	Revision: -
Date: March 2016	Status: AT ISSUE
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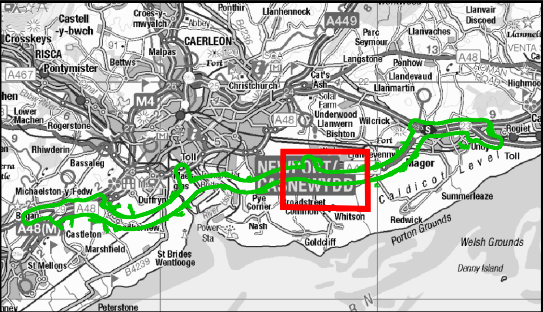


Legend

Refugia

- ABP
- Tata steelworks
- 250m Study Area

Study area shown reflects the scheme design at the time of the survey



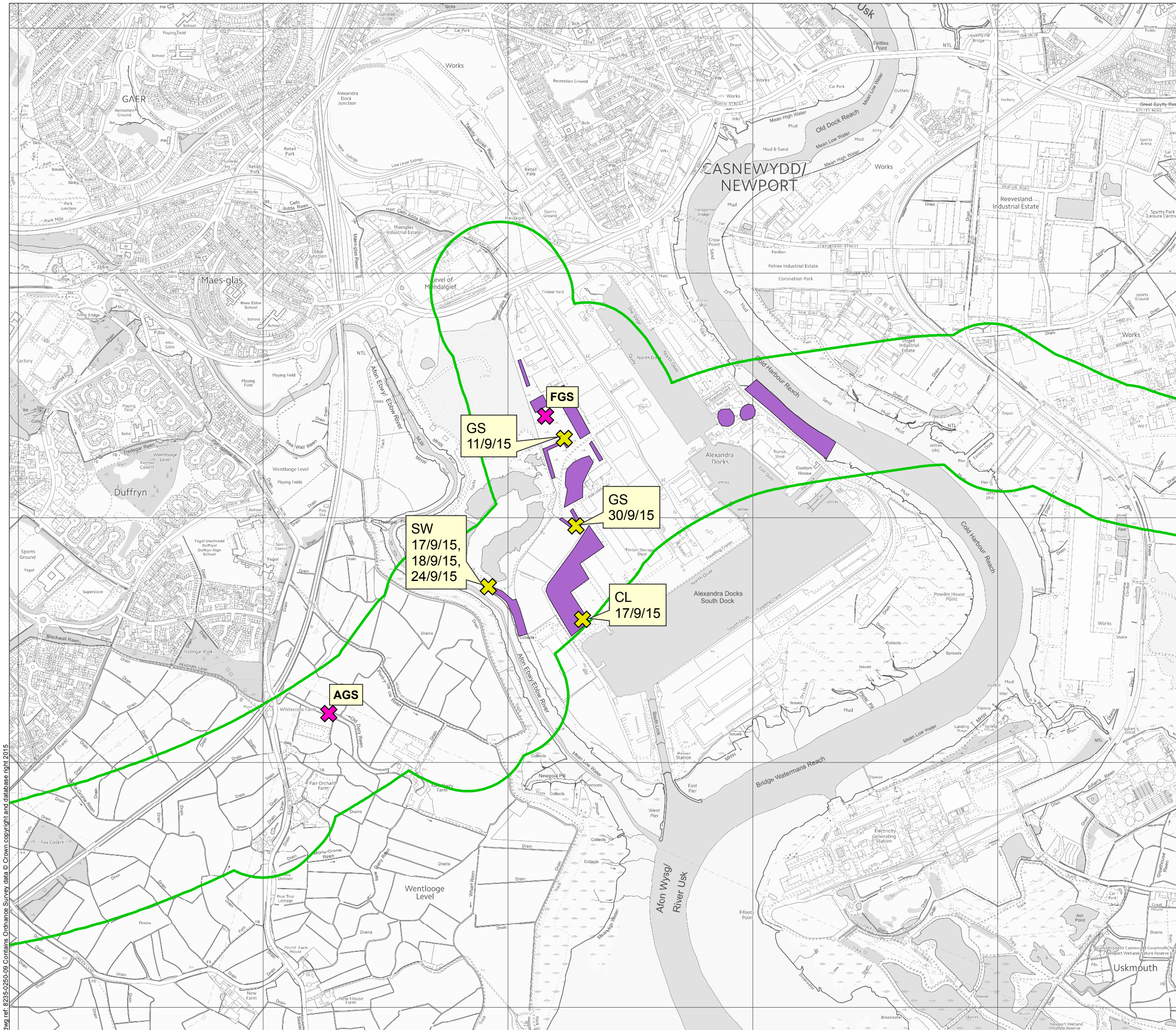
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Appendix 10.27 Reptile Survey

