

Appendix 12.7

Protected Species Survey Part 1



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A9 Dualling - Project 9 Crubenmore to Kincaig

Protected Terrestrial Vertebrate Species Survey

Prepared by LUC
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1 Executive Summary

1.1 The CH2M/Fairhurst Joint Venture (CFJV) is responsible for designing and delivering the central section of the A9 Dualling project, Glen Garry to Kincaig. CFJV commissioned LUC, in June 2015, to undertake a survey of the protected vertebrate species found in the terrestrial habitats of the central section. The purpose of the survey is to establish a baseline of the protected fauna species and inform the Environmental Statement of the proposed dualling of the A9 trunk road.

1.2 The third section to be surveyed was Project 9, Crubenmore to Kincaig. The habitats along the Project 9 section are more diverse than areas further south along the A9 corridor in central highland. This diversity is a result of historic human presence, more typical of the north central highland region, by mixing villages and hamlets with intense grazing, mixed and wet woodland, heathland and large extensive marsh. Project 9 skims along the edges of the long-established villages of Newtonmore and Kingussie, the Spey river valley, and the Insh Marshes National Nature Reserve. This latter site holds several international designations, one national designation, and skirts the edge of Project 9 along the northern third of the survey area.

1.3 The key characteristics of the Project 9 survey area could be considered as dividing the area into three more distinct sections. The southern third contains a mosaic of open moorland punctuated by plantation woodland and rough grazing pasture; this area starts to change at the junction with Newtonmore. The central third is more heavily influenced by the intensive agricultural land management and farm steadings and associated infrastructure to provide connection to the A9, Newtonmore and Kingussie. The northern section of the survey area begins around the eastern edge of Kingussie; a scattering of varying dwelling houses becomes evident. The railway line and the B9152 road also results in a greater habitat fragmentation impact. The key wildlife corridor within this survey area is the River Spey. Its tributaries are variable and modified generally along the A9 corridor, for those reasons given above.

1.4 As a result of the more widely spread human disturbance but more diverse habitat, extensive evidence of protected terrestrial vertebrate species was found within the survey area. Of those species targeted in the survey, the following conclusions can be made:

- Otter activity was scattered through much of the site, though still relatively low given the European designation for this species within the area. The otter signs were found on the more significant watercourses, with the highest concentrations on the River Spey south of Newtonmore and beneath the A9 road bridge southeast of Kingussie. Five otter resting sites were identified
- Water vole activity was very low with a single, discrete area of activity (no burrows recorded) located near Ralia Cafe
- No signs of badger were recorded, despite optimal habitat being present
- Red squirrel activity was high (even around dwellinghouses) and scattered across the entire length of the survey area, particularly in the better quality mature woodland south west of Newtonmore and south of Kingussie
- No signs of wildcat were recorded
- No signs of pine marten were recorded
- There is notable bat roosting potential within the area within mature trees and in aging farm steadings, though only one roost was confirmed
- Sightings of other species are noted, but very low in general with only a single observation each for common lizard and brown hare.

2 Introduction

Remit

2.1 LUC was commissioned by the **CFJV** to undertake a protected species survey, limited to terrestrial vertebrates, along the length of Project 9. The species targeted and study areas surveyed were agreed with Transport Scotland¹, in consultation with Scottish Natural Heritage (SNH) and the Cairngorms National Park Authority (CNPA), and include:

- Otter
- Water Vole
- Badger
- Red Squirrel
- Wildcat
- Pine Marten
- Bats.

2.2 The survey is required to help establish an ecological baseline of the road corridor which will inform the design options and subsequent Environmental Statement for the central section, Glen Garry to Kincaig.

2.3 **This report sets out the methods adopted, the baseline findings and an interpretation of the site's** ecological features as they relate to terrestrial vertebrates; the remit of this particular report is limited to the Project 9 area.

Proposed Development

2.4 This report informs the Ecological Impact Assessment of the proposed dualling of the A9 between Crubenmore and Kincaig, an 18.4 km stretch of road which is currently comprised of a single carriageway trunk road. At the time of writing this section was still in the early design stages. It is likely that the proposal will include new junctions for Newtonmore and Kingussie and a new or widened bridge crossing over the River Spey.

Site Description

2.5 The three projects forming the central section are characterised by varying habitats, with the Project 9 section (Crubenmore to Kincaig) being influenced by long-established human settlements, intensive agriculture, and the River Spey. The existing A9 trunk road and its embankments form the main study corridor. A relatively narrow survey buffer was applied to either side of the existing road corridor to allow consideration of various scheme design options.

2.6 The habitats on either side of the road within Project 9 are dominated by intensive agriculture, primarily livestock grazing, particularly along the fertile Spey corridor. Houses, farmsteads, and settlements associated with historic agricultural management of this area were also noted to be in greater densities than further south in the higher open moorland. The growing villages of Kingussie and

¹ CVJV/JUK/AM. 2015. *Appendix B: Paper on Consistency in A9 Dualling Programme Ecological Survey Extents*. Prepared for Transport Scotland

Newtonmore, founded in the late 18th and mid-19th centuries (respectively) along with the railway line, are testament to the increased presence of people and cultivation of the land immediately around the River Spey and A9 road corridor. This is evidenced by the intensive land use found along this area and relatively large number of scattered dwellings surrounding these two settlements.

2.7 Patches of mature woodland and wood belts are scattered along the route, create pockets of better quality habitat on the south and east side of the A9. The woodland resource is composed of wet broadleaved woodland, found along the Spey and its tributaries, mixed woodland, along the A9 trunk road, and conifer plantation blocks, of varying sizes interspersed along this region. Though not great in size, the woodland blocks within the survey area are connected to wider woodlands outwith the study area.

2.8 The Insh Marshes National Nature Reserve (**NNR**), managed by the **Royal Society for the Protection of Birds (RSPB) Scotland**, is also designated as part of the River Spey – Insh Marshes **Site of Special Scientific Interest (SSSI)**, **Special Protection Area (SPA)** and Ramsar, and the Insh Marshes SPA. This reserve dominates the north-eastern third of the Project 9 survey area. The reserve is separated from the A9 survey area by the railway line along the centre of this zone and B9152 along its length (excepting a small patch of marsh thrusting up between Lynchat and the cemetery).

2.9 Target notes are provided in **Annex 1** and further detail of survey results in the form of mapped data can be found in **Annex 2**. Photographs of key findings or of best examples of field signs can be found in **Annex 3**.

Policy and Legislation

2.10 The report has been prepared in cognisance of relevant legislation and policy, including European and domestic environmental legislation, UK nature conservation policy and local biodiversity guidance.

2.11 European and national legislation along with planning policy and guidance relevant to the site is listed below:

- *The Conservation (Natural Habitats, &c.) Regulations 1994*, as amended in Scotland
- *The Wildlife and Countryside Act 1981, as amended in Scotland*
- *The Protection of Badgers Act 1992*, as amended in Scotland.

3 Methods

Desk Study

3.1 Jacobs UK are the data custodians for the A9 Dualling Project. All data previously gathered for this project has been examined in a desk based study to help inform future surveys and site investigations. As there is no one complete source of confirmed data for species records in this area, much of the desk study findings result from previous inspections of the project area or a coarse analysis of other environmental surveys of the site, e.g. for Phase 1 habitat or structural surveys. Of those records which are dated, none are older than 2004. The findings of the desk-based search are provided in **Annex 4**, both in tabular and figure formats. However, a brief summary of the notable terrestrial vertebrate species recorded historically in the Project 9 survey area can be found in this report.

3.2 While the data provides useful **context, it's been offered in a format that does not allow detailed** interpretation as the data has not been sanitised or validated for assessment. Accordingly, there are apparent duplications and the comments, where provided, are taken out of context from the original record.

Field Study

3.3 A survey for the statutorily protected terrestrial vertebrate species expected to be present, as outlined below, commenced in August 2015. Project 9 was surveyed by two two-person teams traversing the site on foot. A project footprint was determined by the CFJV to encompass the existing road and all mainline and junction options being considered; in some locations it is significantly larger than the final scheme is likely to be. A survey buffer was applied to both sides of the road in order to ensure complete collection of data in advance of design plans. The survey buffer extended to 50m on either side of the project footprint for terrestrial habitats and was extended to 100m on either side where watercourses or waterbodies were encountered².

3.4 **For clarity, the 'survey area'** includes both the project footprint and the agreed buffers for each habitat type, where accessible.

3.5 All observations were recorded on hand-held android tablets using the Arc Collector app from Esri. By using mobile GIS mapping devices, surveyors were able to quickly record all data and digitise locations in the field for improved accuracy and efficiency. By using tablets, all information provided, such as the project footprint and access constraints, were accessible and viewable in the field. Photographs are automatically geo-referenced allowing for improved analysis. The rolling digitisation of site records also allowed for immediate upload and use of the data by the CFJV ecologists and engineers. The tablets allowed surveyors to draw polygons where areas of habitat suitability or use by sheltering animals were noted. When a sheltering site could be considered to cover a larger area, such as red squirrel habitat woodlands containing several dreys, polygons were used rather than a large number of individual points for each sign. Point-data for specific records, such as sprainting sites or holts, were also recorded.

3.6 The following species were searched for within the survey area, as informed by the results of the desk study, and by our understanding of protected species in Central Highland².

Otter

3.7 All accessible riparian habitats within the survey area were surveyed to allow an assessment of the suitability of the site for use by otters *Lutra lutra*. Specifically, structures and vegetation growth which

² See Footnote Reference 1 (CFJV/JUK/AM 2015)

could offer otters a lying-up site were checked or noted for sheltering potential. The likelihood of sheltering at a particular structure was determined by the quality of the feature and the ability to provide key requirements for otters, i.e. commuting and foraging opportunities and cover and seclusion to allow rest. If the site offered reasonable sheltering potential it was noted on the tablet on the 'habitat suitability' layer.

3.8 Where specific signs of otter presence were found, these were noted as point-data. Signs of otter activity, including spraints (recording whether recent or old), tracks, runs, slides, feeding remains, and resting sites, along all accessible watercourses and -bodies were recorded in line with the methods detailed in SNH's Guidance for Otter Survey³. The resting sites are defined as:

- **Holt:** A cavity or hole, in the ground, under tree roots, within rocks or caves where the back cannot be readily seen. If a holt is confirmed as active it usually contains field evidence such as spraints
- **Hover:** The term hover is used to describe a bolt hole or ledge that provides temporary cover or a place to eat captured prey. It is not fully enclosed and the back of the hover can usually be seen. There may be spraints, footprints, and feeding evidence present
- **Couch:** This is a place above ground where an otter can lie up or groom. These may take the form of a depression in tall vegetation where the otter has been lying, or may be covered in a vegetated grass or reed 'roof' and contain bedding
- **Breeding site:** A term used to identify an area of land in which otters breed. The site may be large and it is usually more important to protect this site than an individual natal holt
- **Natal holt:** A discreet holt site that is used by a bitch to birth cubs, where they will usually remain here for up to 3 months, before being moved to a secondary holt. These sites are seldom located in the field and are rarely recorded without aid of camera traps. It is generally accepted that most natal holts will contain bedding material and sprainting activity is minimal whilst occupied.

3.9 Spraints are described as the follows:

- **Fresh:** The spraint is still very moist and pungent, and was likely to have been deposited within the last few days or hours
- **Recent:** The spraint has become decayed but retains consistency and some odour, it is dry and colour is more faded; it is likely to have been deposited within the last week or two
- **Old:** The spraint is desiccated and powdery having lost its shape and most odour. Usually remains are still evident and identifiable. It is likely to have been deposited approximately a month ago (sometimes longer).

Water Vole

3.10 As with otters, all accessible riparian habitats within the survey area were surveyed for water voles *Arvicola amphibious*, in line with the Water Vole Conservation Handbook⁴. The objectives of the survey were to identify the presence of suitable habitat for water voles within the survey area and detect field evidence of their presence. Signs of water vole included latrines/droppings, feeding evidence (e.g. caches and lawns), and burrows along all accessible watercourses and -bodies present.

3.11 Where watercourses and their adjacent vegetation had potential to support sheltering water vole, the area was digitised in the field as a polygon and recorded as such. Where definitive signs of water vole were encountered they were recorded as either point-data for individual signs (e.g. isolated latrine), or within a polygon (e.g. a complex of burrows and latrines). If a watercourse supported water voles along its length, the polygon started at the feature nearest the A9 road and extended to enclose all signs for that reach.

³ <http://www.snh.org.uk/publications/on-line/wildlife/otters/default.asp>

⁴ Strachan and Moorhouse (2006) Water Vole Conservation Handbook (2nd Edition)

Badger

3.12 The search for badgers *Meles meles* followed the method described in Harris *et al.*⁵ in the publication 'Surveying for Badgers'. Badger territories in the Highlands tend to be large and wide-ranging. However badgers, being habitual creatures, can be found in typical habitats characterised as sheltered areas with free-draining soils, especially in larger territories with greater choice for habitat. While attention was focussed on forested or scrubby areas, drier grassland parts of the site were also searched, where present. Signs of badgers encountered on site would be recorded on the tablets as point data.

3.13 Direct evidence of badgers searched for included:

- Badger setts
- Tracks, prints and paths
- Hair
- Latrines and dung pits (fresh, recent or old)
- Feeding remains.

3.14 The setts are defined as:

- **Main:** These usually have a large number of holes with large spoil heaps, and the sett generally looks well used. They usually have well used paths to and from the sett and between sett entrances
- **Annexe:** These usually have a large number of holes with large spoil heaps, and the sett generally looks well used. They usually have well used paths to and from the sett and between sett entrances
- **Subsidiary:** These usually have a large number of holes with large spoil heaps, and the sett generally looks well used. They usually have well used paths to and from the sett and between sett entrances
- **Outlier:** These usually only have one or two holes, often have little spoil outside the hole, have no obvious path connecting them with another sett, and are only used sporadically.

Red Squirrel

3.15 Where suitable habitat was present, primarily continuous, mature coniferous or mixed woodland, an assessment for red squirrel *Sciurus vulgaris* suitability was made. Assessments were based on the age, size and type of woodland present and its connectivity to other good quality habitat in the wider area. Where an area was deemed particularly suitable for red squirrel, a polygon was recorded in the field.

3.16 Within suitable habitat, signs of red squirrel were also searched for, in line with the Forestry Commission Practice Note 11⁶. Signs of activity include sightings, feeding remains, and dreys. As grey squirrels *Sciurus carolinensis* are now known to be present in the Cairngorms National Park, identification of shared signs, such as dreys, can be unreliable, unless the animal is sighted at the time of survey. Therefore the 'precautionary principle' was applied and all signs of squirrel activity were assumed to be from red squirrels, unless otherwise demonstrated. Any discrete signs of red squirrel noted in the field would be recorded as point data, e.g. animal sightings.

Wildcat

3.17 As wildcat *Felis sylvestris* are known to be in the Cairngorms National Park area, it is possible wildcat signs could be encountered. During the course of surveys, habitats which could support wildcat, especially for sheltering, were noted and mapped. Examples of the types of habitats in which wildcat are

⁵ Harris, S., Cresswell, P. & Jefferies, D. (1989) Surveying for Badgers, Occasional Publication of the Mammal Society No. 9. Mammal Society, Bristol

⁶ Gurnell, et al (2009) Practical techniques for surveying and monitoring squirrels.

found include mixed-age woodlands, rough upland pasture and open moorland but a mixture of some cover must be nearby for sheltering and hunting, such as rocky outcrops and dense woody scrub⁷.

3.18 Any habitat deemed suitable for wildcat denning was checked, where accessible, in line with the UK BAP Mammals Interim Guidance⁷. Additionally any possible signs of wildcat, such as feeding remains and scats, would be recorded and sampled for analysis.

Pine Marten

3.19 Pine marten *Martes martes* were also searched for using the UK BAP Mammals Interim Guidance⁷ as a survey guide. Suitable habitat, generally large and mature conifer woodlands, were noted and mapped as polygons on the tablets.

3.20 Within these areas, signs of pine marten would be recorded as point-data. Signs of pine marten searched for included sightings, feeding remains, scats, and dens. Any potential dens were checked for signs of use by pine marten. As with wildcat, any scats or feeding remains suspected to be from pine marten would be sampled for analysis.

Bats

3.21 A preliminary Bat Roost Potential (BRP) assessment was undertaken of trees and buildings within the survey area, where possible. The BRP is designed to identify and assess structures which may provide suitable roosting opportunities for bats and may therefore require targeted survey effort.

3.22 The BRP assessment takes into account the range of roosting conditions required by bats throughout the year and followed assessment criteria set out by standard guidance, at the time of survey, prepared by the Bat Conservation Trust⁸. The criteria used to categorise bat roost potential (BRP) are summarised in Table 3.1. The table also summarises what actions, if any, are required following classification.

