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ECOLOGICAL MITIGATION STRATEGY

PRINCES PARADE, HYTHE
PRINCES PARADE

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1. INTRODUCTION

INSTRUCTION

1.1. Lloyd Bore was instructed to produce an Ecological Mitigation Strategy associated with the hybrid planning application for a new leisure centre, *c.*4.9ha of public open space, 150 new homes, new public parking and commercial uses on land at Princes Parade, Hythe.

1.2. This Ecological Mitigation Strategy builds on and supersedes the Ecological Mitigation and Enhancement Plan (Lloyd Bore, 2017b) and is the primary document detailing ecological mitigation and enhancements for the Site.

1.3. This document has been informed by the results of ecological survey work conducted in 2015 and 2016 (as detailed in Technical Appendices 7.1 to 7.7, inclusive, of the Environmental Statement (ES)) (Lloyd Bore, 2017a), as well as the information provided in the Ecological Mitigation and Enhancement Plan (Lloyd Bore 2017b) that was submitted with the ES.

1.4. This document has been produced to provide as much certainty as possible in relation to the proposed ecological mitigation measures. Updates to this document will be necessary as additional design detail emerges.

1.5. The Site Plan produced by BDB (ref: 2512-02), which was submitted with the planning application, has also informed this document.

PROPOSED DEVELOPMENT

1.6. The Site is *c.*10.7ha in area. It is bounded to the north by the Royal Military Canal (RMC), to the south by Princes Parade and to the west by the Hythe Imperial golf course. A plan showing the red line boundary for the Site is provided within the Planning Design and Access Statement (PDAS).

1.7. The detailed description of the proposed development is provided in the submitted PDAS and the ES.

1.8. Almost half of the Site will be retained and delivered as open space, which will comprise: -

- A large informal western space which will be located adjacent to the proposed replacement public parking, and may potentially contain a strategic play space;
- A central open space which will link with the existing central footbridge that connects to Seabrook Road and provide pedestrian access from the footbridge to the promenade and seafront;
- A linear open space that connects the two larger spaces along the canal bank;
- A hard-landscaped space east of the leisure centre building that will host the relocated existing children's play area; and
- The promenade - which will comprise over a kilometre of widened public promenade.

1.9. Commercial uses are likely to be contained within a single building near the central open space.

1.10. The Prince's Parade road will be realigned from its current location. The realigned road will be located to the north of the proposed built development areas.

1.11. The height of buildings varies across the proposed development. Buildings in the south-east of the Site, facing onto the promenade adjacent to the leisure centre, will be a maximum of 3-4 storeys in

height. Buildings facing onto the canal in the eastern development zone will be a maximum of 3 storeys. The commercial building in the central open space will be a maximum of 4 storeys. Buildings within the western development zone will typically be a maximum of 2.5 storeys - with a limited amount of 3 storey development facing the central open space and the promenade.

1.12. A Parameter Plan showing the boundary between the detailed and outline application sites is included in Appendix 3.

1.13. The only known off-site impact (i.e. impact beyond the red-line boundary of the Site) is the installation of new surface water drainage infrastructure on the beach. This off-site impact is addressed within this document and, where appropriate, reference has been made to the control measures that will be used.

1.14. Additional consultation will also be undertaken, to minimise adverse ecological effects upon shingle, foreshore and marine habitats.

SCOPE OF MITIGATION STRATEGY

1.15. This mitigation strategy details ecological avoidance, mitigation and compensation measures associated with the proposed development at Prince's Parade, Hythe and aims to address comments received from Kent County Council Ecological Advice Service (KCC EAS).

1.16. A single detailed mitigation strategy has been produced to ensure that the measures proposed for different species do not conflict and that an integrated and co-ordinated approach is followed.

1.17. These measures have been designed, and will be implemented, in line with the mitigation hierarchy as set out under Paragraph 118 of the National Planning Policy Framework (NPPF).

1.18. This strategy also details the ecological enhancement measures that have been designed to maximise the importance of the Site for Species of Principal Importance (SPI).

1.19. These enhancement measures have been developed in line with Paragraph 109 of the NPPF, which states that the planning system should contribute to and enhance the natural and local environment by, amongst other things *'providing net gains in biodiversity* **where possible**', and Paragraph 118 of the NPPF, which states that *'opportunities to incorporate biodiversity in and around developments should be encouraged.'*

1.20. This document provides additional detail of the measures already set out in Technical Appendix 7.8 of the ES (Lloydbore, 2017b) with particular reference to: -

- Enhancement of habitats outside the footprint of the proposed development;
- Habitat creation works that will be carried out upon completion of the remediation works;
- Methods for ecological mitigation works;
- Details of compensatory plantings; and
- Timings (where possible) for the implementation of ecological measures.

OBJECTIVES

1.21. The objectives of this mitigation strategy are to: -

- Set-out an ecological mitigation timeline with regards to the habitats and species detailed in the ecological baseline section of this document;

- Describe the avoidance, mitigation, compensation and enhancement measures with regards to the proposed development that will be delivered to maintain the favourable conservation status of European Protected Species (EPS) that are included within the ecological baseline;
- Describe the avoidance, mitigation, compensation and enhancement measures with regards to the proposed development that will maintain the long-term viability of other protected species populations and Species and Habitats of Principal Importance that are included within the ecological baseline; and
- Set-out general ecological enhancement measures appropriate to the local environment.

RESPONSIBILITIES

1.22. Shepway District Council currently own the Site and will continue to own the areas of the Site outside of the proposed residential and commercial development area.

1.23. It is likely that Shepway District Council will be responsible for implementing and funding the ecological avoidance and mitigation measures associated with clearing the Site and providing the compensation measures.

1.24. It is likely that the developer will fund the enhancements measures within the development footprint.

1.25. It is likely that Shepway District Council will be responsible for the management of areas of the Site outside of the proposed residential and commercial development area during the occupational stage.

1.26. This document will be updated with detail of responsibilities, administration ownership and habitat management funding as additional details emerge.

1.27. The Landscape and Ecology Management Plan (LEMP), which will be submitted at the Reserved Matters stage, will provide additional detail of the habitat management responsibilities, ownership and funding that will be adopted and implemented.

2. ECOLOGICAL BASELINE

2.1. Baseline conditions of ecological features are detailed within the Ecology Chapter of the Environmental Statement (Lloyd Bore, 2017a). This section summarises the most important ecological features present on and immediately adjacent to the Site.

NON-STATUTORY DESIGNATED SITES

2.2. Two Local Wildlife Sites (LWS) are located within 1km of the Site.

2.3. Paraker Wood and Seabrook Stream, Shorncliffe LWS is located *c.*750m north of the Site at its closest point.

2.4. The RMC LWS is located adjacent to the northern boundary of the Site. Based on publicly available information, this LWS is designated for its rare plant species, as well as twelve species of Odonata (dragonflies and damselflies), its bird assemblage, grass snake (*Natrix natrix*), common toad (*Bufo bufo*), foraging pipistrelle (*Pipistrelle sp.*) and Daubenton's bat (*Myotis daubentonii*).

HABITATS OF PRINCIPAL IMPORTANCE

2.5. The RMC qualifies as Eutrophic standing water, which is a Habitat of Principal Importance.

OTHER HABITATS AND FLORA

2.6. A maritime grassland community occurs within the Site. This 'maritime' grassland community is of 'local' botanical importance and will need to be cleared to facilitate development.

2.7. The rest of the Site comprises habitats that are of negligible ecological importance.

INVASIVE FLORA

2.8. Giant hogweed (*Heracleum mantegazzianum*), Japanese rose (*Rosa rugosa*) and Spanish bluebell (*Hyacinthoides hispanica*), which are all non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), have been recorded on-site.