**Survey Area Locations of Reptile
Refugia**

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Legend

Refugia

ABP

Tata steelworks

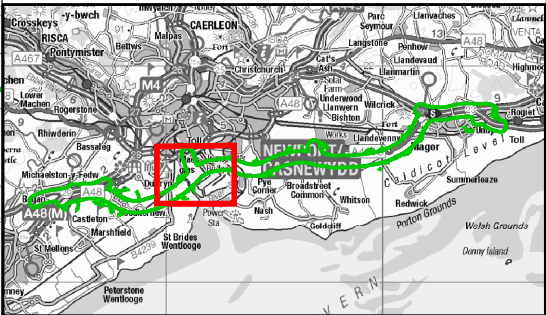
250m Study area

Reptile Location

Incidental Reptile Sightings

GS	Grass snake
AGS	Adult grass snake
FGS	Female grass snake
MGS	Male grass snake
JGS	Juvenile grass snake
SW	Female slow worm
CL	Common Lizard

Study area shown reflects the scheme design at the time of the survey

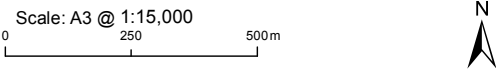


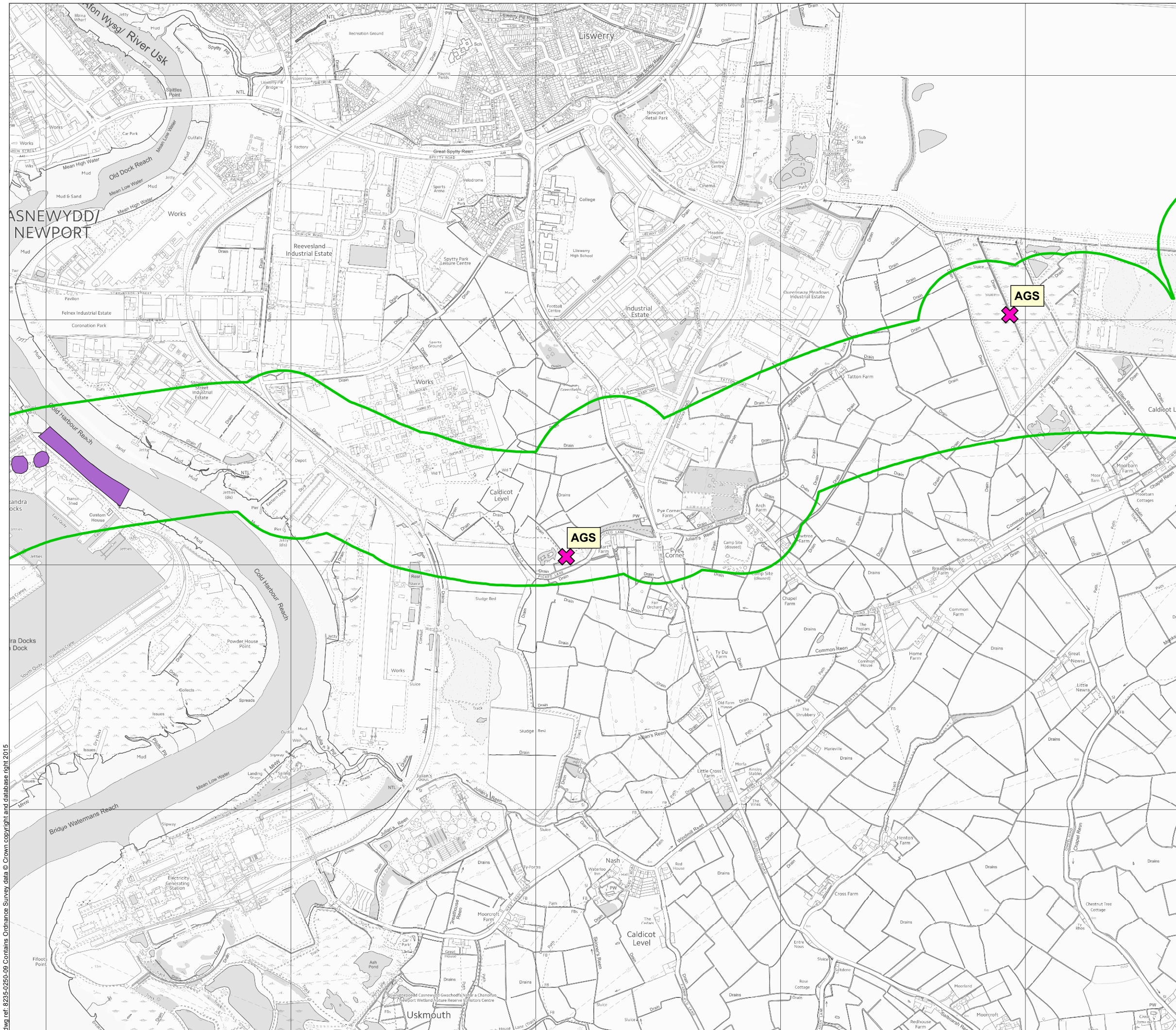
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Appendix 10.27 Reptile Survey