Table 3.1: Bat Roost Potential Categories

Category	Description
Known or confirmed bat roost	Bats or evidence of bats recorded, both of recent and/or historic activity. Works affecting a roost are licensable. Further survey (e.g. dusk emergence/dawn re-entry survey in accordance with best practice) is required to determine the bat species present, nature of roost and level of use before mitigation can be determined. Seasonal constraints may apply.
1* High BRP Structures with multiple features capable of supporting a bat roost.	Features include holes, cracks or crevices that extend or appear to extend back to cavities suitable for bats. In trees, examples include rot holes, woodpecker holes, splits and flaking or raised bark which could provide roosting opportunities. In buildings, examples include eaves, barge boards, gable ends and corners of adjoining beams, ridge and hanging tiles, behind roofing felt or within cavity walls. Ivy cover is sufficiently well-established and matted so as to create potential crevices beneath Further survey is required to determine whether or not bats are present and if so, the bat species present, nature of roost and level of use. Appropriate mitigation and potentially licensing requirements may then be determined. Seasonal constraints may apply.
1 High BRP	As per Category 1* but tree or building supporting fewer features or with potential only for use by single bats. Further survey is required to determine whether or not bats are present and if so, the bat species present, nature of roost and level of use. Appropriate mitigation and potentially licensing

⁷ Ed. By Cresswell, et al (2012) UK BAP Mammals Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. Southampton

⁸ Hundt (2012) Bat Survey Best Practice Guidelines

	requirements may then be determined. Seasonal constraints may apply.
2 Moderate BRP	<p>From the ground, building/tree appears to have features (e.g. holes, cavities or cracks) that may extend back into a cavity. However, owing to the characteristics of the feature, they <i>may</i> be sub-optimal for roosting bats; however presence of bats cannot be ruled out. Alternatively, if no features are visible but owing to the size and age and structure, hidden features, sub-optimal for roosting bats, may occur that only an elevated inspection may reveal. In respect of ivy, the cover is not dense (i.e. providing BRP in itself) but may mask presence of BRP features.</p> <p>Further surveys required in order to rule out, beyond all doubt, that bats are not using the feature as a roost. Appropriate mitigation and potentially licensing requirements may then be determined. Seasonal constraints may apply.</p>
3 Negligible	<p>An inspected building/tree that is considered as not having potential for roosting bats.</p> <p>No further survey or mitigation required.</p>

3.23 Private dwellinghouses within the survey area were not assessed in detail for bat roosting potential. Where a BRP classification has been made for a building it was done so without any internal inspection.

Other Species

3.24 Other species of conservation interest encountered, though not targeted specifically, were recorded for completeness. These species were recorded as point-data for their sightings only. These species are not subject to the comprehensive or strict protection of the animals above but are still regarded as of having ecological value and have some protection under the Wildlife and Countryside Act, (e.g. mountain hares).

Constraints to Methods

3.25 Evidence of protected species is not always discovered during a survey. This does not mean that a species is not present; hence, the surveys also record and assess the ability of habitats to support **protected species. The time frame in which the survey is implemented provides a 'snapshot' of activity** within the survey area and cannot necessarily detect all evidence of use by a species.

3.26 Though August is considered to be an optimal month for most fauna species surveys due to activity levels, dense vegetation growth in summer can obscure signs of species presence. Though much of the land management within Project 9 results in lower vegetation structure, very mature trees in full leaf could obscure evidence of species, such as bat roosting features or otter shelters along large rivers. Concerted effort was made to check these features but health and safety constraints could result in some areas being inaccessible. Where this occurs, the area was noted and mapped for checks at a later date, if possible.

3.27 There is widespread understanding that wild cat can be particularly difficult to survey, even in areas they are known to be occupying, notwithstanding the challenges in surveying any highly mobile and crepuscular species. This difficulty was acknowledged by the field surveyors on this site and is why assessment was made throughout the survey period for habitat suitability for this species.

3.28 The size and scale of the survey and timing of the project meant that survey visits were conducted in all weather conditions. The persistent rain in August resulted in higher water levels within rivers, which could affect sheltering sites near the waterline and obliterate signs. The generally below average temperatures and weather conditions in summer 2015 may have had an impact on species populations, particularly in exposed and elevated regions, such as central Highland. It is not possible to quantify the potential impact the weather may have had on local populations at this time.

4 Baseline

Desk Study

4.1 The desk study highlighted the presence of badgers, otter, red squirrel, and wild cat in the wider area of Project 9. There are several individual records of badger road traffic accidents (RTAs) scattered along the corridor, as well as otter RTAs. Signs of otter, in the form of prints and sprainting, have also been recorded north of the Highland Wildlife Park.

4.2 Bat roosting potential was identified within numerous trees, buildings, and culvert structures. Historic records of red squirrels are also noted within publically available databases at a very coarse resolution, primarily at the northern and southern ends of the survey area. Wildcat footage on camera traps has been recorded within the boundaries of the Highland Wildlife Park, but these are unverified. Please see **Annex 4** for details of these records and specific locations.

Field Study

Otter

4.3 Otters are known to be very active within the Cairngorm area, with the River Spey (which includes tributaries, such as part of the River Truim) bearing a European designation for otter. They are well-established in the park and are found in every 10 km². Part of the reason for this density of animals is **the generally high water quality of the park's rivers and abundant source of food.**

4.4 The River Spey is the main watercourse within the survey area, following a wide meandering course along the wider A9 corridor. The river corridor within the survey area, and immediately adjacent, is relatively low-lying; the Spey in this region has characteristics of a lowland, meandering river, moving slowly and with few, if any, rapids or riffles. There are many tributaries feeding the River Spey; however, by the time they reach the river, most are modified significantly. The presence of the current A9 road, railway line, housing development, and intensive agriculture has affected the connectivity and geomorphology of many of these channels, as well as the water quality. Land use practices have also greatly reduced the areas of riparian vegetation found along these burns as well.

4.5 The land surrounding the Spey and its tributaries is heavily managed, predominantly as agriculture, with the only open moorland being found in patches on the east side of the A9 along the southern third of the site. Human habitation and development is also found in scattered patches along the A9 corridor, even outwith the villages of Newtonmore and Kingussie, increasing in number further north.

4.6 Between the grazed fields and houses are isolated stands of denser vegetation, such as scrub, riparian trees and woodland. These areas offer sheltering opportunities which is reflected in the five resting sites located within the Project 9 survey area. The shelters recorded during the survey are:

- Hover (Target Note O1) - The first resting site was located on the Spey mainstem, west of the bridge over the railway line near Ralia Lodge. This lie-up site is formed by dense vegetation overhanging the river bank and only one old spraint was observed within.
- Couches (O4 and O6) - located along the Spey mainstem adjacent to the Newtonmore golf course. The two couches (within very shallow tree roots) were located in an area of relatively high level of recent otter activity with fresh spraint being found within the couches and nearby and otter prints also being identified, all within a 100 m reach of bank.
- Hover and couch (O14 and O15) - located alongside/underneath the Kingussie A9 road bridge over the Spey. The couch was located below the bridge span within bracken at the riverside and one hover was identified within rock revetment just east of the bridge. This

stretch of river also displayed higher levels of otter activity with sprainting sites of varying ages and prints being found. The northern banks west of the bridge were difficult to access and search but signs of mammal movement and activity were also noted here.

4.7 Notwithstanding the above shelters, otter activity across the rest of the site was comparatively low. Sprainting sites were located along the along the Allt Eòghainn (O2, O3, O8), but all deposits were old. Several old spraints were also recorded along the Allt Cealgach (O18, O19), as it is known north of the A9, along a reach of canalised ditch running through a wet heath type habitat. A potential sheltering site was noted on the Milton Burn (O10) but no signs of otter were found.

4.8 Riparian trees offering otter sheltering potential, though not thoroughly searched due to difficult safe access, were also identified along the Spey mainstem at the Ruthven Bridge shinty pitch (HS22) and along Milton Burn (HS18).

Water vole

4.9 Water vole activity levels were extremely low during the survey period. A small area (WVH1), with latrines, caches and runs, was recorded behind Ralia Café along the Allt Torr an Daimh, though no above-ground nests or burrows were observed. Larger areas of wetland, wet heath or marsh were noted along the survey area buffer boundaries, particularly in the west of central areas where the survey area abutted large areas of heath with open water; these areas were suitable for water vole but outwith the survey boundary.

4.10 Elsewhere throughout the site, as mentioned above, the smaller watercourses within the survey area are heavily modified, becoming canalised ditches in most locations as they approach the A9. The flow and size of the more natural tributaries, e.g. Milton Burn and Allt Eoghainn, were not suitable for supporting water vole habitat due to extensive over-shading or heavy livestock poaching.

4.11 Other areas of low-lying land, for example around Allt Eòghainn, supported marshy grassland habitat, but many were affected by livestock poaching and less suitable for the species. The marshy grassland around Ruthven Barracks, in particular, was much drier underfoot than the vegetation would normally indicate; thus suitability for water vole was absent.

4.12 The margins of the Insh Marshes NNR, which are largely bounded by the B9152 road and railway line, encroach on the survey area at the north end of the site. Though RSPB have indicated a return of water vole to the marshes, the land within the survey area boundary is sub-optimal for sheltering water voles, being a marsh constantly inundated and without solid ground for burrows (dominated by horsetail with willow scrub scattered across the area and meadowsweet at the margins). At the very north end of this marsh was a small pond (WVH2) with the appearance of suitability for water vole; however it was not accessible due to no safe footing along soft pond edges and due to a period of heavy rain. No signs of water vole were observed in this marshy area northwest of Insh Marshes.

Badger

4.13 Woodland belts are present in sections along the A9 trunk road, though most stands at the northern and southern ends of the site are long, thin, broken strips of woodlands. Through the centre of the survey area the woods are patchy and relatively small. Where present, the trees are of an older more mature stage, and where they are associated with established domestic collections, e.g. Ralia Lodge and Inverton, dense scrub is present in the understory.

4.14 Large burrows, suitable for animals such as badger or fox, were very uncommon and if any were encountered they searched carefully for signs of badgers. The mixture of these strips of woodland alongside agricultural land would appear to be suitable for badger; however despite extensive checks, no signs of badger were recorded. The patchy woodlands found within the survey area connect with larger tracts of woods outwith the boundary therefore badgers could be present just beyond the site, particularly at the northern and southern ends of the survey area.

Red Squirrel

4.15 The habitat within the survey area was considered to be suitable for red squirrel, if not optimal. The various woodland belts, mentioned above, were thin and fragmented, but the maturity of the trees and connectivity to larger woodlands offered red squirrel habitat for sheltering and foraging. Many of the

woodland stands were semi-natural in origin, very mature and in proximity of conifer plantations, providing a mixed environment for squirrels. Where competition with grey squirrels is low or absent, red squirrels will thrive in broad-leaved woodland and the latter were observed in mature birch woodland within Project 9. The lack of very extensive mature woodland within the survey area may be balanced by lack of predators and supplementary feeding by local residents; red squirrels are a key tourist attraction in the region and squirrel feeding boxes were observed.

4.16 Over 15 sheltering areas (see Figure A9GGDALR, **Annex 2** for locations) were recorded across the site, accompanied by extensive feeding remains consistent with squirrel. As an individual red squirrel can use up to eight different dreys (averaging four), habitat was recorded predominantly as polygons where dreys or foraging was recorded. Point data was recorded for sightings of squirrels (in this case all were red) or for isolated features, such as a single drey in an otherwise poor habitat with no feeding signs. All feeding remains recorded were of eaten cones; no evidence of squirrel foraging on nuts or seeds was found, despite dreys being observed in broad-leaved trees and woodlands. Unsurprisingly the highest density of squirrel signs (i.e. dreys and foraging remains) were located either in larger mature woodlands or in coups adjacent to very large woodlands, primarily:

- Around Ralia Lodge (RSH2, RSH3, RSH4, RSH5)
- Straddling the A9 between Inver of Nuide and Milehouse of Nuide (RSH6, RSH7, RSH9, and RD2) and the plantations at Knappach (RSH8, RSH10, RS3, RS4, RS5, and RS6)
- The wood stands on either side of the Mains of Balavil (RSH12, RSH13, RSH16, as well as RSH14 and RSH15).

4.17 It is worth noting that squirrel signs, and indeed sightings, were also found in very close proximity to houses.

4.18 No grey squirrels were observed at any time while surveyors were in the area, either within or outwith the survey area.

Wildcat

4.19 Though the larger patches of woodland may offer some limited sheltering potential for wildcat, the proximity of these trees to settlements and farm yards is likely to reduce the attractiveness of the cover they provide. There are various causes of current declines in wildcat numbers but the human settlements and intense land management practices within the Project 9 survey area make this area unlikely to support regular wildcat dens. However, it may be possible that wild cat could venture into the survey area in winter months or during poor weather conditions for hunting or for less exposed cover, as good quality habitat appears to be present just outwith the survey area, for example at Craighui Wood as the northern end of the site, near the Highland Wildlife Park.

4.20 No signs of wildcat were recorded anywhere within the Project 9 survey area.

Pine Marten

4.21 As with wildcat, the lack of remote sheltering habitat could make the survey area less attractive to pine marten, though breeding females can make use of houses and sheds for natal dens. It can be difficult to predict or determine where pine marten have ventured into human dwellings without speaking to residents or the local nature conservation organisations who help residents cope with these types of visitors. Pine marten tend to use houses only when suitable, natural den sites are unavailable and as each pine marten requires a large area of continuous woodland, the survey area may generally fall just outwith core pine marten habitat.

4.22 No signs of pine marten were recorded during the survey.

Bat Roost Potential

4.23 Bat roosting potential (BRP) in the Project 9 survey area was variable and widespread. The more mature woodland and trees present offer good quality foraging habitat which is likely to include natural roosting sites. The structures classified as BRP 1 within the survey area were predominantly man-made and located at the following:

- A stone-built livestock tunnel under the railway line with cracks within the mortar (BA1)
- A large area of mature broad-leaved woodland which, being exposed, has extensive areas of storm-damaged trees and others with natural cracks (BA6)
- A small cottage with a slate roof and un-rendered walls (BA7)
- Another small cottage near stables and equestrian training fields with shallow roof and rendered walls (BA8)
- A large square farm steading, stone-built with slate roof, showing numerous gaps in the stone-work and slipped slates (BA13)
- A farm steading building with a metal corrugate roof allowing for gaps between the covering and sarking below (BT23)
- Another farm steading building, in the same complex, with a deteriorating slate roof (BT24)

4.24 The woodlands and trees classified as BRP 1 were fewer in number and found at:

- A predominantly oak and birch woodland on a steep slope at the northern end of the site with good roosting potential throughout (BA14)
- A large broken limb and fissures offering good roosting potential, though exposed location (BT37)
- A very mature oak within the BA14 area with a large hole near the top of the mainstem (BT49).

4.25 Over 50 trees or stands of woodland were identified with some level of roosting potential and many have been classified as BRP 2, in the absence of more detailed checks. Surveying in high summer made it difficult to examine the various crevices and fissures closely, so the classification of BRP 2 is mainly precautionary. Several trees at Lynchat were revisited in April 2016 to allow a better view of the features without leaf cover. Where possible, these trees were considered for physical inspection by ladder, to be undertaken at a later date.

4.26 A classification of BRP 3 has been given to several trees or stands of wood which have feeding perch potential. It is also worth noting the high number of mature trees in exposed locations which could be subject to storm damage over the successive winters between the survey period and construction commencement, creating new roosting opportunities.

4.27 No diagnostic signs of bats were recorded within the Project 9 survey area. The descriptions and locations of the BRP 2 and BRP 3 trees can be found in the **Annex 1** Target Note Tables and **Annex 2** Figures.

Other Species

4.28 Very few other species were sighted within the Project 9 survey area, excepting European rabbit, which were extremely common within the agricultural areas. Myxomatosis was clearly evident in many of the rabbits across the north part of the site.

4.29 Only one brown hare was sighted towards the southern end of the survey area. Open moorland habitats interspersed with agricultural pasture are suited to the brown hare and the intensive agricultural use of the land within the majority of the survey area, coupled with higher density of houses and fewer open heaths may be the cause for the fewer observations of brown hare.

4.30 A single common lizard was sighted, again, towards the southern part of the survey area. As with the brown hare, the prevalence of open moorland of mixed age would be more attractive than the intensely used farmland and human settlements found across the majority of the survey area to the north.