INVERTEBRATES

2.9. Based on the findings of an invertebrate survey and habitat assessment, and the fact that the grassland strip that is located adjacent to Princes Parade is not common within the surrounding local landscape, this habitat is of ecological importance for invertebrates at the Local level.

2.10. The remainder of the other habitats are of negligible sensitivity or importance for invertebrates.

2.11. Based on the survey results, the reasons for designation of the RMC LWS, and the extent of habitats present, the adjacent (off-site) section of the RMC is of ecological importance for invertebrates at the County level.

COMMON TOAD

2.12. The Site supports terrestrial habitats suitable for common toad, and the adjacent section of the RMC provides a suitable breeding site for this species.

2.13. Results from a common toad survey indicate that the Site supports a 'low' population of common toad (ARC, 2011).

REPTILES

2.14. Slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*) and grass snake are present on the Site.

2.15. The reptile survey results indicate that the Site supports 'good' populations of slow worm and common lizard and a 'low' population of grass snake (Froglife, 1999).

BREEDING BIRDS

2.16. Four red-status bird species utilise on-site habitats. These are song thrush (*Turdus philomelos*), starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*) and linnet (*Linaria cannabina*).

2.17. The Site is of ecological importance at the local level for Cetti's warbler (*Cettia cetti*), house sparrow (foraging only) and reed bunting (*Emberiza schoeniclus*).

2.18. Kingfisher (*Alcedo atthis*) was recorded along the RMC, and reported breeding along the canal, west of the Site, by a local bird watcher.

2.19. Both Cetti's warbler and kingfisher are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

BADGER

2.20. During badger (*Meles meles*) sett monitoring work conducted in May and June 2018, it was concluded that Setts A and D are not in 'current use' by badger.

2.21. During the same monitoring work, it was concluded that Setts B and C are in 'current use' by badger.

2.22. Sett locations are indicated in Figure 1.

2.23. Further detail of sett monitoring work, including detailed survey results, is provided in the associated *Badger Report* (Lloyd Bore, 2018b).

BATS

2.24. The Site does not support any features suitable for roosting bats.

2.25. Eight bat species were confirmed using the Site and adjacent section of the RMC during the 2016 bat activity survey. It is possible that additional Myotis species are also present.

2.26. There were differences in the recorded levels of bat activity across the survey area. Bat activity was higher along the adjacent section of the RMC and vegetation on the northern embankment of the Site. Bat activity was low across the remainder of the Site.

3. ECOLOGIAL CONSTRAINTS PLAN

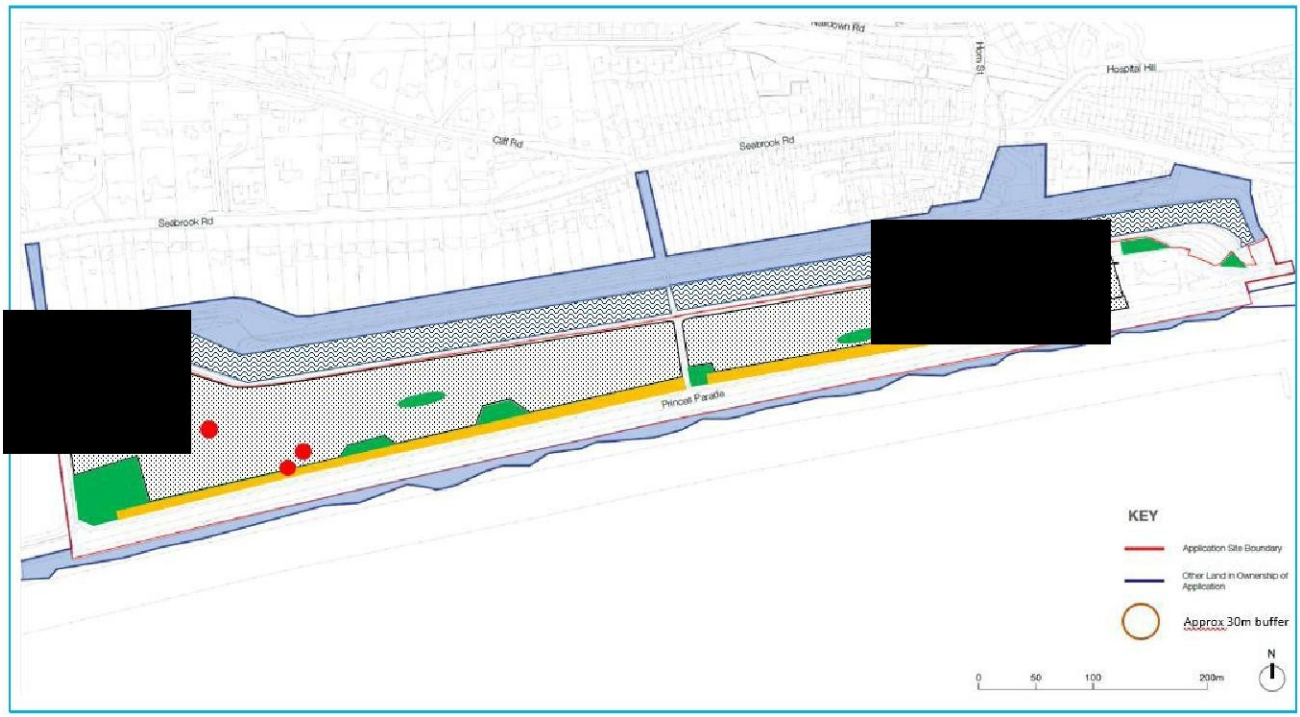

Fig. 1: Ecological constraints plan. (Refer to Appendix 2 for larger version).

Key

- Royal Military Canal (LWS and of County importance for foraging bats)
- Scattered areas of bird nesting habitat
- Other land in ownership of applicant
- Reptile habitat and scattered areas of bird nesting habitat
- Reptile habitat
- Giant hogweed – approximate locations
- Badger sett – approximate locations