Survey Results

Figure: 2a	Revision: -
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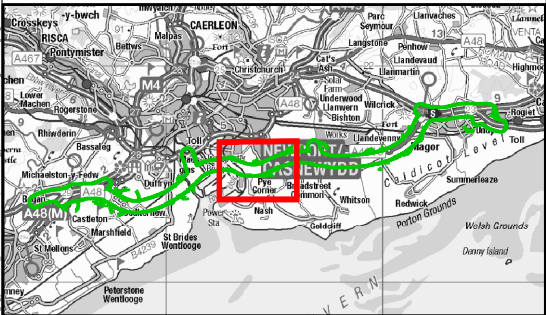
Legend

Refugia

- ABP
- Tata steelworks
- 250m Study area
- Reptile Location
- Incidental Reptile Sightings

GS	Grass snake
AGS	Adult grass snake
FGS	Female grass snake
MGS	Male grass snake
JGS	Juvenile grass snake
SW	Female slow worm
CL	Common Lizard

Study area shown reflects the scheme design at the time of the survey



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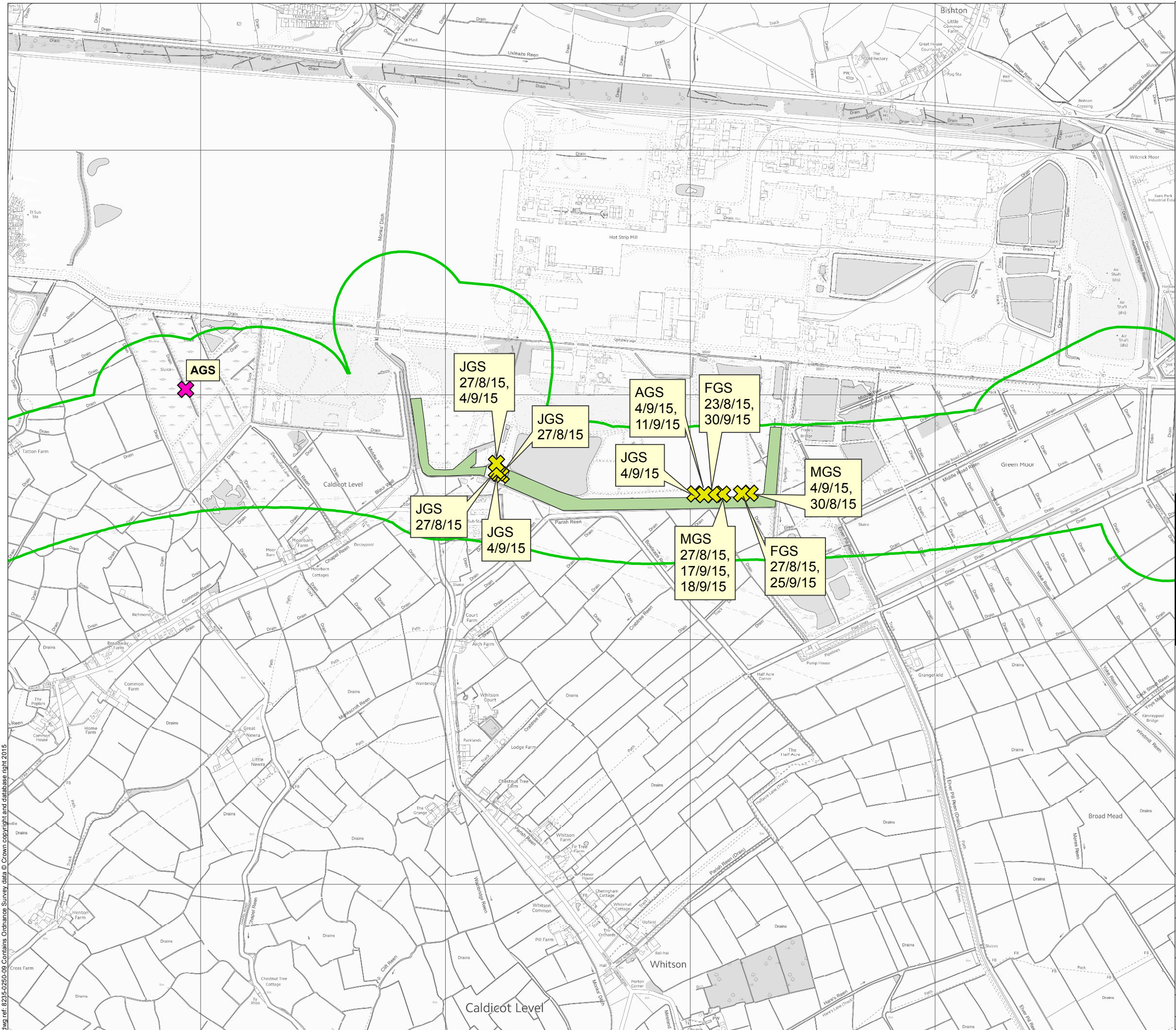
Appendix 10.27 Reptile Survey