5 Discussions and Recommendations

Field Study

5.1 The habitats within the Project 9 survey area ostensibly appear to be suitable for several protected vertebrates, such as badgers, pine martens, water voles, and otters. However, the land use practices across the site and increased human presence, over many decades, may have influenced the presence, or lack of, many protected species targeted in this survey.

5.2 The River Spey provides a large wildlife corridor along the majority of the A9 corridor, meandering in and out of the survey area. However, the presence of Newtonmore and Kingussie, as long-established villages, could act as a deterrent for many of the cautious and more elusive animals, especially wildcat. The tributaries of the Spey, within the survey area, are also subject to significant human interference through straightening of channels, culverting, livestock poaching, and fencing. This has resulted in a diminished suitability of these watercourses for species like water vole and otter in particular. However, they do provide commuting corridors to allow permeability from high quality habitat located just outwith the survey area. The patches of marshy grassland visible in the southern half of the survey area, on closer inspection, do not offer the high quality wet habitat water voles are accustomed to in this part of highland Scotland. The optimal environments, including wet heath and marsh, are located just outwith the survey area boundary along much of the site. Thus water vole presence was largely absent from the survey area, but they are highly likely to occupy the wider environment.

5.3 **Otter presence was also relatively low, considering the River Spey's European designation for the species.** Much of the otter field evidence and all of the shelters identified were recorded on the River Spey mainstem. However, they are clearly located in reaches of very good cover, sometimes of manmade origin (A9-River Spey bridge) or in areas of least disturbance from humans. As otters occupy very large territories they are highly likely to make use of opportunities within the survey area, but better quality habitat outwith the survey boundary will offer better sheltering opportunities away from dog walkers and traffic.

5.4 More than any other section of the central highland A9 corridor, Project 9 offers good quality badger habitat, but no signs were recorded. RTAs have been recorded in low numbers along the trunk road; therefore they must be present nearby. There is no clear answer as to why badgers appear to be absent from the survey area other than those assumptions made above; very high quality habitat is found just outwith the site boundary and so the somewhat higher levels of disturbance and fragmentation within the survey area have led to the local populations to avoid the A9 corridor and associated settlements. The same assumption could be applied to pine marten and wildcat. Though the best quality habitat is sited further away from the A9, outwith the Project 9 corridor, enough inroads are made into the survey area along the route, to bring the presence of protected species closer to the road than is found in the less populated and more open habitats south of Newtonmore.

5.5 Though bat roosting potential was relatively high in the Project 9 survey area, it is scattered. The best roosting potential is found in buildings and though the impacts on these structures are currently unknown, follow-up bat surveys are recommended. The aim of the surveys will be to determine which, if any, bat species are using the survey area and whether any of the structures identified are used as roosts. The many trees with roosting potential will need to be re-examined once the impact on woodlands has been quantified; in all likelihood numerous trees will be removed and so bat activity surveys are also required to determine if bats will be affected by felling activities. In 2016, the CFJV commissioned bat activity surveys for many of the Bat Areas and Bat Trees identified during the BRP survey. The results of the 2016 surveys can be found in **Annex 5** to this report. The buildings and structures were not surveyed at this time so any results of such surveys in the future will be reported elsewhere.

5.6 No other follow-up surveys are recommended at this time for terrestrial vertebrates.

Annex 1

Survey Results – Table

Project 9 Survey Results Target Note Table

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
Otter Records				
O1	Hover with old spraint Photo ID: 09_O1_16	270598	797565	43350 (380 m)
O2	Sprainting site on a large mid-channel boulder with three old spraints	272753	797977	45500 (250 m)
O3	Old spraint on in-channel boulder in an area of good habitat, suitable for sheltering	272752	798048	45500 (186 m)
O4	A shallow couch within tree roots, with fresh sprainting, on the banks of the River Spey	272263	798131	45100 (103 m)
O5	Sprainting site on the Spey mainstem with fresh deposits	272248	798132	45100 (111 m)
O6	A second couch within shallow tree roots on the banks of the River Spey with recent sprainting.	272278	798150	45150 (113 m)
O7	Single otter print in the gravelly sand on the banks of the Spey	272321	798182	45200 (120 m)
O8	A sprainting site on the banks of the Allt Eòghainn with three old deposits.	272799	798193	45600 (72 m)
O9	A single recent spraint on the banks of the Spey	272347	798206	45200 (130 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
O10	Hollow under heather and alder scrub with potential for use as a resting site for otters. A mammal path was noted leading to the hollow but no signs of otter were recorded.	274359	798689	47250 (140 m)
O11	Possible otter footprints on river bank	276346	800485	50100 (102 m)
O12	Sprainting site on boulders underneath road bridge with 8 fresh spraints Photo IDs: 09_O12_27 and 09_12_28	276456	800502	50150 (9 m)
O13	Sprainting site on boulders underneath road bridge with 5 recent spraints and 1 old spraint	276462	800503	50150 (13 m)
O14	Characteristic hover at edge of rock revetment, most of which is used for shelter in some capacity. A single print in the hover was identified.	276557	800515	50200 (89 m)
O15	Couch in bracken beneath road bridge Photo ID: 09_O15_29	276468	800523	50200 (17 m)
O16	Prints in mud on water's edge, amongst rock revetment	276490	800528	50200 (22 m)
O17	Accrued sprainting site in rock armour	276486	800529	50200 (17 m)
O18	Sprainting site on a boulder within a drain/canalised burn; three spraints recorded. Photo ID: 09_O18_26	277327	801652	51750 (98 m)
O19	Single old spraint on a boulder within a canalised burn/drain.	277303	801690	51700 (57 m)
HS1	Secondary drain outfall with some potential to be used by otter for shelter when dry Photo ID: 09_HS1_93	269041	794625	40050 (21 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
HS2	Drain outfall with some potential for use by otter for shelter when dry Photo ID: 09_HS2_94	269138	795053	40500 (37 m)
HS18	Alder scrub lining a large burn with otter lie-up potential, though it was not fully searched due to H&S constraints	274337	798673	47350 (69 m)
HS22	Trees and scrub along the River Spey mainstem, with hidden bank edges and ledges which could offer lie up potential. However a full survey of the banks was not possible without a boat. Evidence of dog disturbance was high along this reach.	275919	799694	49100 (68 m)
Water Vole Records				
WVH1	Large heath pool with no clear banks, but runs were noted throughout. No burrows or above-ground nests were observed, but a cache was found. Three latrines with fresh droppings were recorded. Photo ID: 09_WVH1_30	269551	796530	41950 (134 m)
WVH2	An area of marshy grassland around a pond which appeared to be suitable for WV, but it was not accessed due to lack of safe footing being surrounded by somewhat swampy habitat. No signs were found in the nearest firm area to the south. Photo ID: 09_WVH2_38	280272	803067	55100 (117 m)
Red Squirrel Records				
RS1	Sighting of foraging squirrel, both on ground and latterly in a tree.	270835	797350	43450 (82 m)
RS2	Only one drey was identified in this coup, though others may be present but the dense canopy obstructed the view. Photo ID: 09_RS2_33	274725	798666	47650 (278 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
RS3	A very large active drey in a birch adjacent to forestry stand. Photo ID: 09_RS3_36	275551	798925	48400 (274 m)
RS4	Red squirrel sighting in a mature birch woodland.	275517	798933	48400 (250 m)
RS5	Red squirrel sighting outside of coniferous plantation within birch.	275548	798938	48450 (261 m)
RS6	The only drey recorded in a largely sub-optimal coup, though others could be present but obscured.	275289	799078	48250 (29 m)
RS7	A small number of foraged cones within triangular wood near the A9. Photo ID: 09_RS7_44	278366	801898	52800 (89 m)
RS8	A likely drey with foraged cones within small triangular wood next to A9.	278396	801972	52850 (22 m)
RS9	A large mature lime tree with dark cluster of branches and leaves at the heart of the mainstem split. Though not showing signs of typical drey, squirrels could be using it for shelter as 2 red squirrels were sighted in upper branches of this tree and no other possible drey was seen nearby. Photo ID: 09_RS9_45	278858	802033	53300 (80 m)
RS10	Red squirrel sighted on the ground feeding. It moved towards a line of trees along the A9.	278967	802153	53450 (25 m)
RS11	A possible drey, but activity levels were quite low with very few feeding signs. Photo ID: 09_RS11_48	279644	802746	54350 (47 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
RSH1	Evidence of squirrel foraged cones.	269219	795588	41050 (12 m)
RSH2	Mature coniferous woodland with several active dreys and numerous feeding signs, including chewed cones directly beneath drey trees.	270366	796913	42900 (18 m)
RSH3	Mature conifer plantation with active and inactive dreys and feeding remains throughout.	270726	797269	43150 (22 m)
RSH4	This woodland was slightly lower quality for squirrels overall. However, feeding remains and 2 dreys were noted.	270824	797408	43650 (82 m)
RSH5	Plantation woodland with numerous feeding remains and at least 5 dreys present. Additionally, a squirrel box was noted in one tree. Photo ID: 09_RSH5_52	271106	797504	43750 (66 m)
RSH6	Coup suitable for sheltering and foraging. See TN RS2, above, for specific record.	274674	798703	47550 (146 m)
RSH7	Woodland less suitable for sheltering squirrels than adjacent coup due to wind throw, but foraging signs were observed.	274624	798849	47600 (36 m)
RSH8	Coniferous woodland with signs of foraging.	275459	798940	48300 (139 m)
RSH9	Coniferous woodland with feeding remains and drey structures noted. Photo ID: 09_RSH9_76	274739	799034	47700 (20 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
RSH10	The coup was much reduced and suitability was limited, but was still present.	275321	799048	48300 (15 m)
RSH11	Squirrel feeding remains noted but the wooded slope, very steep, is not well connected to other squirrel habitat. No other signs found.	275880	799603	49100 (29 m)
RSH12	Potential dreys in canopy but there were no feeding signs or sightings to confirm.	278312	802068	52850 (38 m)
RSH13	Mature coniferous woodland with extensive evidence of foraging. A single drey identified at west end.	277881	802087	52400 (163 m)
RSH14	Foraged squirrel cones noted on ground along the drive at edge of the wood sheltering the front of the Mains of Balavil Steading. No dreys were found.	279032	802204	53500 (12 m)
RSH15	A line of mature trees along the A9 within the highway network. Foraged cones were noted below and a red squirrel was sighted on ground moving along this line, though no dreys were found.	279024	802254	53600 (13 m)
RSH16	Area of more semi-natural woodland with extensive evidence of squirrel feeding, though no dreys were recorded at the time of survey	279499	802923	54400 (138 m)
<i>Bat Roost Potential Records</i>				
BA1	Stone-built livestock tunnel below railway line, with gaps in the mortar, within the tunnel. BRP 1 Photo ID: 09_BA1_20	269161	795327	40750 (40 m)
BA2	Broadleaved tree belt along north side of A9 of mostly mature birch. Most trees within have no BRP but there are several scattered within the belt which do have BRP. BRP 2	272102	797996	45050 (45 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
BA3	Mature woodland with some BRP 2 trees, but most of the trees were in good condition. BRP 2	275575	798938	48400 (236 m)
BA4	Corner of a plantation wood with a mixture of semi-mature and mature aspen. the older, damaged trees have some BRP. BRP 2	274112	798946	47100 (184 m)
BA5	Wet woodland of alder and birch. Mature, gnarled trees with fissures and crevices. BRP 2	274508	799057	47400 (91 m)
BA6	Large area of mature broad-leaved woodland. Open and relatively exposed. Extensive areas of damage and natural cracks/crevices. BRP 1	275792	799149	48750 (151 m)
BA7	Small occupied steading-style cottage with the original slate roof and un-rendered stone walls. BRP 1	275528	799167	48500 (46 m)
BA8	Small occupied building, with stables and equestrian training fields, comprised of a low, rendered cottage with shallow pitched roof and surrounded by structured planting. BRP 1	275862	799309	48850 (146 m)
BA9	Oak and alder woodland with standing deadwood throughout offering roosting potential. BRP 2 Photo ID: 09_BA9_22	276213	799639	49250 (112 m)
BA10	Some dead trees within stand of woodland on slope. Possibly suitable roosting features within these trees. BRP 2	277543	801893	52000 (30 m)
BA11	Sheltering tree belt of scattered mature trees. Crevices were observed within several trees. BRP 2	278571	802085	53050 (15 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
BA12	Mixed shelter belt of scattered mature trees along a farm track, some with damage. High number of rabbit warrens in the ground within the belt. BRP 2	278730	802165	53250 (75 m)
BA13	Mains of Balavil Steading buildings with slates roof, several possible roosting locations within various roof sections. Droppings were observed on a broken window of the barn. BRP 1 Photo ID: 09_BA13_25	278998	802310	53550 (43 m)
BA14	Predominantly mature oak and birch woodland with numerous trees, minor damages offering roosting opportunities. BRP 1 Photo IDs: 09_BA14_28, 09_BA14_29, and 09_BA14_32	280133	803090	55200 (16 m)
BT1	Not suitable for roosting in general but the dry crevices in a near-dead tree provide feeding perch potential. BRP 3	271153	797436	43800 (37 m)
BT2	Well-sheltered mature birch trees which have deep folds that offer some potential for feeding perches if not a full roost. BRP 3	270886	797438	43550 (137 m)
BT3	Vertical split, south-facing, quite high in main stem of a Scots pine. BRP 2	271284	797492	43950 (54 m)
BT4	Loose bark and cracks in a dead birch could offer feeding perch opportunities, but overall cover is low. BRP 3	270854	797551	43550 (253 m)
BT5	Granny (veteran tree) birch with fissures. BRP 2	271634	797634	44300 (47 m)
BT6	Mature alder with damage. BRP 2	271878	797989	44750 (188 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
BT7	Clumps of branches in the centre of a birch, from possible old nests or parasitic growth. BRP 2	272400	798028	45200 (54 m)
BT8	Gnarled birch covered in lichen with a large knothole. BRP 2 Photo ID: 09_BT8_1012	272423	798034	45200 (58 m)
BT9	Old birch with folds and fissures. BRP 2	272411	798036	45200 (50 m)
BT10	Broken branch on a birch creating shallow folds. BRP 2	272428	798042	45200 (56 m)
BT11	Some various shallow holes and fissures in birch tree offering possible night roost or feeding perch. BRP 2 or 3	273077	798544	46000 (165 m)
BT12	34 semi-mature trees on the north face of the slope; one birch with hole under branch. It is very exposed. BRP 2	273210	798547	46150 (123 m)
BT13	Long fissure in main stem of an aspen with a knothole adjacent. BRP 2 Photo ID: 09_BT13_1021	274073	798932	47100 (187 m)
BT14	Birch tree with woodpecker hole located high up on trunk. BRP 2	275574	798951	48450 (261 m)
BT15	Dead ash tree which had fallen onto an alder. BRP 2	274532	799106	47550 (197 m)
BT16	Shallow woodpecker holes in a dead standing tree but the fissures have more space within. BRP 2	274540	799142	47550 (230 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
BT17	Two alders close together with cracks, creating various opportunities for roosting. BRP 2 Photo ID: 09_BT17_1074	275921	799725	49200 (101 m)
BT18	Possible roosting opportunity within fissure of alder tree. BRP 2	275969	799852	49300 (149 m)
BT19	A heavily damaged alder tree with a large cavity in the trunk. BRP 2 Photo ID: 09_BT19_1024	276054	799888	49400 (102 m)
BT20	Alder with a missing limb and a hole high up within the trunk. BRP 2	275953	799898	49350 (188 m)
BT21	Split limb located high in alder. BRP 2	276659	800694	50400 (130 m)
BT22	Single hole high in exposed Scots pine, sparsely planted. BRP 2 Photo ID: 09_BT22_1029	278187	801907	52650 (47 m)
BT23	Farm steading building with metal corrugate roof allowing gaps between metal and wood sarking beneath. BRP 1	278431	801922	52900 (80 m)
BT24	Farm steading building with deteriorating slate roof. BRP 1	278435	801965	52900 (36 m)
BT25	Fissures high up in the Scots pine. BRP 2	278748	802015	53200 (56 m)