4. DEVELOPMENT PLAN

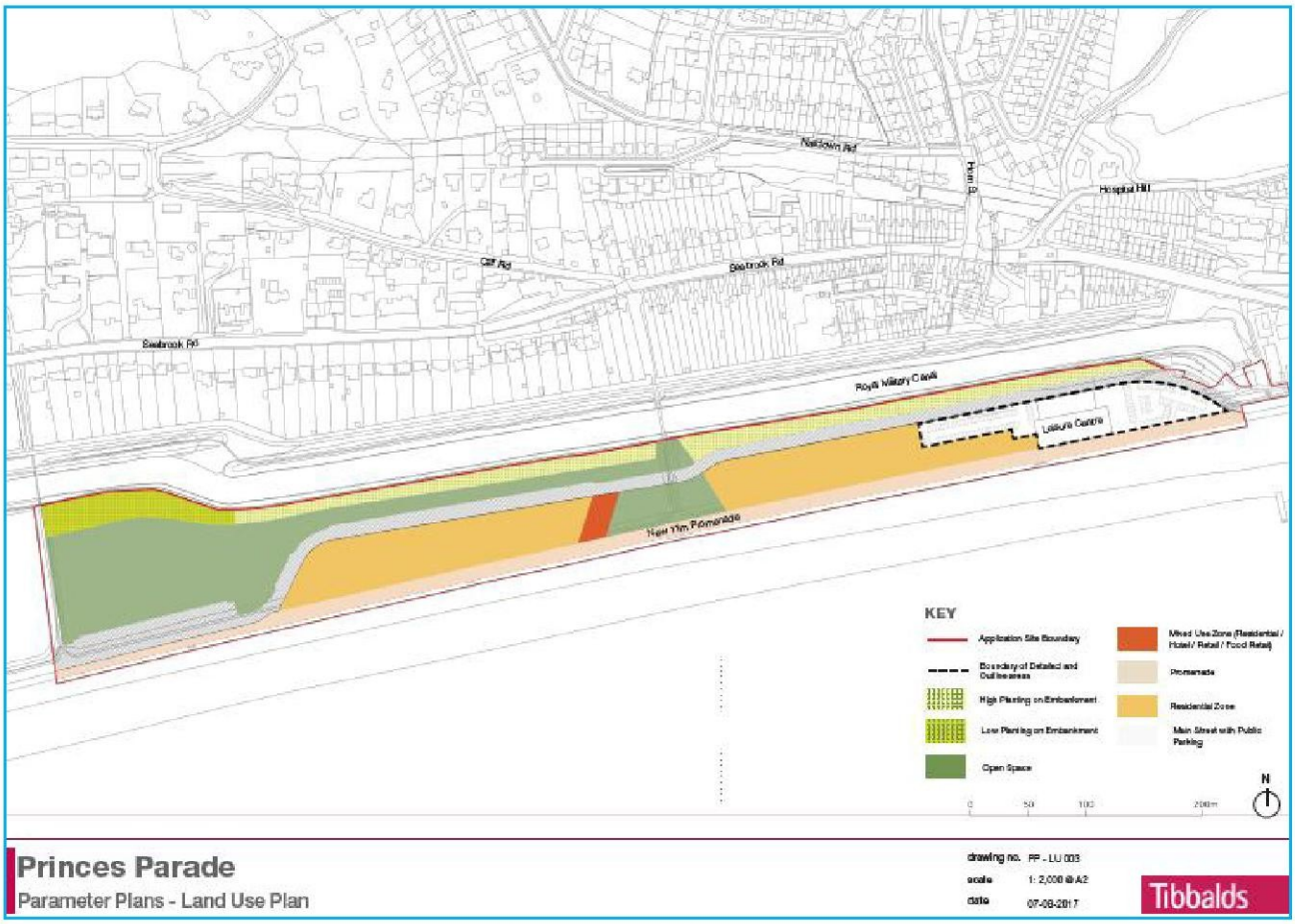

Fig. 2: Parameter plan (Drawing PP - LU 003, Prince's Parade Parameter Plans - Land Use Plan, dated 19.06.2017, Tibbalds), including the red-line boundary of the hybrid planning application and the boundary between the detailed and outline application sites. A larger copy of this plan is provided in Appendix 3 of this document.

5. REPTILE RECEPTOR

Fig. 3: Reptile receptor and area requiring enhancement prior to use as a receptor, north of the RMC. See Appendix 4 for larger version.

Key

Opportunities to create new reptile habitat.

Receptor enhancement works prior to use as a receptor.

6. WORKS PHASING

6.1. The mitigation strategy set out in this document is based on the following sequencing, timescales and phases for the proposed development, as provided in the Programme Plan, dated May 2018.

Phase 1: June 2018 to August 2019

- Site remediation works.

Phase 2: July 2019 to March 2021

- Construction of leisure centre;
- Realignment of Princes Parade and construction of western car park;
- Relocation of existing rising main along realigned Princes Parade;
- Provision of new promenade; and
- Construction of a new linear park and installation of planting along the northern embankment.

Phase 3: July 2020 to November 2021

- Construction of character area east (residential) and central open space.

Phase 4: December 2020 to May 2022

- Construction of character area west (residential and commercial) and western open space.

7. MITIGATION METHOD

7.1. The development layout shown on the Land Use Parameter Plan (Figure 2) incorporates ecological avoidance measures. These measures have been informed by the results of ecological survey work conducted in 2015 and 2016, as detailed in Technical Appendices 7.1 to 7.7, inclusive, of the ES (Lloyd Bore 2017a).

7.2. During the master planning process, three main options were considered for the layout of the development.

7.3. The locations of important ecological features in relation to each layout option were considered.

7.4. A comparison of these earlier layout options with the submitted version of the Land Use Parameter Plan provides evidence that the scheme has avoided ecological impacts by design.

7.5. Furthermore, the proposed phasing of Site works will ensure that key green infrastructure is reinstated as soon as possible (in Phase 2 of the construction stage), and that off-site compensation measures are delivered prior to the start of construction.

7.6. This is in accordance with best practice and is particularly important in: -

- Ensuring that, prior to the commencement of reptile translocation works, the reptile receptor site provides suitable habitat that can accommodate translocated animals; and
- Ensuring that habitat connectivity is maintained for foraging bats and common toad adjacent to the Site and is not lost at any point during the construction stage.

7.7. Additionally, a 'buffer' of semi-natural habitats will be built between the development and the RMC.

7.8. A plan showing the widths of the buffer can be found in Appendix 5.

7.9. The width of the buffer should not be the focus of any planning condition relating to the RMC buffer. The ecological functionality and effectiveness of the buffer in protecting the RMC should instead be the focus. The mitigation measures detailed within this document will ensure that the buffer: provides a robust block of appropriate semi-natural habitat; incorporates reasonable measures to avoid pollution of the canal during the construction and operational stages; and that an illuminance level of 1 lux or less is achieved at the southern edge of the buffer.

7.10. The current concept lighting scheme model (Figure 4), does not take into account any planted semi-natural habitat within the 'buffer' and boundary of the application site and therefore, the 1 lux illumination limit (Figure 4, red-line) represents a worst-case scenario.

7.11. Relevant detail of works phasing is provided in this document. Full detail of works phasing is provided within the ES and the PDAS.

7.12. Given that the precise detailed design of the wider Site is not known at this stage, this document will be updated with additional detail of mitigation and enhancement measures as additional design detail emerges.

NON-STATUTORY DESIGNATED SITES

Avoidance

7.13. The eastern development zone (built development) will be located at least *c.*10 to 11m from the northern red line boundary, to allow for a set back from the RMC LWS.

7.14. The western development zone (built development) will be located at least *c.*39m from northern red line boundary and in places up to *c.*100m, to allow for increased set back from the LWS.

7.15. In line with the Flood Risk Assessment (FRA) submitted with the planning application, the surface water drainage system will outfall to the beach. The proposed development has thereby minimised the risk during the occupation-phase of contamination of the LWS through sensitive master planning.

7.16. These avoidance measures reduce the risk that the construction and operation of the proposed development would result in pollution and/or damage to habitats within the LWS.

Mitigation

7.17. In the absence of mitigation, Site works could result in contamination of the RMC LWS and damage habitats within the LWS.

7.18. Relevant best practice, including the principles within the pollution prevention guidance for England available on the Environment Agency (UK.GOV) website, and the now withdrawn and archived Standard Environment Agency Pollution Prevention Guidelines will be followed to minimise the risk of ecological impacts arising from the storage of chemicals and/or materials on-site, fuel or chemical spillages and the management of Site run-off.

7.19. In addition, rigid site hoarding and/or propped Heras fencing (or similar) fitted with debris netting will be used to minimise the risk of materials, machinery and debris entering the LWS. Wildlife protection signs will be posted to the Heras fencing (Appendix 6).

7.20. These measures will minimise the risk of construction-phase impacts upon the LWS.

7.21. Additional detail of construction-phase habitat protection, and pollution prevention and control measures will be provided in the Construction Environmental Management Plan (CEMP), which will be submitted at the Reserved Matters stage.

7.22. In addition, the new Linear Park - which will be planted during Phase 2 of the construction stage, will provide a habitat buffer between the development areas and the RMC LWS.