Survey Results

Figure: 2b	Revision: -
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Scale: A3 @ 1:15,000
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Legend

Refugia

ABP

Tata steelworks

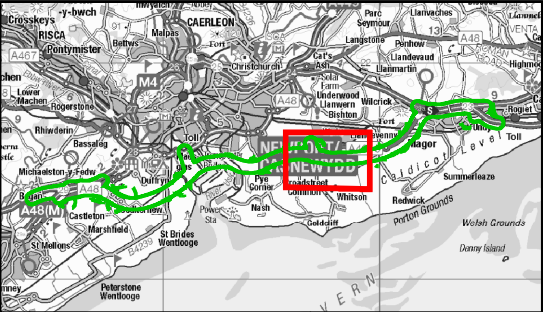
250m Study area

Reptile Location

Incidental Reptile Sightings

GS	Grass snake
AGS	Adult grass snake
FGS	Female grass snake
MGS	Male grass snake
JGS	Juvenile grass snake
SW	Female slow worm
CL	Common Lizard

Study area shown reflects the scheme design at the time of the survey

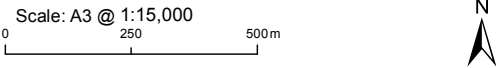


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Appendix 10.27 Reptile Survey

Survey Results

Figure: 2c	Revision: -
Date: March 2016	Status: AT ISSUE
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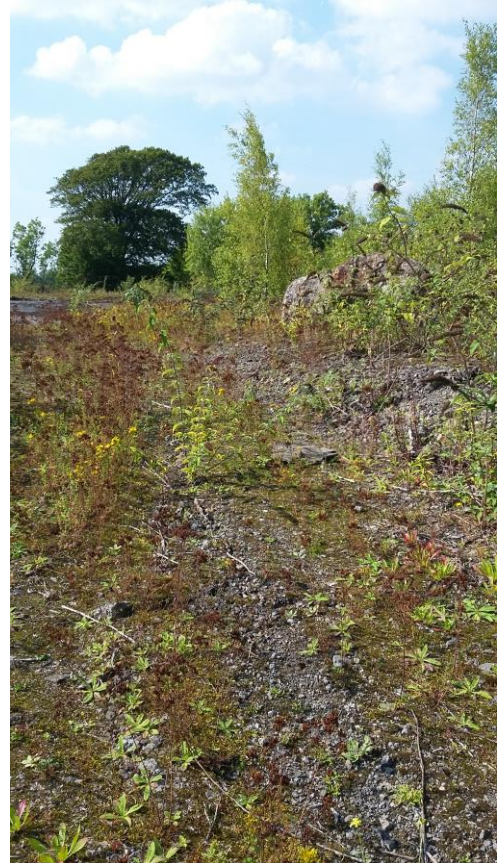
Photographs



Photographs 1 and 2: Area not surveyed



Photograph 3, 4 and 5: ABP



Photographs 6 and 7: Tata Steelworks