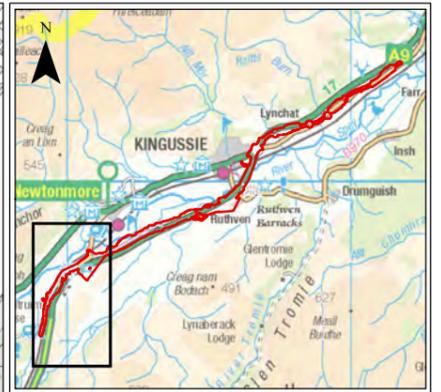
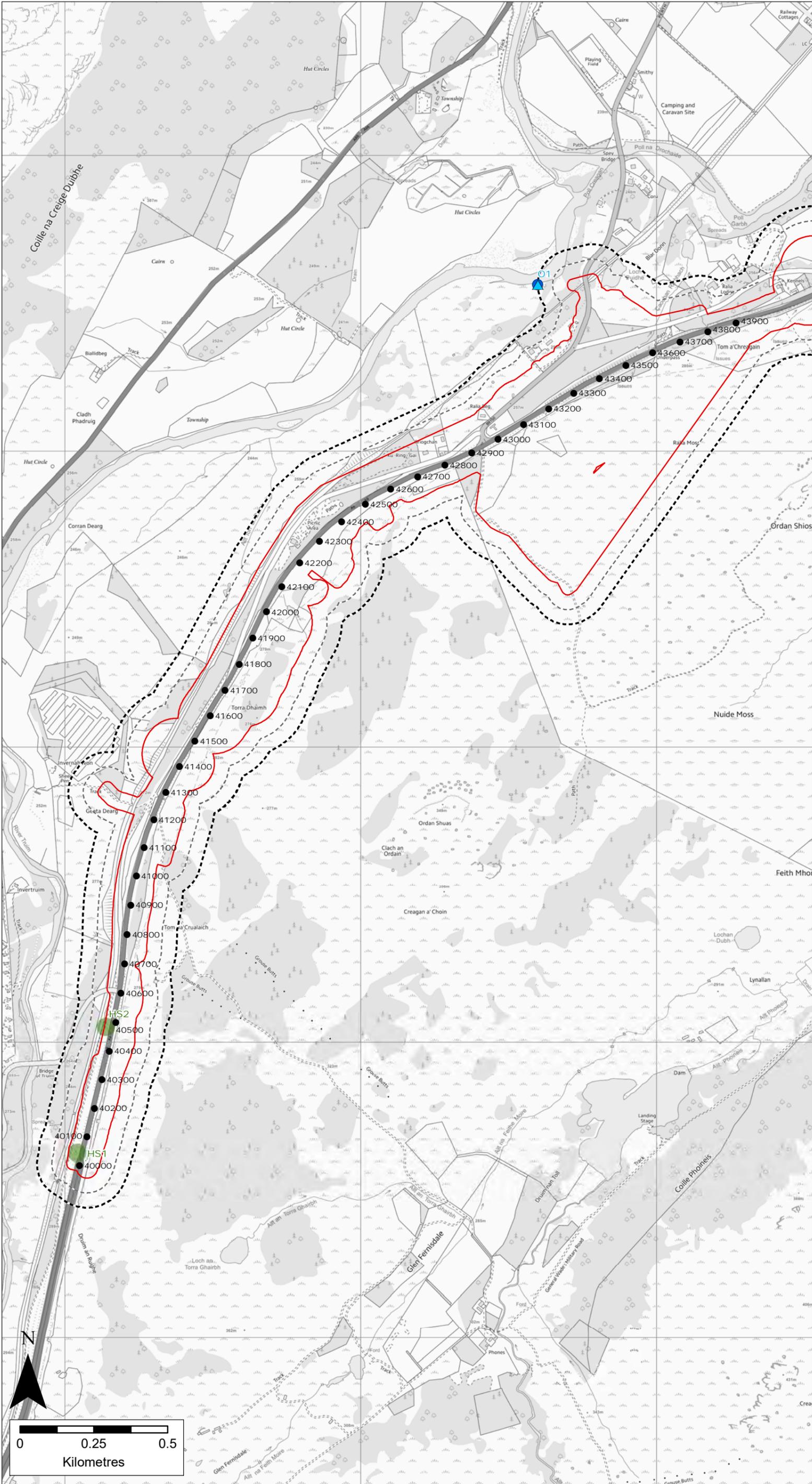
Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
BT26	Several shallow fissures within an otherwise healthy beech. BRP 3, possible feeding perch. Photo ID: 09_BT26_1026	278778	802141	53300 (55 m)
BT27	Large knot hole in a lime, which could be checked by ladder. BRP 2	278977	802061	53400 (109 m)
BT28	Flaking bark offering night rest or feeding perch within a sycamore. BRP 3	278989	802078	53450 (102 m)
BT29	Knot hole in a possible lime that can be checked by ladder. Some creases in trunk (feeding perch) BRP 2 Photo ID: 09_BT29_1046	278998	802085	53450 (99 m)
BT30	Some cut limbs on a beech and 2 knot holes which cannot be determined from ground. BRP 2	279022	802138	53500 (68 m)
BT31	Several small holes which can be checked by ladder. BRP2 Photo ID: 09_BT31_1048	279035	802137	53500 (75 m)
BT32	Long split within a branch of a beech. BRP 2 Photo ID: 09_BT32_1027	278947	802209	53450 (36 m)
BT33	A mature sycamore with deep fissures within the bark. BRP 2	278950	802280	53500 (91 m)
BT34	Near dead main stem, though possible new growth sprouting at bottom, with fissures and cracks. Can be checked by ladder. BRP 2 Photo ID: 09_BT34_1051	279076	802179	53550 (64 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
BT35	Weeping branches of the horse chestnut would obscure small hole if present. BRP 2	279075	802186	53550 (58 m)
BT36	2 small knot holes high in a lime. BRP 2	279091	802203	53600 (58 m)
BT37	Large broken limb & bark fissures offers good potential, except exposed position. BRP 1	279141	802202	53600 (87 m)
BT38	Cavity under split edges of a sycamore which can be checked by ladder. BRP 2 Photo ID: 09_BT38_1057	279120	802239	53600 (49 m)
BT39	Dead main stem of an ash with hollowing, though new growth was noted at edges. A crack can be checked by ladder. BRP 2	279141	802281	53650 (30 m)
BT40	Standing dead trunk of sycamore with some minor new growth. BRP 2 Photo ID: 09_BT40_1066	279153	802290	53700 (36 m)
BT41	Dead stick with split limb very close to the A9. BRP 2	279148	802293	53700 (33 m)
BT42	Standing trunk of possible elm, with minor new growth and loose bark up length of trunk. BRP 2	279172	802309	53700 (28 m)
BT43	Large dead standing tree with raised bark and galls, but no new growth. BRP 2	279227	802362	53800 (37 m)
BT44	Missing and loose bark up main trunk of a sycamore. BRP 2	279238	802376	53800 (29 m)

Target Note ID	Description	Easting	Northing	Chainage (distance in metres)
BT45	Possible sycamore with main stem cut down. Knothole near the stem split; can be checked from ladder. New split limb was located 4 m up. BRP 2 Photo ID: 09_BT45_1033	279251	802373	53800 (39 m)
BT46	Crack in limb of a horse chestnut. It could be viewed with ladder. BRP 2 Photo ID: 09_BT46_1060	279291	802402	53850 (50 m)
BT47	Isolated crack within a Scots pine in wood 'island'. BRP 2	279381	802667	54100 (72 m)
BT48	Mature oak with a split limb fissure and a hole. BRP 2	280294	803175	55150 (62 m)
BT49	Very mature oak tree with many scars and a hole near top of thick main stem. BRP 1	280309	803178	55150 (66 m)

Annex 2

Survey Results – Figures



KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- Otter sign - spraint
- ▲ Otter sign - couch/hover
- Potential habitat

REV	SUIT	DATE	DESCRIPTION	BY	APP
2		09/16	Final	EL	JT
1		16/12	Field survey - draft	EL	-

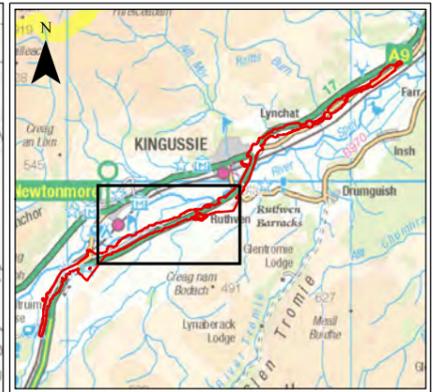
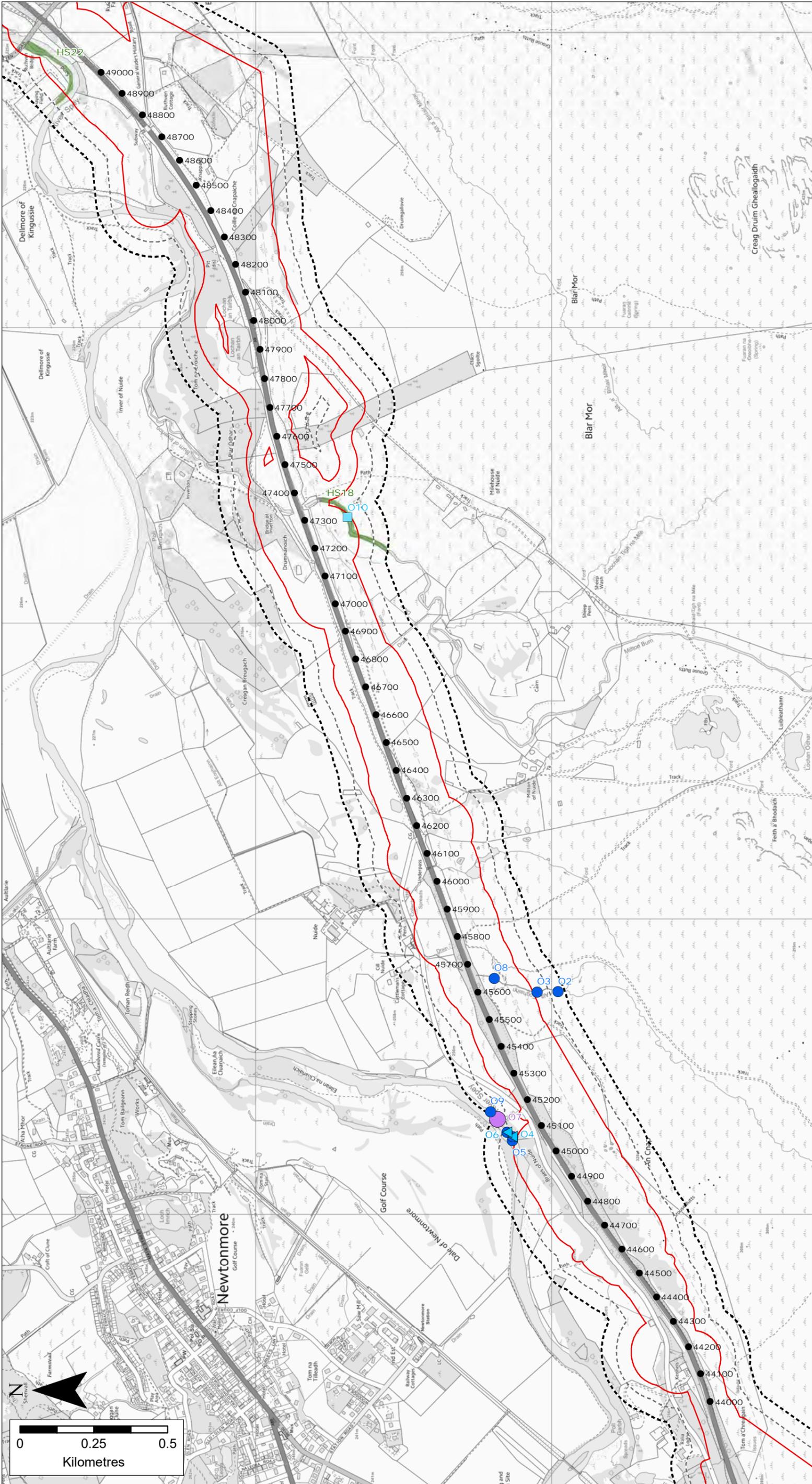
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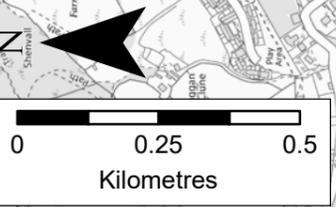
Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
 Project 9 – Ecology Field Study
 Otter Records
 Section A(a)

Drawing No:
 A9GGDALR - MAP 1 of 4
 Drawing scale @ A3 = 1:12,500



- KEY**
- Project 9 footprint
 - 50m from project footprint
 - 100m from project footprint
 - Section chainage
 - Otter sign - spraint
 - ▲ Otter sign - couch/hover
 - Potential otter resting site
 - Otter sign - print
 - Potential habitat



REV	SUIT	DATE	DESCRIPTION	BY	APP
2		09/16	Final	EL	JT
1		16/12	Field survey - draft	EL	-

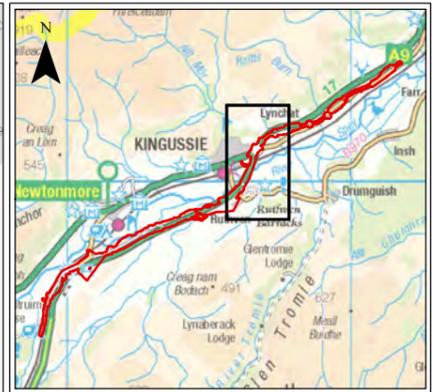
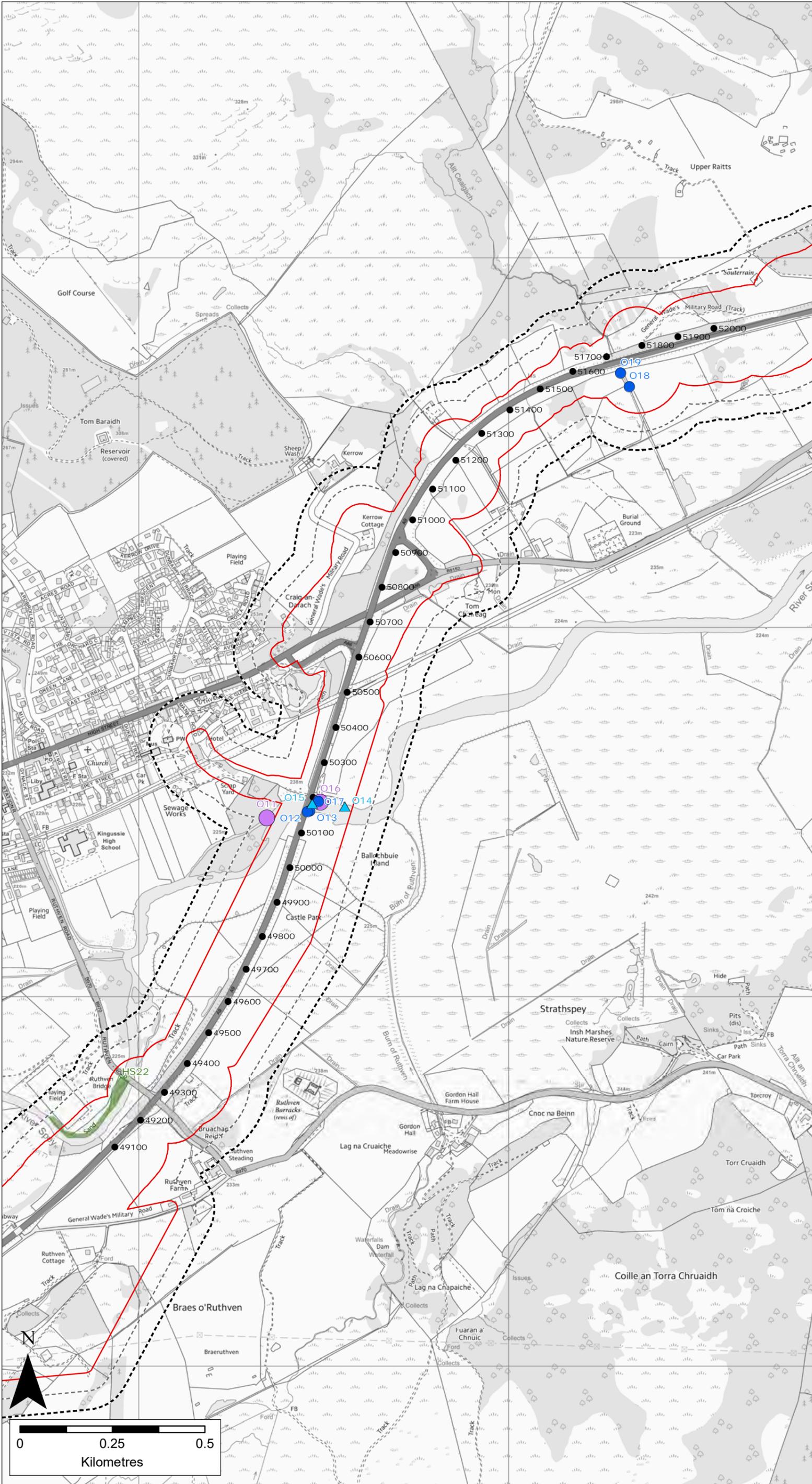
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Project: A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing: Project 9 – Ecology Field Study
Otter Records
Section A(b)