7.23. The location of this Linear Park is shown within the PDAS.

HABITATS OF PRINCIPAL IMPORTANCE

Avoidance

7.24. The setting back of the development zones from the RMC and the positioning of surface water drainage outfalls will minimise the risk of pollution of and/or damage to the canal HPI during the construction and operational stages.

7.25. In addition, all development (except for the Site drainage outfalls) will be set back at least 12m from the seawall. This will minimise the risk of operational stage impacts upon the beach (except for the potential effects of Site drainage, which are addressed below).

Mitigation

7.26. In the absence of mitigation, the construction and operation of the proposed development could result in damage and/or pollution of habitats within the RMC HPI.

7.27. The mitigation measures outlined for the LWS will also minimise the risk of damage and/or pollution of the RMC HPI.

7.28. The CEMP, which will be submitted at the Reserved Matters stage, will provide additional detail of measures that will be employed to protect the RMC HPI during the construction stage.

OTHER HABITATS AND FLORA

Avoidance

7.29. Excluding the retained area of vegetation around badger Sett A, it is likely that total clearance of vegetation from the Site will be required to facilitate the capping of contaminated ground.

7.30. For this reason, direct impacts upon the on-site grassland community cannot be avoided.

Mitigation

7.31. The new habitats within the Western Open Space and the Linear Park will include grass and forb species that are present in the pre-development grassland community. New compensatory grassland habitats will cover at least 1.4ha of the proposed new open spaces (within the Western Open Space and Linear Park combined).

7.32. In addition, a living roof will be installed on the roof of the pool hall, which forms part of the leisure centre. The substrate and seed mix used in this living roof will replicate the substrate and species composition of the existing grassland that is located adjacent to Princes Parade as far as possible.

7.33. The above measures will part-compensate for the loss of the on-site grassland. These measures will not deliver a like-for-like replacement of the grassland community that will be lost to development. However, they will seek to create grassland of comparable conservation importance and will deliver a net gain in the total area of grassland habitat present on the Site.

7.34. The emerging detailed design will include the installation of dog-proof fencing located within the Western Open Space and the Linear Park to protect areas of grassland / wildflower planting and those areas containing enhancements for reptiles, amphibians, bats and potentially badger sett(s).

7.35. The use of dog exclusion fencing will restrict access by the public with dogs to these areas. However, access for management activities and the public without dogs will be incorporated within the design. The fencing design will also consider access for foraging badgers.

7.36. The location of the Western Open Space is shown within the PDAS.

INVASIVE FLORA

7.37. It is a legal offence to plant or otherwise causes to grow in the wild any plant listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

7.38. Giant hogweed poses a serious threat to human health. During ecological mitigation works, stands of giant hogweed should be fenced off with a 4m buffer zone and warning notices put up.

7.39. The giant hogweed plants, and any soil that may contain the plant material or seeds, will need to be removed from the works footprint and securely disposed of away from works, roads and public access. Composting within a secure area, and treatment of any regrowth with an appropriate herbicide in an environmentally sensitive manner, is one possible disposal option. Additional detail of giant hogweed control measures will be included in the CEMP.

7.40. Japanese knotweed (*Fallopia japonica*) is frequently encountered on development sites.

7.41. For this reason, prior to the commencement of Site works, all Site personnel should be briefed on the identification of Japanese knotweed and giant hogweed. This briefing could be delivered through a Toolbox Talk.

7.42. If Japanese knotweed, giant hogweed or any other plant listed on Schedule 9 of the Wildlife and Countryside Act, is discovered on-site prior to or during works, all works within 7m of the plant(s) should cease immediately and a suitably experienced specialist should be contacted for advice.

INVERTEBRATES

Avoidance

7.43. Excluding the retained area of vegetation around badger Sett A, it is likely that total clearance of vegetation from the Site will be required to facilitate the capping of contaminated ground.

7.44. For this reason, direct impacts upon the on-site grassland adjacent to Princes Parade (which is of Local importance for invertebrates) cannot be avoided.

Mitigation

7.45. The compensation measures detailed for the grassland plant community (see *Other habitats and flora* section) will also provide some level of compensation for invertebrates associated with this grassland. The living roof on the leisure centre will be designed to provide habitat suitable for a diverse range of invertebrate species, including maritime grassland species.

7.46. In addition, areas of gravelly substrate overlain with a thin layer of soil and seeded with a maritime grassland mix will be provided within the Western Open Space - most likely adjacent to the new public parking that will be provided on the main street. The final location of this area will be determined at the detailed design stage. This area will be maintained as a short grass sward.

7.47. To benefit a range of invertebrate species, areas of long grass will be established throughout the Western Open Space and Linear Park. These areas will include cut pathways that link to public footpaths and the promenade.

7.48. By splitting the areas of long grass into sections a cutting regime of alternate annual cuts over the winter period will be implemented that will maintain the grass structure and avoid scrub encroachment. The most effective and least damaging cutting period being November to December.

7.49. Grassland plantings within the Western Open Space will include nectar rich wildflowers that are suitable for the soil conditions. The flower mix should include species that flower at different times - providing a nectar source throughout the flowering season.

7.50. A suitable species mix should include native plants from the pea (*Fabaceae*), figwort (*Scrophulariaceae*), broomrape (*Orobanchaceae*) and mint (*Lamiaceae*) plant families. These will provide foraging opportunities for pollinating invertebrates especially *Bombus* sp. including the brown-banded carder (*Bombus humilis*), shrill carder (*Bombus sylvarum*) and short-haired bumble (*Bombus subterraneus*).

7.51. Brown-banded carder, shrill carder and short-haired bumblebee are SPI that occur within the wider local landscape.

7.52. The invertebrate assemblage present within the grassland cannot be replicated or re-created through delivery of new habitats. However, invertebrate assemblages are dynamic, and the proposed new habitats will provide a range of new opportunities for invertebrates, including maritime grassland species.

7.53. The LEMP, which will be submitted at the Reserved Matters stage, will provide additional detail of the habitat management prescriptions that will be adopted and implemented to benefit invertebrates in the long-term.

COMMON TOAD

7.54. Whilst common toad does not receive specific legal protection, it is listed as an SPI under Section 41 of the Natural Environment and Rural Communities Act 2006 (as amended).

7.55. Under Section 40 of the same Act, it is stated that the local authority must, *'in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.'* Consideration of impacts upon SPIs is relevant to this requirement.

Avoidance

7.56. Excluding the retained area of vegetation around badger Sett A, total clearance of vegetation from the Site will be required to facilitate the capping of contaminated ground.

7.57. For this reason, direct impacts upon common toad terrestrial habitat cannot be avoided.

Mitigation

7.58. In the absence of mitigation, there is a high risk that works undertaken during the construction stage will result in the killing and injury of individual common toads. Works could also result in the pollution of and/or physical impacts upon the recorded common toad breeding site (the RMC).

7.59. To minimise these risks, mitigation measures will be adopted and implemented.

7.60. On-site habitats will be cleared under ecological supervision, which will help to minimise the killing and/or injury of common toads during the construction stage. Any common toads discovered during clearance (or during the pre-clearance reptile trapping visits) will be translocated to suitable habitat adjacent to the north side of the RMC and the reptile receptor area (as detailed below).

7.61. Prior to the start of construction, herptile (reptile and amphibian) exclusion fencing will be installed along the northern, eastern and western boundaries of the Site. This will help to minimise the risk of common toads entering works areas.

7.62. The CEMP - which will be submitted at the Reserved Matters stage, will provide additional detail of measures designed to minimise the risk of killing and/or injury of individual common toads during the construction stage.

7.63. The risk of impacts upon common toad habitat (terrestrial and aquatic) outside of the Site during the construction stage will be minimised through implementation of the measures outlined in the *Non-Statutory Designated Site* section.