Drawing No: A9GGDALR - MAP 2 of 4 Rev 2
Drawing scale @ A3 = 1:12,500



KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- Otter sign - sprint
- Otter sign - couch/hover
- Otter sign - print
- Potential habitat

REV	SUIT	DATE	DESCRIPTION	BY	APP
2		09/16	Final	EL	JT
1		16/12	Field survey - draft	EL	-

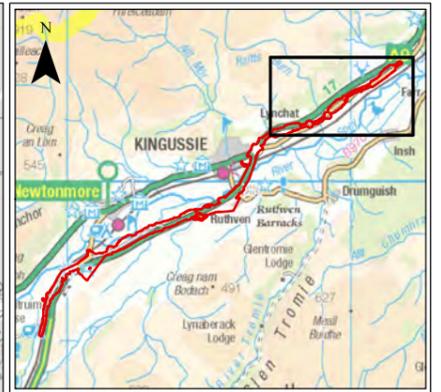
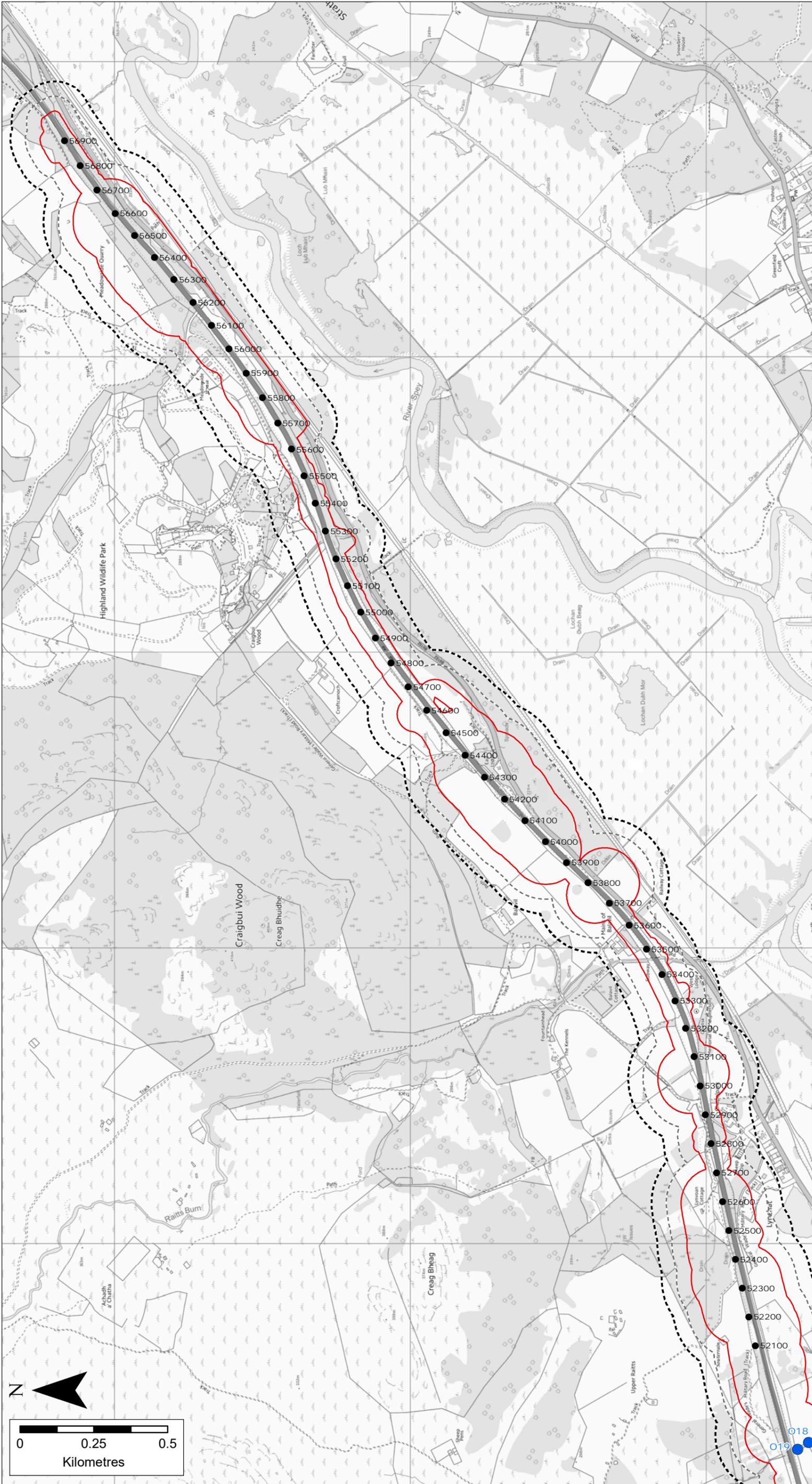
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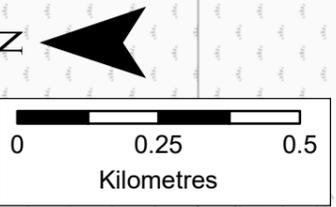
Project: **A9 DUALLING - GLEN GARRY TO DALRADDY**

Drawing: **Project 9 – Ecology Field Study
Otter Records
Section B**

Drawing No: **A9GGDALR - MAP 3 of 4** Rev: **2**
 Drawing scale @ A3 = 1:10,000



- KEY**
- Project 9 footprint
 - 50m from project footprint
 - 100m from project footprint
 - Section chainage
 - Otter sign - spraint



REV	SUIT	DATE	DESCRIPTION	BY	APP
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1		16/12	Field survey - draft	EL	-

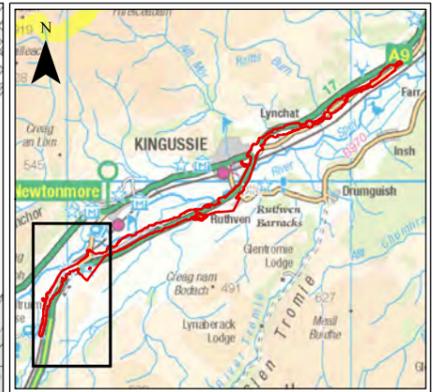
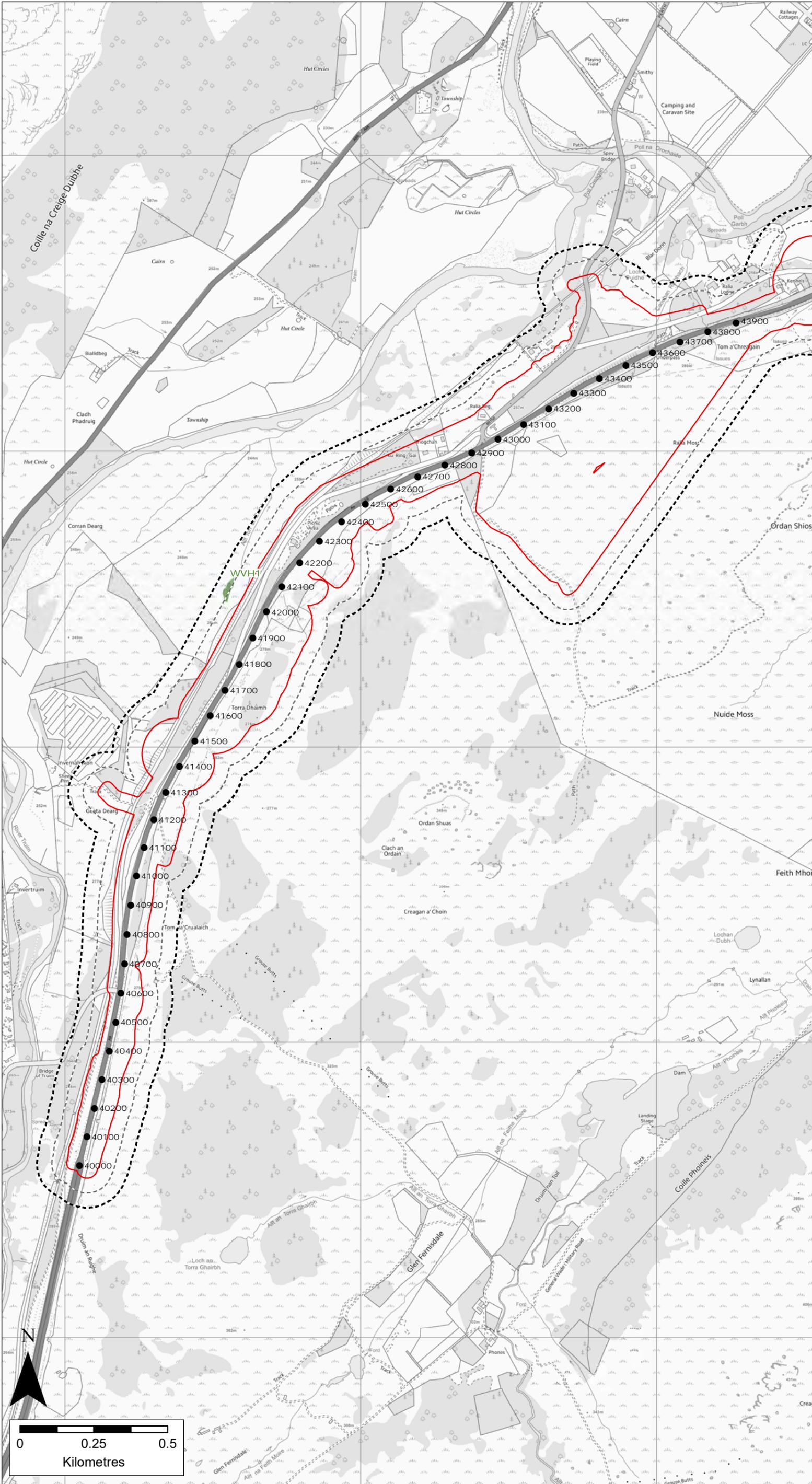
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Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
 Project 9 – Ecology Field Study
 Otter Records
 Section C

Drawing No: A9GGDALR - MAP 4 of 4 Rev 2
 Drawing scale @ A3 = 1:12,500



KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- Water vole habitat (signs found)

REV	SUIT	DATE	DESCRIPTION	BY	APP
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1		16/12	Field survey - draft	EL	-

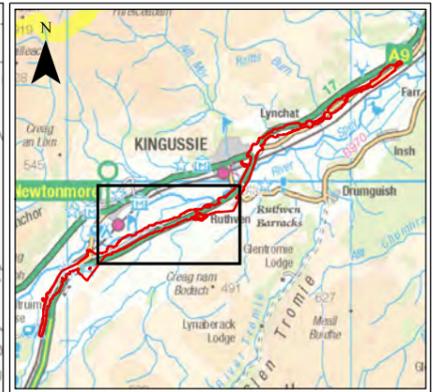
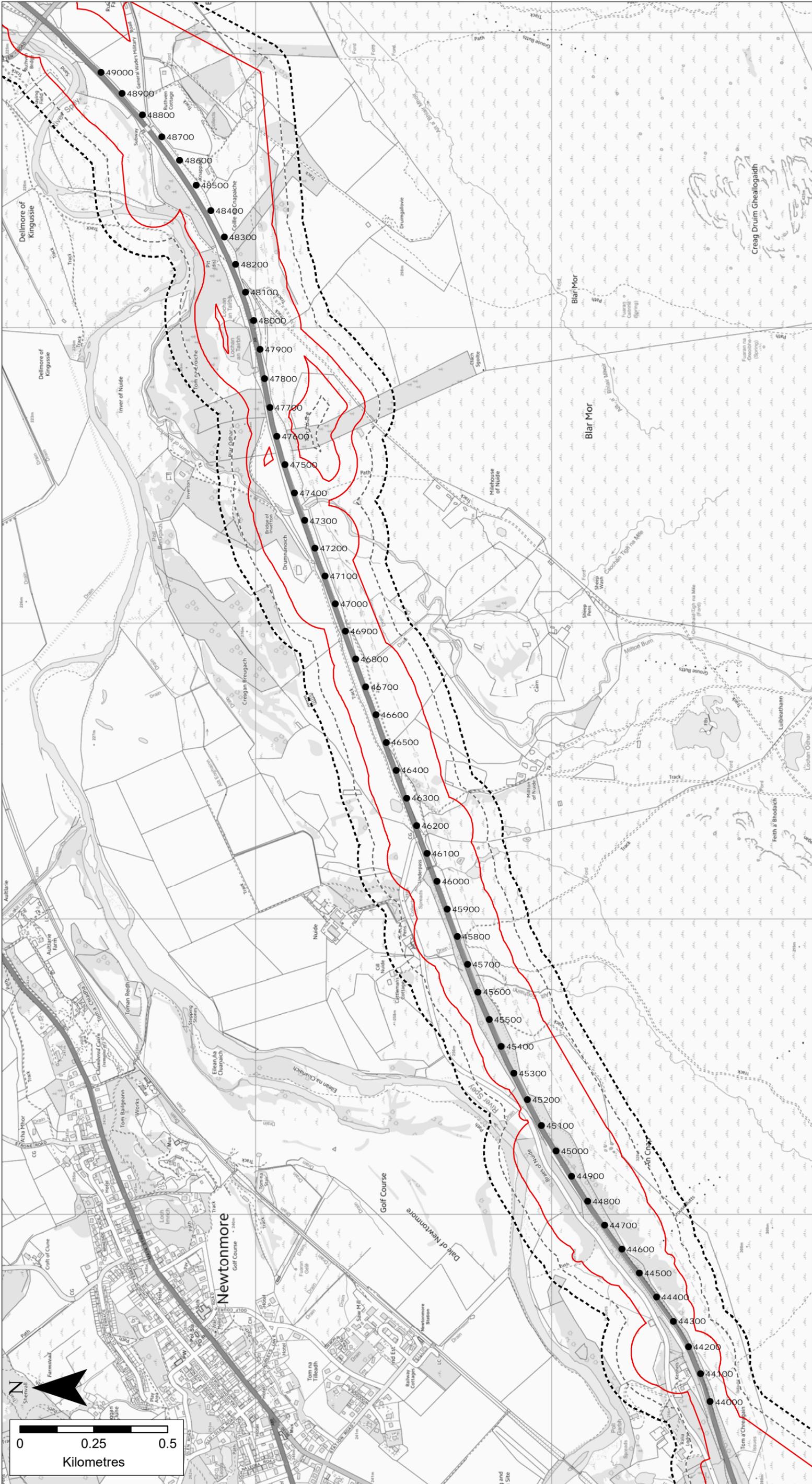
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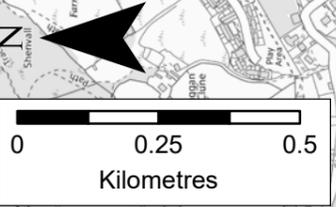
Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
 Project 9 – Ecology Field Study
 Water Vole Records
 Section A(a)

Drawing No:
 A9GGDALR - MAP 1 of 4
 Drawing scale @ A3 = 1:12,500



- KEY**
- Project 9 footprint
 - 50m from project footprint
 - 100m from project footprint
 - Section chainage



REV	SUIT	DATE	DESCRIPTION	BY	APP
2		09/16	Final	EL	JT
1		16/12	Field survey - draft	EL	-

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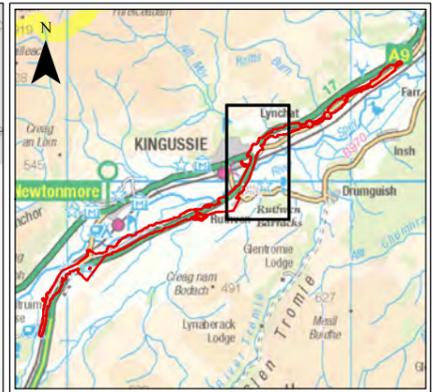
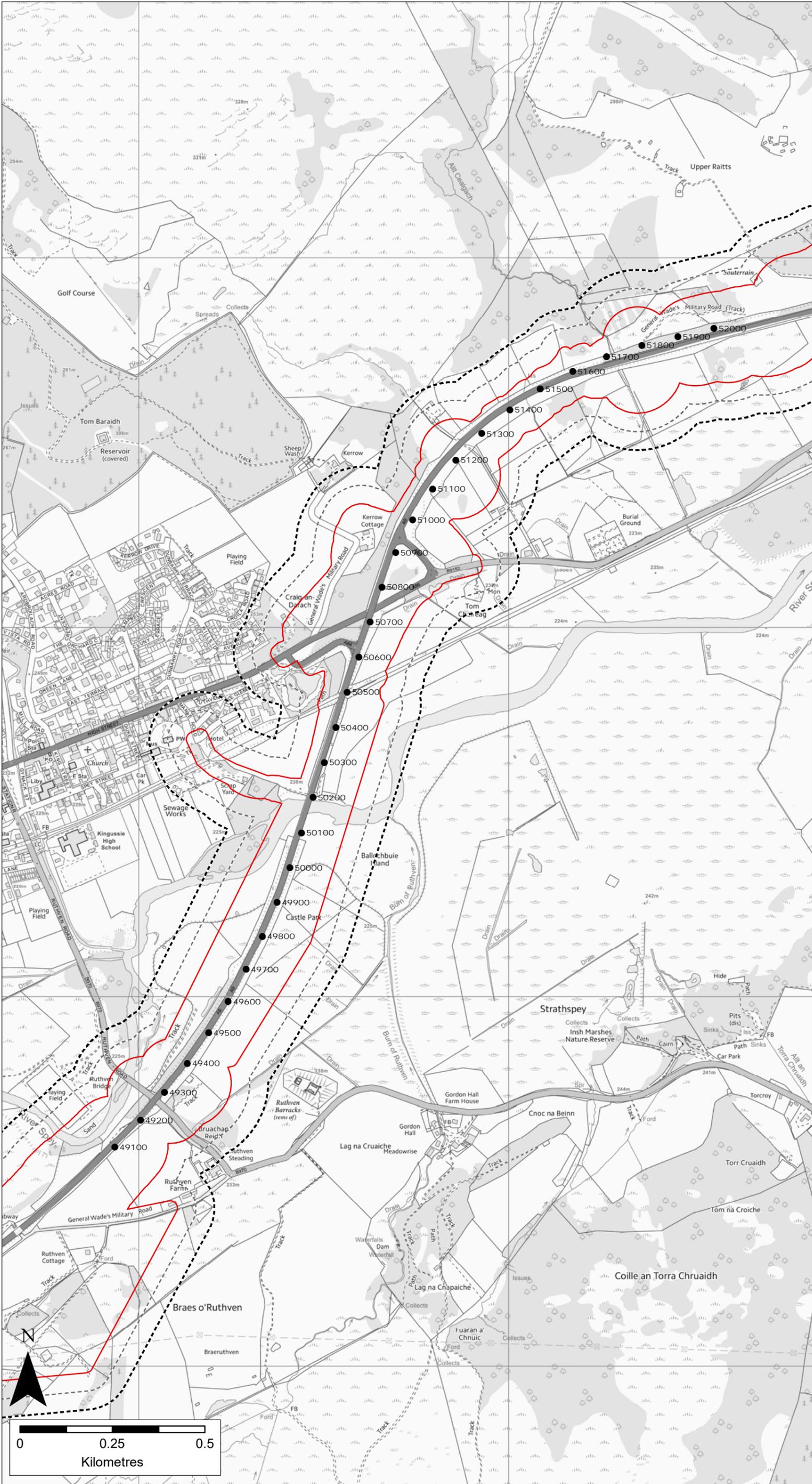


Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

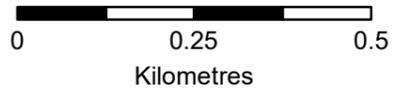
Drawing:
**Project 9 – Ecology Field Study
 Water Vole Records
 Section A(b)**

Drawing No:
 A9GGDALR - MAP 2 of 4 Rev 2

Drawing scale @ A3 = 1:12,500



- KEY**
- Project 9 footprint
 - 50m from project footprint
 - 100m from project footprint
 - Section chainage



REV	SUIT	DATE	DESCRIPTION	BY	APP
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1		16/12	Field survey - draft	EL	-

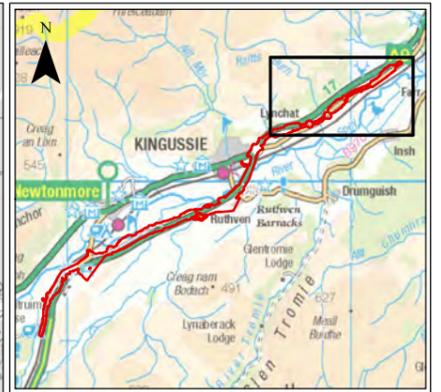
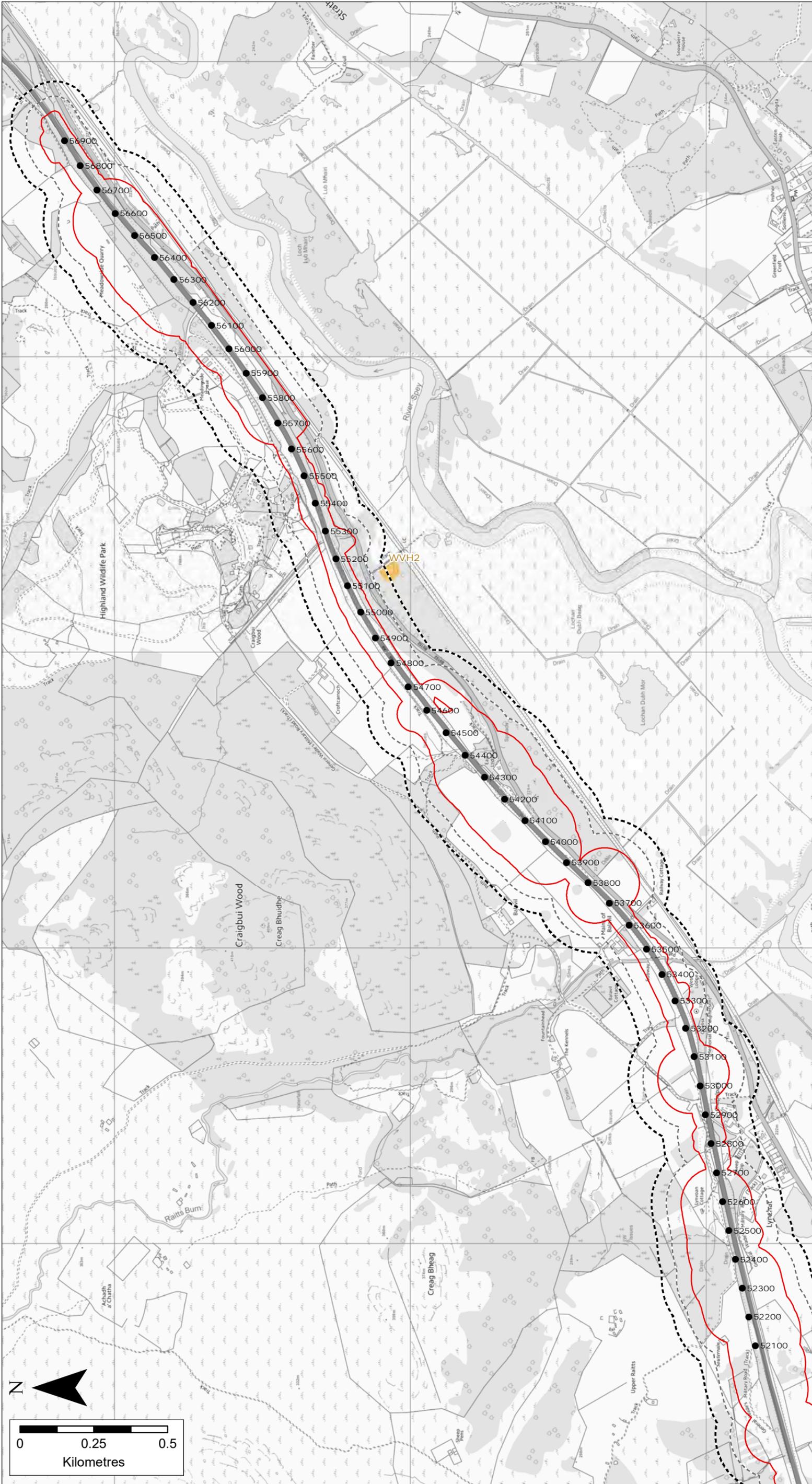
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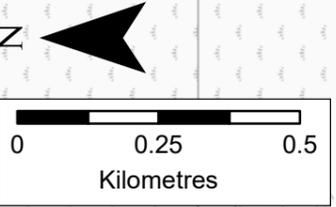
Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
**Project 9 – Ecology Field Study
 Water Vole Records
 Section B**

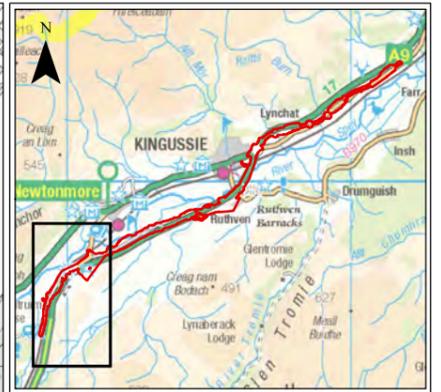
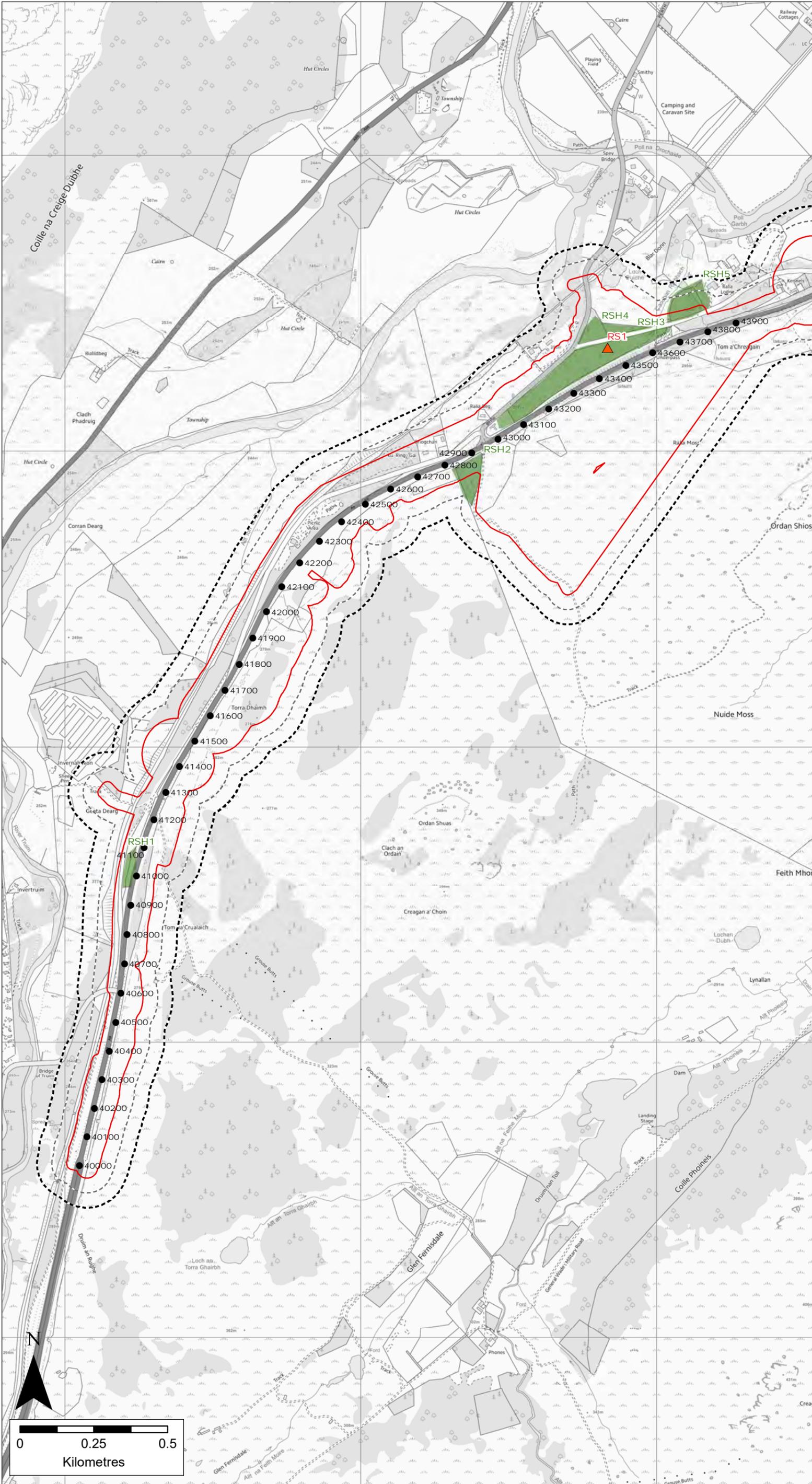
Drawing No: A9GGDALR - MAP 3 of 4
 Drawing scale @ A3 = 1:10,000
 Rev 2



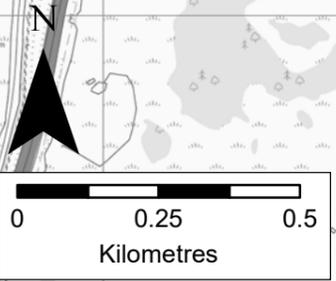
- KEY**
- Project 9 footprint
 - 50m from project footprint
 - 100m from project footprint
 - Section chainage
 - Potential habitat (no sign of water vole)



2	09/16	Final	EL	JT	
1	16/12	Field survey - draft	EL	-	
REV	SUIT	DATE	DESCRIPTION	BY	APP
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<p>Project: A9 DUALLING - GLEN GARRY TO DALRADDY</p> <p>Drawing: Project 9 – Ecology Field Study Water Vole Records Section C</p>					
<p>Drawing No: A9GGDALR - MAP 4 of 4</p>				<p>Rev: 2</p>	
<p>Drawing scale @ A3 = 1:12,500</p>					



- KEY**
- Project 9 footprint
 - 50m from project footprint
 - 100m from project footprint
 - Section chainage
 - ▲ Dreys
 - Potential habitat



REV	SUIT	DATE	DESCRIPTION	BY	APP
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1		16/12	Field survey - draft	EL	-

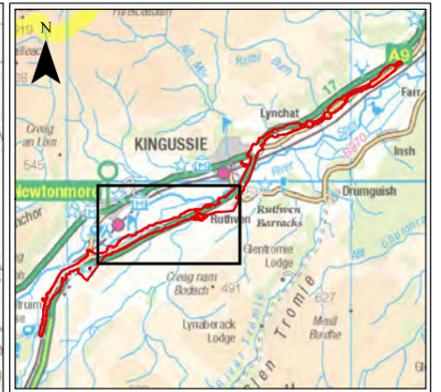
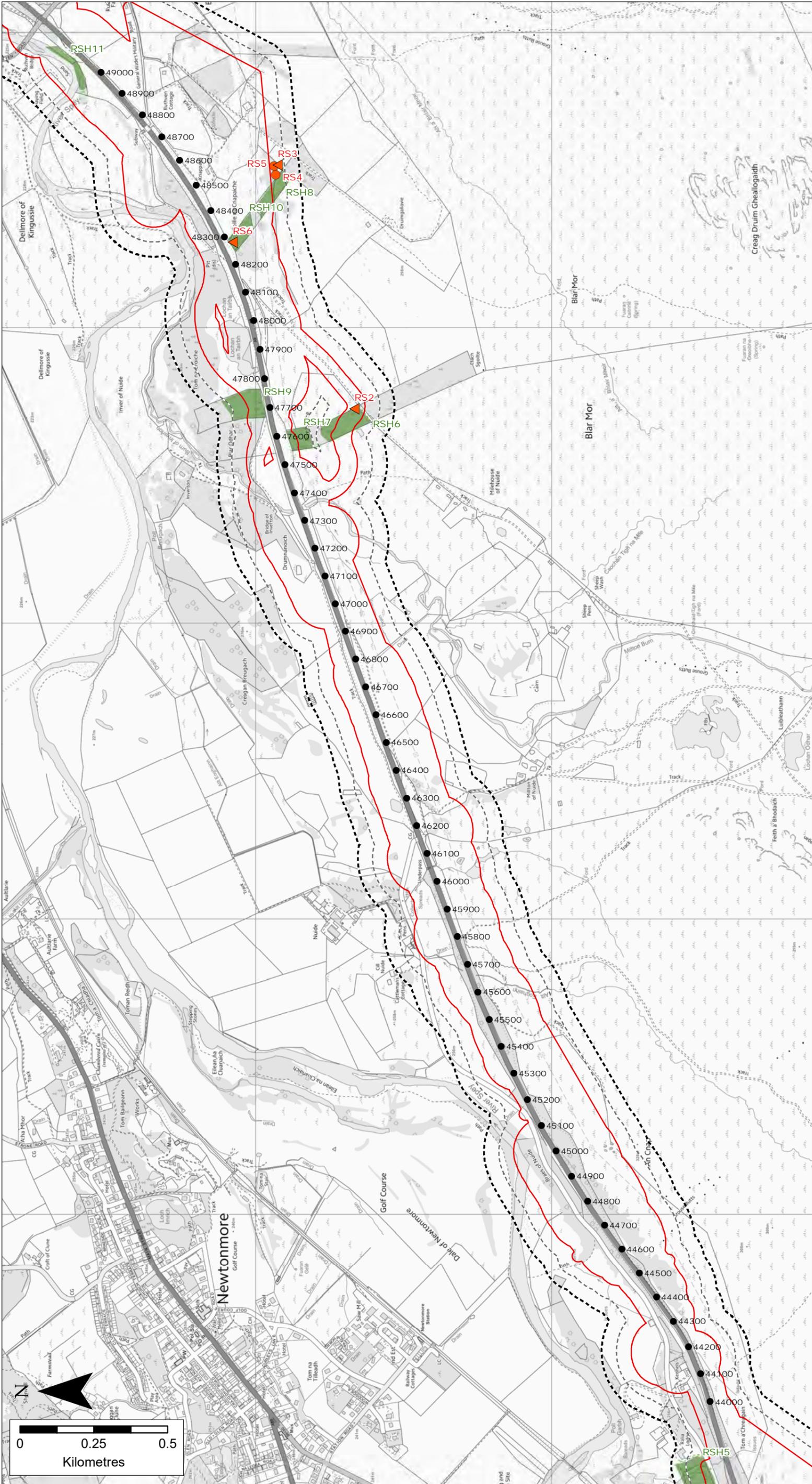
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Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