7.64. The pollution prevention and control measures outlined for the LWS will also minimise the risk of damage and/or pollution of off-site common toad terrestrial and aquatic habitats.

7.65. Additional detail of construction-phase habitat protection, and pollution prevention and control measures will be provided in the CEMP, which will be submitted at the Reserved Matters stage.

7.66. The proposed development will deliver an amphibian-friendly road scheme, through inclusion of features such as wildlife or ACO (ACO is the manufacturer) kerbs and slit drains or other amphibian-friendly drainage solutions.

7.67. This will minimise the risk of killing / injury of common toads during the operational stage. A detailed specification for the amphibian-friendly road design will be confirmed at the Reserved Matters stage.

7.68. The proposed development will also include pollution interceptors on drainage outflows, and a Sustainable Drainage System (SuDS). The proposed development has thereby minimised the occupation-stage risk of contamination of the canal, which is a common toad breeding site.

7.69. Excluding the retained area of vegetation around badger Sett A, it is likely that Phase 1 of the construction stage will result in a total loss of common toad terrestrial habitats from the Site. New compensatory habitats suitable for common toad will be delivered in Phase 2 of the construction stage - to help compensate for the loss of existing habitats.

7.70. At least 0.6ha of new compensatory habitats suitable for common toad (scrub and tall grassland) will be delivered within the Linear Park as soon as possible after Site clearance. These new habitats will provide foraging and shelter opportunities for common toad close to the recorded breeding site (RMC). This habitat will be created during Phase 2 of the construction stage.

7.71. At least 1.4ha of new tall grassland and scrub habitats will also be delivered within the Western Open Space. These habitats will also provide new compensatory terrestrial habitats suitable for common toad. This habitat will be created during Phase 4 of the construction stage.

7.72. Amphibian refugia piles and hibernacula will be installed within the new terrestrial habitats closest to the RMC and furthest from the road. The design of the hibernacula is described within the *Reptiles* section below.

7.73. The above will not fully compensate for the loss of common toad terrestrial habitat from the Site. However, the above will ensure that new terrestrial habitat suitable for common toad, and new refuge and hibernation opportunities, are provided close to the recorded breeding site.

7.74. The new habitats will be managed to ensure that they continue to provide foraging and shelter opportunities for common toad post-development. Management operations will be designed to minimise the risk of killing or injury of common toads.

7.75. Management prescriptions will be confirmed in the detailed LEMP, which will be delivered at the Reserved Matters stage.

REPTILES

7.76. The legislation and offences below are relevant to the proposed works.

7.77. All four common reptile species are afforded legal protection from intentional and reckless killing and injury by the Wildlife and Countryside Act 1981 (as amended).

7.78. Actions affecting multiple animals can be construed as separate offences and therefore penalties can be applied per animal impacted.

7.79. All reptiles and amphibians held in captivity are legally protected by the Protection of Animals Act 1911 (as amended) and adder (*Vipera berus*) is listed on the Dangerous Wild Animals Act 1976 (as amended). This may be of relevance during reptile translocation works. However, adder was not recorded during survey work.

7.80. Licences are not required to capture and move the four most common UK reptile species (slow worm, common lizard, grass snake and adder).

7.81. The Wildlife and Countryside Act (1981) includes certain defences that may apply in some specific circumstances.

Reptile habitat

7.82. Approximately 1.4ha of habitat within the Site is suitable for reptiles. Areas of suitable reptile habitat include: -

- The less intensively managed northern edge of the roadside verge adjacent to Princes Parade, which provides some shelter and basking opportunities for reptiles;
- A dry ditch and bund located immediately north of the verge. These features support tall grassland, ruderal vegetation and bramble scrub;
- An area of tall grassland located at the western end of the Site, north of the bund. This area contains scattered concrete blocks, which provide additional shelter, basking and potentially hibernation opportunities for reptiles; and
- Two isolated areas of rough grass within the ruderal habitats described below. One area is present in the eastern half of the Site and one is present in the western half.

7.83. Results from the reptile survey indicate that reptiles occur within the dry ditch and bund and the tall grassland located at the western end of the Site. These comprise *c.*0.68ha of reptile habitat.

7.84. The remainder of the Site is dominated by dense, tall ruderal vegetation and willow (*Salix sp.*) and elder (*Sambucus nigra*) scrub. These habitats are unsuitable for reptiles. However, grass snake has been recorded within the Site and is a transient species and therefore could be found within the areas of unsuitable reptile habitat within the Site.

Avoidance

7.85. Excluding the retained area of vegetation around badger Sett A, it is likely that total clearance of vegetation from the Site will be required to facilitate the capping of contaminated ground.

7.86. For this reason, direct impacts upon reptile habitat cannot be avoided.

Mitigation

7.87. In the absence of mitigation, there is a high risk that works undertaken during the construction stage would result in the killing and injury of individual reptiles.

7.88. To mitigate against the risk of killing and injury of individual reptiles, a programme of reptile trapping, and translocation will be undertaken.

7.89. This will involve the capture of reptiles from the Site by suitably experienced ecologists and the translocation of captured animals to an off-site receptor within the RMC corridor to the east of the Site (Figure 3).

7.90. Reptile trapping, and translocation will be completed before the commencement of Phase 1 of the construction stage (site clearance). Additional detail is provided below.

Preliminary vegetation clearance works

7.91. During January and February reptiles are likely to be hibernating. The ecological supervision requirements and the timing of the vegetation clearance works in relation to nesting birds (see *Breeding Birds* section, below) will reduce the risk of killing and injuring reptiles - by ensuring that works do not break ground or work too closely to the ground where animals could be hibernating.

7.92. Should any vegetation clearance works be required within areas of suitable reptile habitat between March 2018 to September 2018 (inclusive) then vegetation will be cleared under ecological supervision and in stages using a hand-held strimmer and/or brush cutter.

7.93. The first cut will be to a minimum height of 300mm (no less), with a second cut to 100mm (no less) and then a final cut to ground level as advised by an ecologist. This will reduce the risk of killing and injuring reptiles because the works allow animals to move away on their own accord.

7.94. This work must only be conducted in suitable weather conditions (during periods of dry, suitable weather with an ambient air temperature of 12°C or above), as advised by an ecologist.

7.95. Any animals present can be caught be the supervising ecologist and translocated to the off-site receptor.

7.96. Measures relating to breeding birds (below) will also need to be considered during clearance works.

7.97. Most grassland habitats will not be cleared until the completion of the reptile trapping and translocation programme.

Trapping and translocation works

7.98. Prior to trapping works, herptile exclusion fencing fitted with two-way badger gates will be installed along the western, northern and eastern boundaries of the Site. Badger gates will be installed where known badger runs cross the fence line.

7.99. The proposed badger mitigation measures will inform the location of the herptile exclusion fencing when it is close to retained and/or compensatory badger setts.

7.100. The reptile receptor habitat will be located within the RMC corridor, between the Site and Twiss Road (Figure 3).

7.101. It is likely that 60 trapping visits in suitable weather conditions will need to be conducted (HGBI, 1998). However, trapping may extend beyond this if animals continue to be caught.

7.102. Trapping works will not stop until at least 30 trapping visits have been conducted and until there have been at least five clear days of trapping, during suitable weather conditions, when no animals have been caught.

7.103. Trapping visits will only be counted if the weather is suitable. In particular, the weather will need to be dry, and temperatures will be above 12°C, which is the temperature when grass snakes start to bask (Gent and Gibson, 2003).