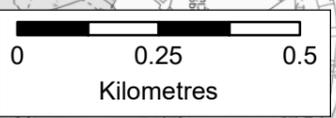
Drawing:
**Project 9 – Ecology Field Study
 Red Squirrel Records
 Section A(a)**

Drawing No:
 A9GGDALR - MAP 1 of 4
 Drawing scale @ A3 = 1:12,500



KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- ▲ Dreys
- Sighting
- Potential habitat



2	09/16	Final	EL	JT	
1	16/12	Field survey - draft	EL	-	
REV	SUIT	DATE	DESCRIPTION	BY	APP

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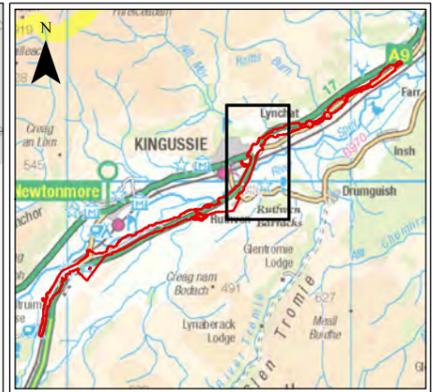
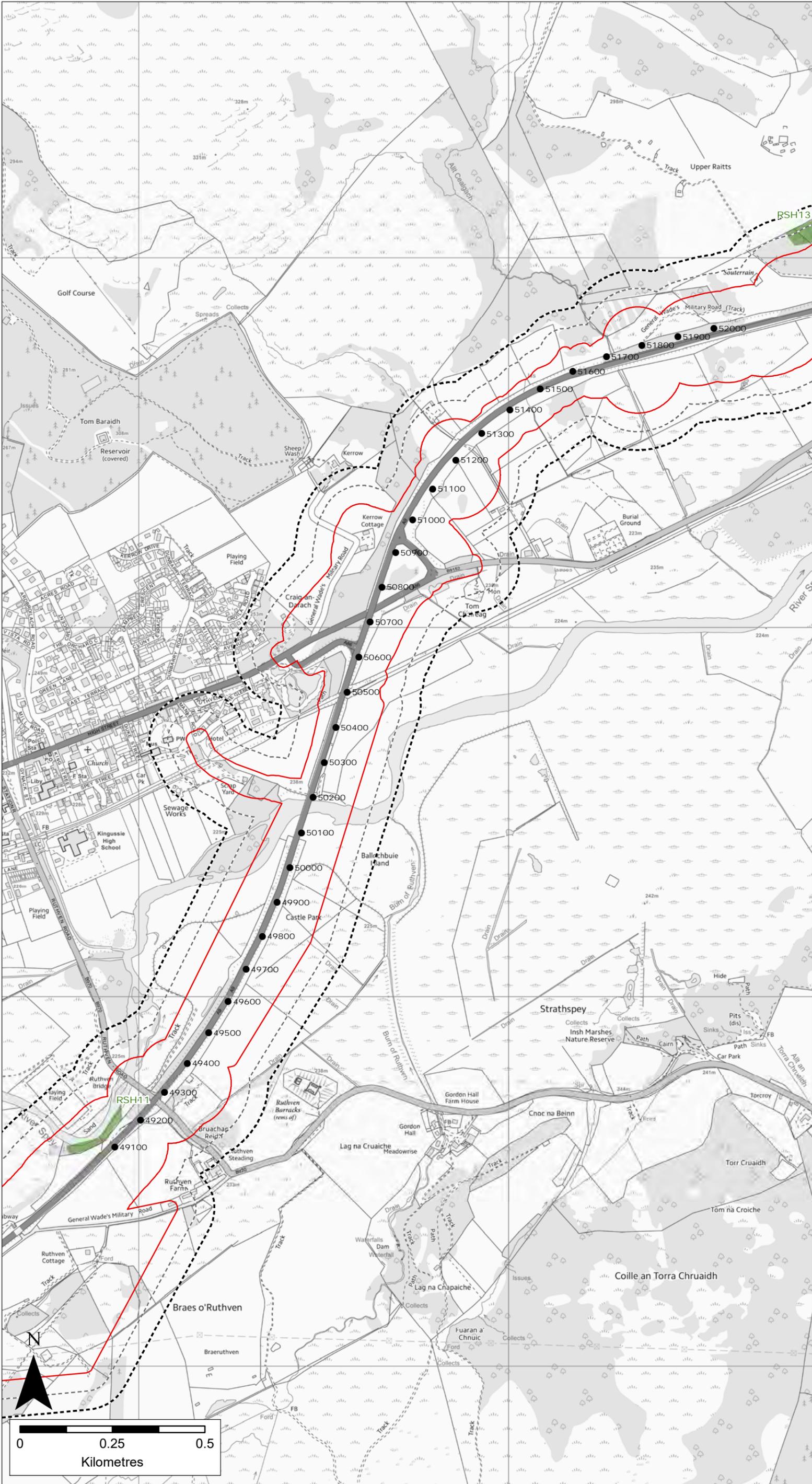


Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
**Project 9 – Ecology Field Study
 Red Squirrel Records
 Section A(b)**

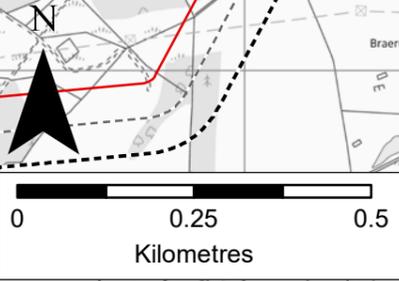
Drawing No:
 A9GGDALR - MAP 2 of 4 Rev 2

Drawing scale @ A3 = 1:12,500



KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- Potential habitat



REV	SUIT	DATE	DESCRIPTION	BY	APP
2		09/16	Final	EL	JT
1		16/12	Field survey - draft	EL	-

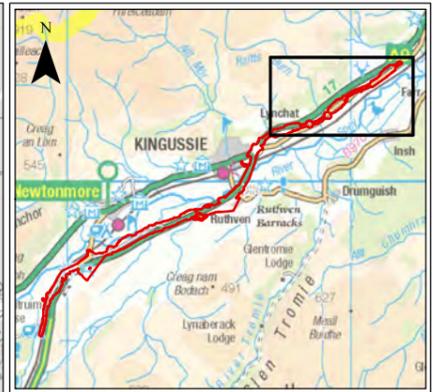
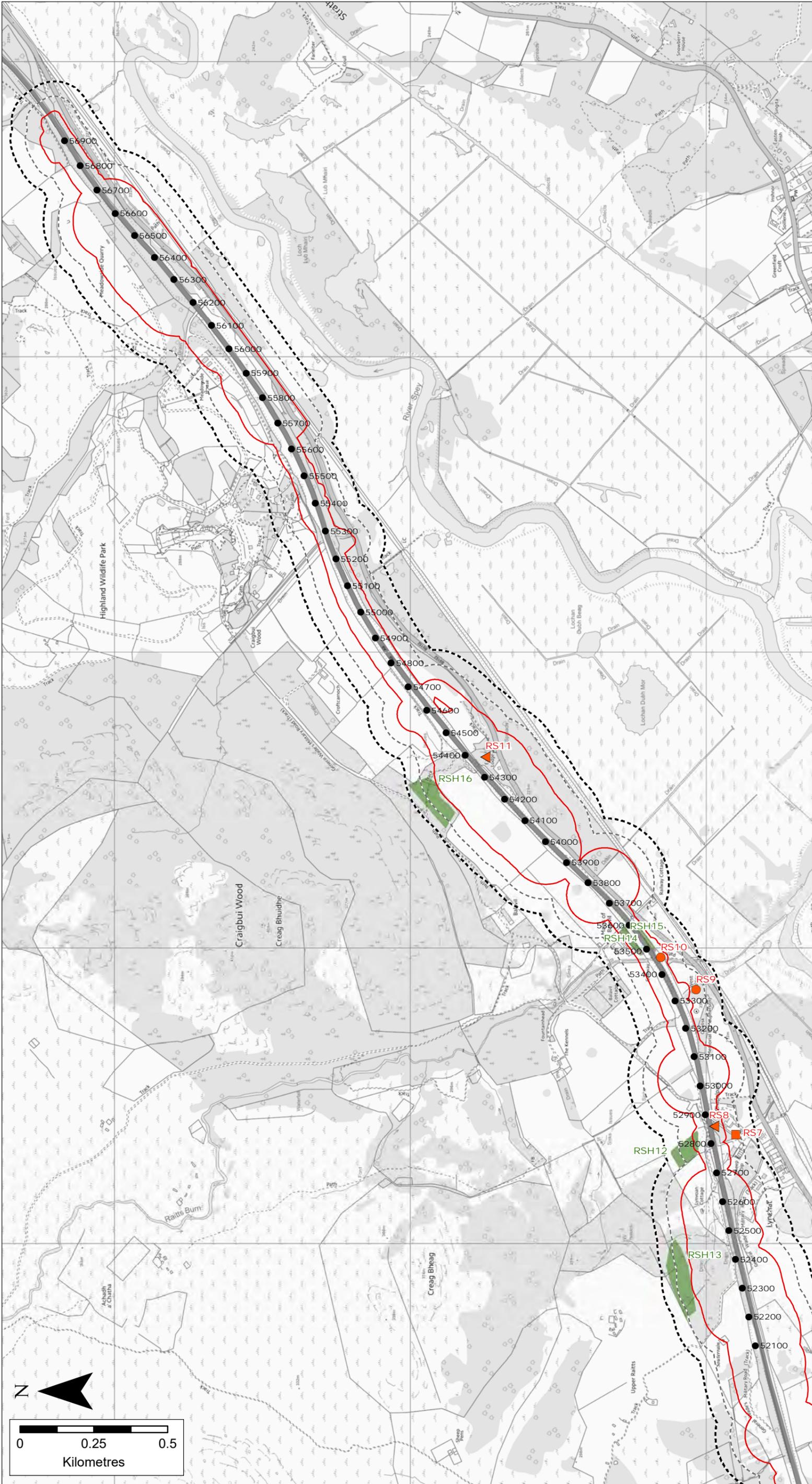
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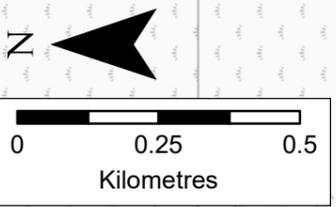
Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
 Project 9 – Ecology Field Study
 Red Squirrel Records
 Section B

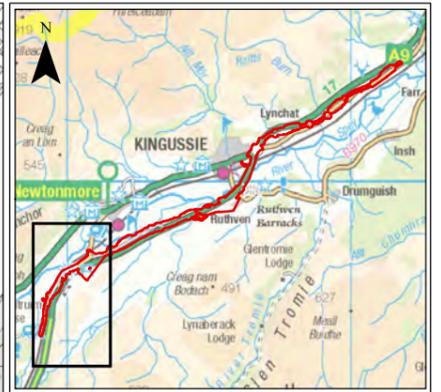
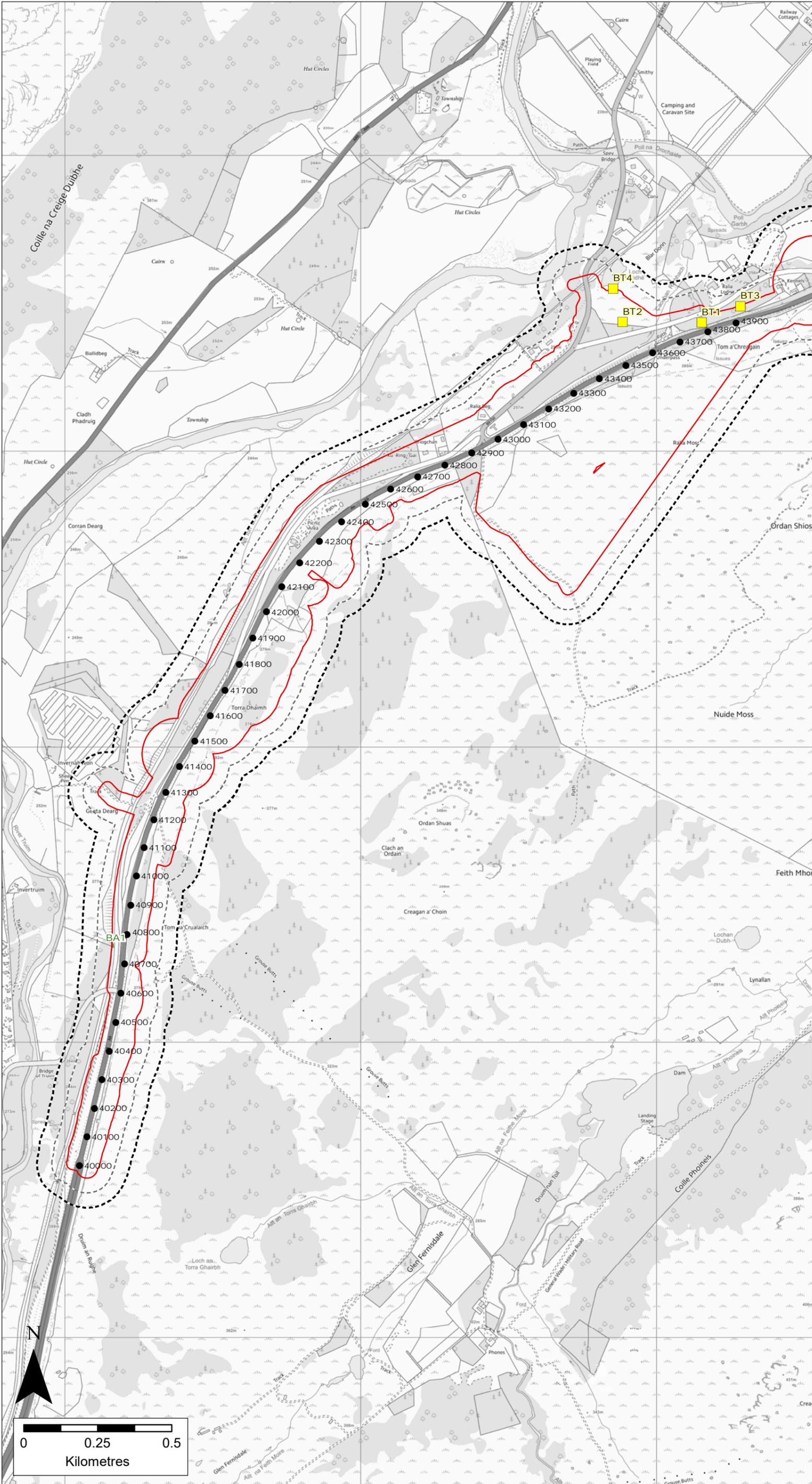
Drawing No: A9GGDALR - MAP 3 of 4 Rev 2
 Drawing scale @ A3 = 1:10,000



- KEY**
- Project 9 footprint
 - 50m from project footprint
 - 100m from project footprint
 - Section chainage
 - ▲ Dreys
 - Foraged cones
 - Sighting
 - Potential habitat



2	09/16	Final	EL	JT	
1	16/12	Field survey - draft	EL	-	
REV	SUIT	DATE	DESCRIPTION	BY	APP
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Project: A9 DUALLING - GLEN GARRY TO DALRADDY					
Drawing: Project 9 – Ecology Field Study Red Squirrel Records Section C					
Drawing No: A9GGDALR - MAP 4 of 4				Rev 2	
Drawing scale @ A3 = 1:12,500					



KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- Bat roosting potential

Potential habitat

- BRP1

REV	SUIT	DATE	DESCRIPTION	BY	APP
4		09/2016	Final	EL	JT
3		09/2016	Final draft	EL	JT
2		06/2016	Update	EL	-
1		16/12	Field survey - draft	EL	-

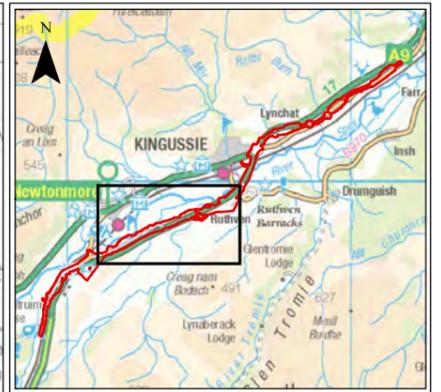
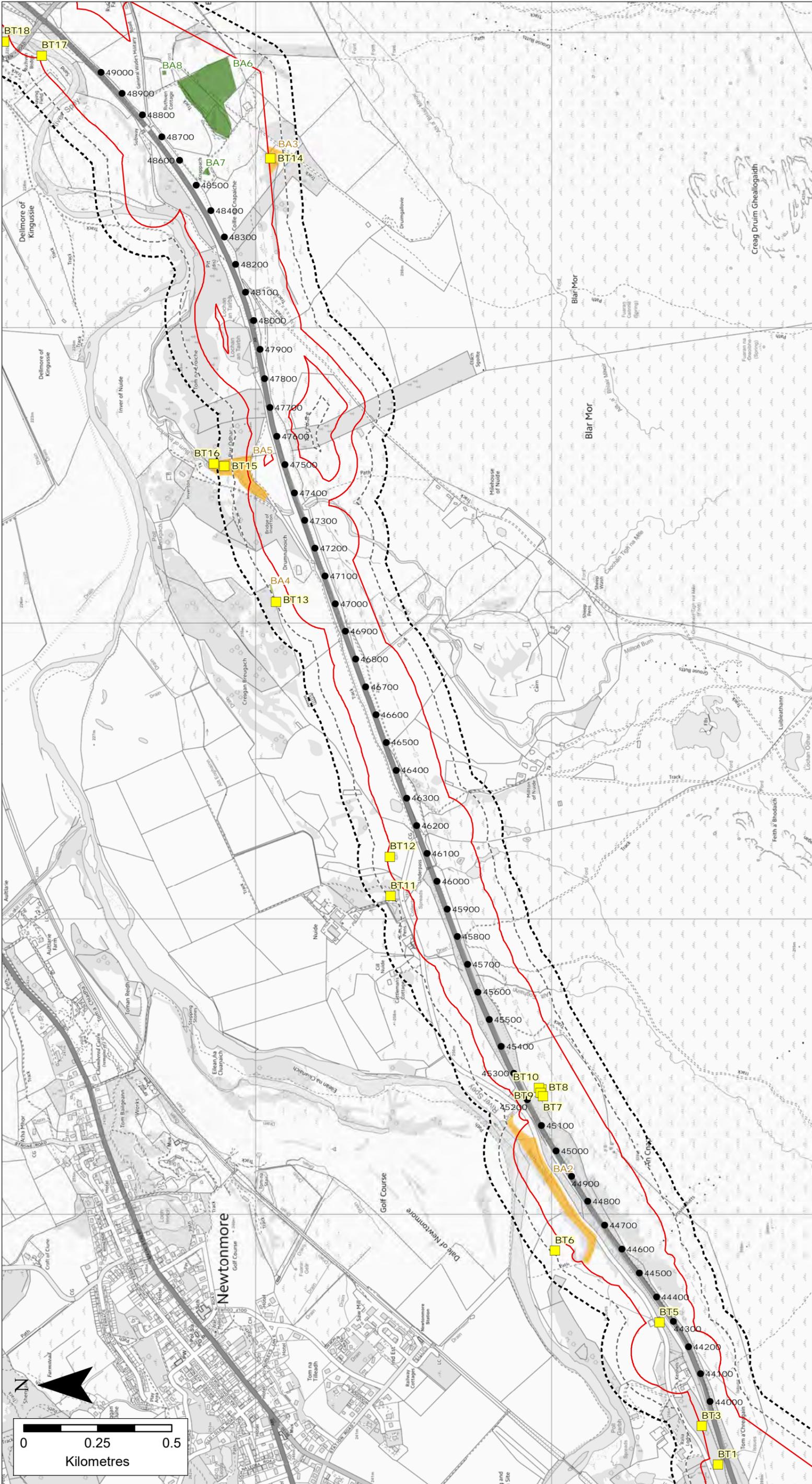
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Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
**Project 9 – Ecology Field Study
 Bat Records
 Section A(a)**

Drawing No: A9GGDALR - MAP 1 of 4 Rev 4
 Drawing scale @ A3 = 1:12,500

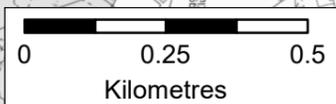


KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- Bat roosting potential

Potential habitat

- BRP1
- BRP2



REV	SUIT	DATE	DESCRIPTION	BY	APP
4		09/2016	Final	EL	JT
3		09/2016	Final draft	EL	JT
2		06/2016	Update	EL	-
1		16/12	Field survey - draft	EL	-

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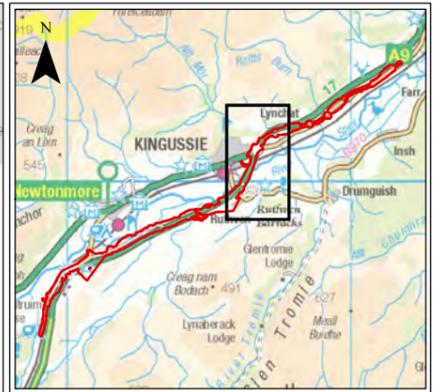
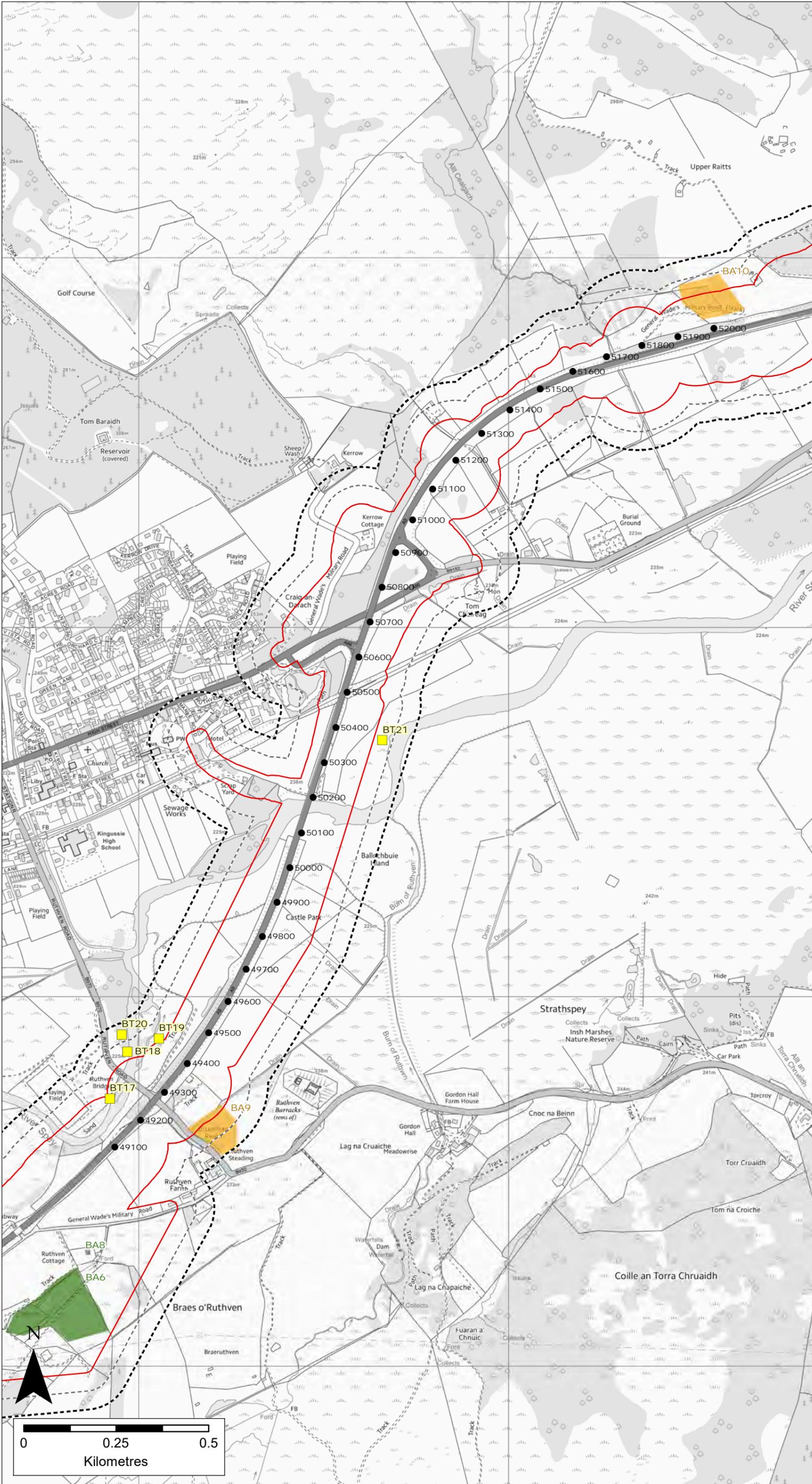


Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
**Project 9 – Ecology Field Study
 Bat Records
 Section A(b)**

Drawing No: A9GGDALR - MAP 2 of 4	Rev 4
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Drawing scale @ A3 = 1:12,500

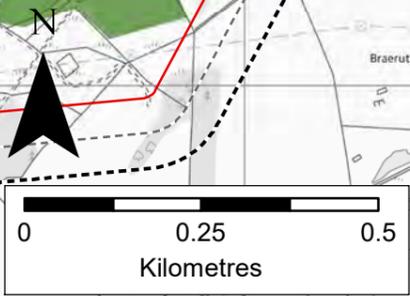


KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- Bat roosting potential

Potential habitat

- BRP1
- BRP2



REV	SUIT	DATE	DESCRIPTION	BY	APP
4		09/2016	Final	EL	JT
3		09/2016	Final draft	EL	JT
2		06/2016	Update	EL	-
1		16/12	Field survey - draft	EL	-

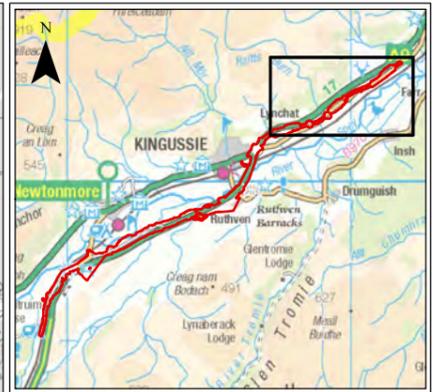
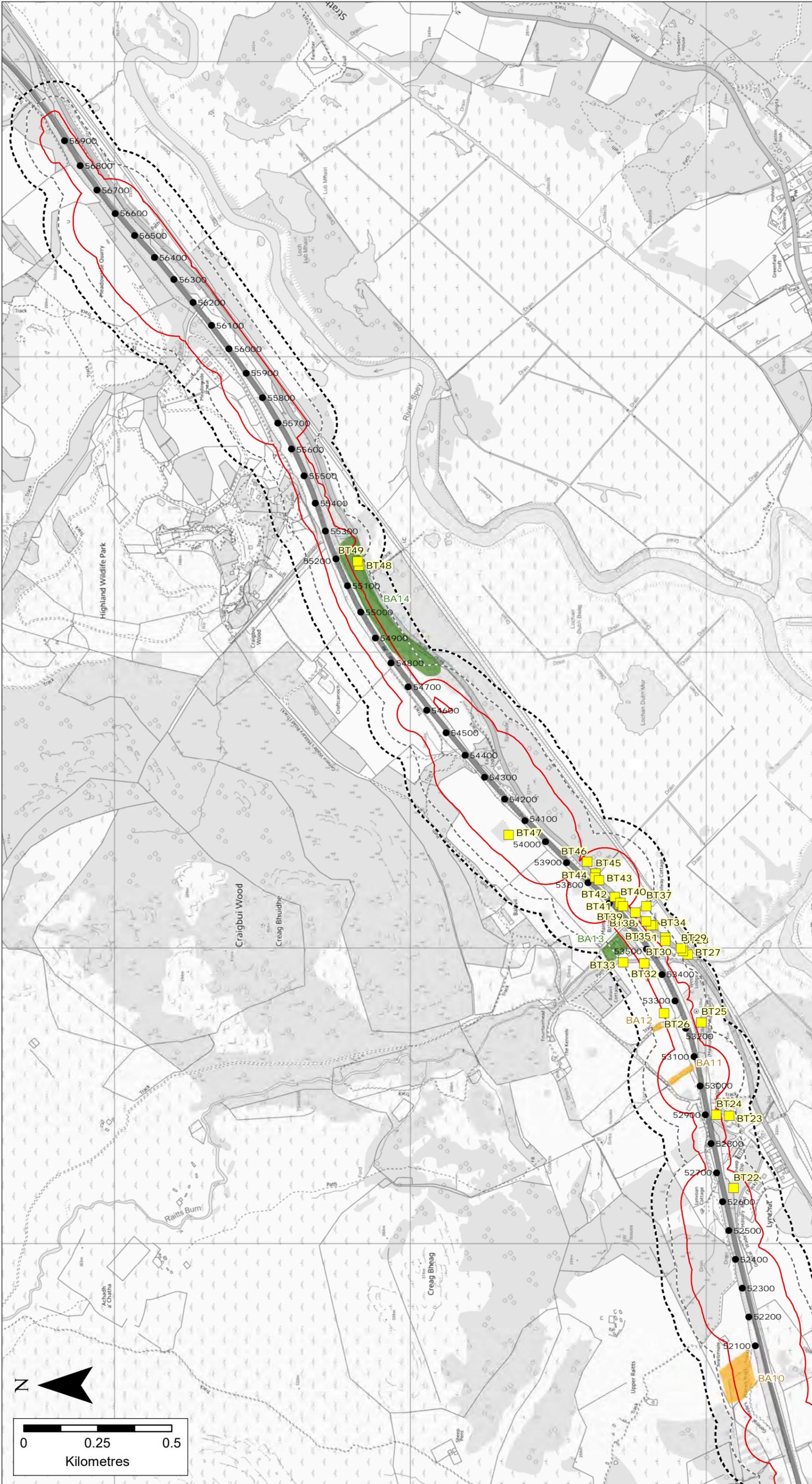
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Project:
A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing:
**Project 9 – Ecology Field Study
 Bat Records
 Section B**

Drawing No: A9GDALR - MAP 3 of 4 Rev 4
 Drawing scale @ A3 = 1:10,000

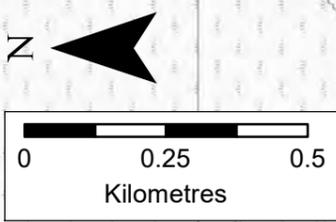


KEY

- Project 9 footprint
- 50m from project footprint
- 100m from project footprint
- Section chainage
- Bat roosting potential

Potential habitat

- BRP1
- BRP2



REV	SUIT	DATE	DESCRIPTION	BY	APP
4		09/2016	Final	EL	JT
3		09/2016	Final draft	EL	JT
2		06/2016	Update	EL	-
1		16/12	Field survey - draft	EL	-

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Project: A9 DUALLING - GLEN GARRY TO DALRADDY

Drawing: Project 9 – Ecology Field Study
 Bat Records
 Section C

Drawing No: A9GGDALR - MAP 4 of 4 Rev 4

Drawing scale @ A3 = 1:12,500