7.104. In general trapping visits, will not be conducted when the temperature is above 18°C (Froglife, 1999a). However, experience from other projects has shown that trapping can also be effective in temperatures up to 25°C, especially when it is warm and overcast, or during a sunny spell just after a thundery shower. Therefore, trapping works will only cease on-site when temperatures exceed 25°C.

7.105. 'Clear days' will not be counted when trapping works are undertaken at temperatures above 18°C. Therefore, clear days will only be counted when capture works are being conducted in optimal conditions.

7.106. On very hot days trapping may be conducted early and late in the day. However, prolonged hot spells with hot nights are likely to reduce capture efficiency. In these weather conditions, the period of animal free days would not be counted, or the number of free days will be extended to 10 days.

7.107. To ensure the effective capture of reptiles, artificial cover objects (ACOs) will be placed on-site at a high density and well above that recommended for survey work (Froglife, 1999). Areas of the most suitable habitat will be targeted. However, as a precaution, some ACOs will also be placed within areas of less suitable habitat.

7.108. The capture works will only be undertaken during the reptile active season, which is generally between early April and the end of September (inclusive). However, the season may start earlier or extend later because of periods of warm prevailing weather conditions.

Supervised destructive search and site clearance

7.109. Once trapping works have been completed, any areas of reptile habitat within the construction zone will be removed under the supervision of a suitably experienced ecologist and in dry weather when the temperature is above 15°C.

7.110. A toothed bucket will be used to remove vegetation and topsoil - to reduce the risk of killing and injuring any animals that might remain within the Site after the conclusion of trapping work. If any animals are present, this will allow them to be caught and moved to the receptor area.

7.111. If possible, the clearance of suitable bird nesting habitat, such as scrub and hedgerows would have been completed prior to these works being undertaken.

7.112. If this is not possible, prior to commencement of habitat clearance works a check for nesting birds will be undertaken by a suitably experienced ecologist. Any active nests will be retained and protected *in-situ* until the birds have stopped using them.

Compensation

7.113. The construction-stage Site clearance will result in the loss of *c.*1.4ha of suitable reptile habitat from the Site of which *c.*0.68ha was occupied by reptiles as indicated by the results of the reptile survey (Lloyd Bore, 2017a).

7.114. Compensation for the loss of the occupied habitat will be delivered in two ways.

7.115. Firstly, existing habitats suitable for reptiles will be enhanced within the off-site receptor area and new reptile habitat will be created (Figure 3).

7.116. Habitat creation and enhancement measures north of the RMC will be targeted to deliver *c.*0.7ha of new foraging, shelter, basking, refuge and hibernation opportunities for slow worm, common lizard and grass snake.

7.117. These habitats will provide sufficient habitat for the translocated reptile population and the low population of grass snake already present within the receptor area.

7.118. The habitat creation and enhancement measures have been informed by the results of the reptile presence / likely absence survey of the off-site receptor.

7.119. Given the extent of habitats present within the RMC corridor that could be enhanced for reptiles, the above approach is likely to provide sufficient compensation for loss of on-site habitats.

7.120. The creation and enhancement of these off-site habitats will be completed prior to the commencement of translocation of reptiles from the Site.

7.121. Secondly, at least 1.4ha of new on-site compensatory habitat suitable for reptiles (tall grassland and low scrub) will be delivered within the Western Open Space.

7.122. This will provide long-term compensation for the loss of on-site habitats and will help to account for any adverse effects of translocation upon the local reptile population.

7.123. The new and enhanced reptile habitats within the off-site receptor area and the on-site Western Open Space will connect on to a wider network of suitable reptile habitat within the RMC corridor.

7.124. Detail of the management strategy for receptor habitats and habitats within the Western Open Space will be confirmed in the LEMP, which will be submitted at the Reserved Matters stage.

7.125. The new habitats will be managed to ensure that they continue to provide foraging, shelter, basking and hibernation opportunities for reptiles' post-development.

Reptile presence / likely absence survey of the off-site receptor

7.126. A reptile presence / likely absence survey of suitable reptile habitat within the off-site receptor north of the RMC (Figure 3) (including areas where reptile enhancement works will be undertaken), was conducted by Lloyd Bore between 9th May 2018 and 29th May 2018. Details of the reptile survey can be found in the *Reptile Survey Report* (Lloyd Bore, 2018a).

7.127. Results from the survey recorded an estimated 'low' population (Froglife, 1999) of grass snake. However, the results indicate that the habitat is suitable for reptiles.

7.128. No amphibians were recorded under the deployed Artificial Cover Objects (ACOs).

Hibernacula design

7.129. The design of the hibernacula will broadly follow that depicted in the Great Crested Newt Conservation Handbook (Langton *et al.*, 2001).

7.130. The construction of each hibernaculum will make use of clean rubble, logs, topsoil and a partial covering of turf. Materials used will be not be from a contaminated source. The design will allow some of the rubble and logs to remain exposed providing areas for basking. Gaps within the exposed wood and rubble will provide bolt holes and ingress into the interior for refuge and food.

7.131. The exact positioning of the hibernaculum will be as advised by a suitably experienced ecologist. Proximity to the areas of reptile release, sunny aspects linked to a corridor of suitable reptile habitat and flood risk will be taken into account.

7.132. The hibernacula will each be *c.*500mm high, *c.*2m wide and *c.*2m long.

7.133. The construction of the hibernacula within the Site, will include a section dug to *c.*500mm and the hole lined with gravel to aid drainage.

7.134. The design of the hibernacula located north of the RMC will not break ground to avoid impacts to the scheduled ancient monument site. Instead a deeper topsoil layer will be included within the design to provide an alternative hibernation habitat.

7.135. The hibernacula will be built under ecological supervision. Hibernacula creation in areas where reptiles could be present will be undertaken in suitable hot, sunny weather. Hibernacula will be created during the summer/early autumn months - giving them time to become established and the reptiles the opportunity to locate them before the commencement of hibernation.

7.136. Hibernacula suitable for both reptiles and amphibians will be installed along the northern embankment, within the Western Open Space, Linear Park and within the reptile receptor to the north of the RMC.

Site hibernacula and log piles

7.137. A minimum of nine hibernacula and nine log piles will be installed along the embankment to the west of the central pathway.

7.138. A minimum of four hibernacula and four log piles will be installed within the Western Open Space.

Off-site receptor hibernacula and log piles

7.139. A minimum of nine hibernacula and five log piles will be installed within the reptile receptor area to the north of the RMC prior to the commencement of translocation.

Site monitoring for reptiles

7.140. Three consecutive years of Site and receptor monitoring will occur. The monitoring will focus on the off-site receptor and on-site habitats within the Western Open Space, Linear Open Space and northern embankment.

7.141. Monitoring of the receptor will commence during the first year after the translocation works are complete.

7.142. Monitoring within the Site will commence during the second year after the compensatory habitats have been implemented.

7.143. Monitoring will examine any changes to habitat quality and if necessary, amendments to habitat management will be provided.

7.144. The monitoring work will also look for evidence of breeding by reptiles in each of the three years of monitoring. In the third and final year of monitoring, a population size class estimate assessment will be conducted.

BREEDING BIRDS

7.145. Nesting birds, and their nests, eggs and chicks are afforded legal protection from intentional destruction, killing or injury by the Wildlife and Countryside Act 1981 (as amended).

7.146. In addition, bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are afforded protection from intentional and reckless disturbance whilst breeding.

Avoidance

7.147. Excluding the retained area of vegetation around badger Sett A, it is likely that total clearance of vegetation from the Site will be required to facilitate the capping of contaminated ground.

7.148. For this reason, impacts upon the habitat available to breeding birds cannot be avoided.

Mitigation

7.149. In the absence of mitigation, there is a high risk that works undertaken during the construction stage would result in destruction of active bird nests. To mitigate this risk, the following measures are proposed.

7.150. The vegetation clearance works will be undertaken on suitable areas within the proposed development Site and the proposed reptile receptor location to the north of the RMC (Figure 3).

7.151. Vegetation clearance works (down to *c.*300mm) will be conducted during January and February. This will remove potential bird nesting habitat before the main bird breeding season. This work will be conducted under ecological supervision.

7.152. Wherever possible, clearance of scrub and ruderal vegetation will be undertaken within the period October to February (inclusive) - which is outside of the typical bird nesting period.

7.153. The precise timing and methods of habitat clearance works will also be subject to reptile mitigation requirements.

7.154. Checks should be conducted prior to the clearance of any vegetation during the bird nesting season (March to mid-September). The checks will be undertaken by a suitably experienced ecologist.

7.155. The checks should be performed either on the day of clearance or up to two days in advance of the clearance if deemed appropriate by the ecologist. Any active nests will need to be left *in situ* until birds have stopped using them.

7.156. Given the extent of the vegetation to be cleared, this work will be conducted in sections and at a rate that is sensitive to wildlife. The limit of the checked area will be marked to ensure that vegetation clearance work remains within the extent of the checked area.

7.157. The Wildlife and Countryside Act 1981 (as amended) makes it an offence to intentionally or recklessly disturb those bird species listed on Schedule 1 of the Act whilst they are breeding. This includes adults and their young, at, on or near an 'active' nest.

7.158. During bird surveys and Site visits, kingfisher and Cetti's warbler were recorded. These species are both listed on Schedule 1 of the Act.

7.159. Given the risk of breeding Schedule 1 bird species being present, if these species are observed during pre-clearance checks, further checks prior to vegetation clearance will focus on recording behaviour to establish whether there is evidence of active nests. This will include a check for forms of display, courtship feeding and/or nest building. If there is evidence of nesting, the checks will aim to establish an approximate location, from which an appropriate buffer will be implemented. If any active nests are recorded, to avoid the risk of intentional or reckless disturbance an appropriately sized buffer around the active nest will need to be implemented.

7.160. A buffer of at least 25m around any breeding kingfisher or Cetti's warbler nest sites is considered appropriate and sufficient to minimise the risk of disturbance during Site clearance works.

7.161. Habitats suitable for nesting birds within the adjacent section of the RMC will be protected using rigid Site hoarding and/or propped Heras fencing (or similar) fitted with debris netting. Wildlife protection signs will be posted to the Heras fencing (Appendix 6).

7.162. This protection will be maintained until all construction works that could result in damage of these off-site habitats have been completed.

7.163. Additional detail of mitigation measures relating to nesting birds will be included within the CEMP, which will be submitted at the Reserved Matters stage.

Compensation

7.164. New tall scrub and tree habitat will be provided within the Linear Park and the 'high planting on embankment' areas (as shown on the Land Use Parameter Plan).

7.165. The entire embankment will be planted with dense, tall scrub, with lower scrub present adjacent to the canal towpath. (The existing embankment supports a mixture of low and tall scrub and tall ruderal forbs). These new habitats will be delivered during Phase 2 of the construction stage.

7.166. The embankment planting provides an opportunity to provide native mixed species hedgerows and/or dense native shrub planting along the development boundaries. A species mix could include hawthorn (50%), field maple (*Acer campestre*) (30%), hornbeam (*Carpinus betulus*) (10%), guelder rose (3%), dogwood (3%), spindle (*Euonymus europaea*) (2%) and dog rose (*Rosa canina*) (2%) (Smith and Day, 2012).

7.167. Tall and low scrub will also be provided within the Western Open Space. Low scrub will be provided within the 'low planting on embankment' areas (as shown on the Land Use Parameter Plan). These habitats will be delivered during Phase 4 of the construction stage.

7.168. These habitats will provide dense cover, foraging and nesting opportunities for song thrush (*Turdus philomelos*), reed bunting (*Emberiza schoeniclus*), linnet (*Linaria cannabina*) and other birds. They will also provide dense cover and foraging opportunities for house sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*) and Cetti's warbler.

7.169. Song thrush, house sparrow, linnet, starling and reed bunting are all SPI and have been recorded within the Site.

7.170. Delivery of these new scrub habitats will effectively compensate for the loss of pre-clearance scrub habitats from the Site during Phase 1 (site clearance).

7.171. Detail of the management of these plantings will be provided in the LEMP, which will be delivered at the Reserved Matters stage.

BADGERS

7.172. Badgers are afforded legal protection by the Protection of Badgers Act 1992 (as amended).

Avoidance, mitigation and compensation

7.173. Detail of avoidance, mitigation and compensation measures relating to badgers is provided in the associated *Badger Report* (Lloyd Bore, 2018b)

BATS

7.174. Bats are afforded legal protection by the Conservation of Habitat and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended).

Avoidance

7.175. The arrangement of the proposed development (as per the Land Use Parameter Plan) has been informed by a need to minimise light-related impacts upon foraging bats.

Mitigation (lighting)

7.176. In the absence of mitigation, the proposed development is likely to result in light spill into off-site high-quality bat foraging habitats within the adjacent RMC corridor.

7.177. A conceptual lighting design strategy followed guidance and specification defined within the Lighting Impact Assessment (LIA) (Elementa, 2017). The proposed development was assessed using 2D CAD master planning drawing, 3D computer model and the concept presentation ARC leisure centre documents to fully understand the architectural intent and proposed use for each area, enabling the development of a detailed lighting performance strategy.

7.178. The LIA (Elementa, 2017) was used to inform the mitigation and compensation measures in relation to foraging bats. The project ecologist has since informed the development of a more detailed light modelling exercise, which is shown in the most recent Elementa light modelling plan (which shows the predicted 1 lux illuminance line) – see Figure 4.

7.179. In the absence of mitigation, the construction works, and the operation of the proposed development could also result in contamination of the canal, which is an important bat foraging resource.

Construction stage

7.180. The risks of light-related impacts upon foraging and commuting bats during the construction stage are likely to be low because, in general, construction works during the main period of bat activity are

unlikely to occur so late in the day that it coincides with dusk or night. During the winter period, when construction lighting is likely, bats are not active, or their activity levels are low.

7.181. However, the below contents details mitigation measures to minimise the potential risk of impacts on foraging and commuting bats.

7.182. In general, The Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (GN01:2011) will be adhered to during the construction stage. This will prevent 'sky glow' and will minimise the amount of spill light into off-site bat foraging habitats.

7.183. The type of equipment employed, including lamp type and optics will be carefully selected to limit the luminous intensity of Site lighting to below 10,000 Candelas (cds), as per GN01:2011.

7.184. In general, floodlights required for Site works will be LED units mounted around the perimeter of the works areas and directed inwards - to avoid direct light being projected into off-site habitats.

7.185. The type and positioning of the floodlights will be carefully considered to minimise light spill.

7.186. Any additional Site lighting will be low power, low intensity LED units with zero upward light output ratio (ULOR). This will ensure that light is directed downwards, towards the task plane such as pathways, steps and stairs - resulting in zero upward light ratio (ULR) from the Site.

7.187. In addition to the above, the following principles will be adhered to for construction stage lighting: -

- The Site will be lit using narrow spectrum lighting with no UV content and/or white (preferably 'warm white' LED lighting);
- Timers and motion sensors will be used to minimise the duration of any nocturnal illumination;
- All lighting will be directed to ground and light spill will be minimised through use of optics;
- Use of tall lighting columns will be avoided wherever possible;
- A dusk lighting curfew will be imposed during the period May to September (inclusive) - as this is an important time period for bat foraging; and
- A physical barrier (e.g. Site hoarding) will be maintained between the construction zones and the retained off-site bat foraging habitats. Once the 'tall planting on embankment' has established, this planting will also provide a screen between construction stage lighting and the canal.

7.188. In general, construction stage lighting will follow the principles outlined in Sections 6.4 and 6.5 of *Bats and Lighting: Overview of current evidence and mitigation* and will only be used where necessary.

7.189. No lighting will be installed within or immediately adjacent to the RMC.

Operational stage

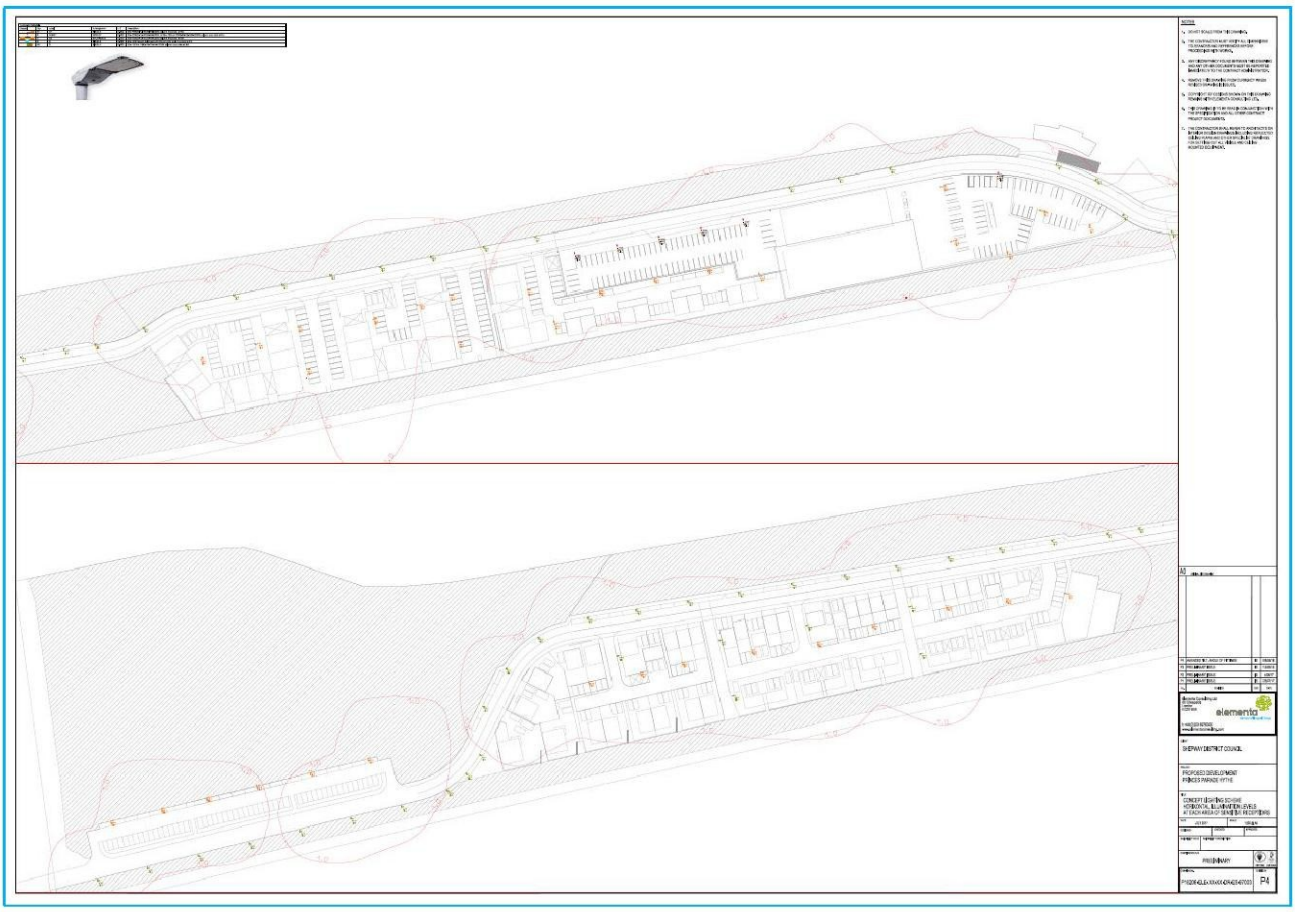

Fig. 4: Concept lighting scheme, horizontal illumination levels at each area of sensitive receptors (Drawing P16206-ELE-XX-XX-DR-ES-97003 REV P4, dated July 2017, Elementa). The red-line indicates the 1 lux illumination limit.

7.190. The LIA (Elementa, 2017) report provides an assessment of the likely impact the artificial lighting of the proposed development will have upon the bat foraging habitats / foraging bats and the local environment. The LIA report assesses the existing baseline conditions and identifies potential sensitive receptors including bat foraging habitats and foraging bats.

7.191. The lighting mitigation measures have been informed using a conceptual lighting design strategy.

7.192. It is important to note that, in the absence of detailed design information, the LIA for the operational stage of the proposed development was based on a 'worst case' scenario (which would result in negligible - minor adverse effect upon off-site habitats during the operational stage).

7.193. The concept lighting scheme (Figure 4), includes the car park lighting, the street lighting and the spill from inside the houses. The scheme modelling does not take into account any vegetation within the boundary of the application site and therefore, the 1 lux illumination limit (Figure 4, red-line) represents a worst-case scenario. As vegetation establishes on the northern embankment, this 1 lux line is likely to retreat towards the built development, because the tall scrub and trees will physically reduce light spill into the canal corridor during the growing season.

7.194. In line with the recommendations of the LIA, mitigation measures will be implemented to reduce the effects of light spill upon foraging bats - by reducing illumination of bat foraging habitat (adjacent canal section and re-vegetated northern embankment) to an average illuminance of below 1 lux.

7.195. These measures include: -

- Building façade lighting or signage will adhere to the CIE 150:2003 (Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations) limits of 0-5 cd/m2 and 50-400 cd/m2 respectively for E1 environmental zone, and any building façade lighting will adhere to the E1 limitations from GN01:2011. Hence, the average surface luminance will not exceed 0 cd/m²;
- The overall upward light ratio for the entire Site lighting should be 0%;
- Luminaires will be carefully positioned to minimise light spill onto boundary habitats;
- External areas will be lit using narrow spectrum lighting with no UV content and/or 'warm white' LED lighting;
- All lighting will be directed to ground and light spill will be minimised through use of optics;
- Use of tall lighting columns will be avoided wherever possible;
- Timers and motion sensors will be used to minimise the duration of any post-curfew illumination;
- The 'tall planting on embankment' (as shown on the Land Use Parameter Plan) will be used to further reduce light spill into the adjacent canal section; and
- Incorporation of a 5-degree back tilt of lights.

7.196. In general, operational stage lighting will follow the principles outlined in *Sections 6.4 and 6.5 of Bats and Lighting: Overview of current evidence and mitigation* and will only be used where necessary.

7.197. No lighting will be installed within or immediately adjacent to the RMC. There will be some level of light trespass from the internal road lighting scheme, but this will be at a level of 1lux or less (Elementa, 2017).

7.198. The detailed lighting strategy for the operational stage of the proposed development will be produced at the detailed design stage, and will adhere to the above principles, whilst also considering all relevant health and safety and security considerations.

7.199. The detailed lighting strategy will be subject to further computer analysis at each stages of design - to ensure that significant adverse effects upon foraging bats can be avoided and minimised by design.

Compensation

7.200. In the absence of compensation, the proposed development will result in direct loss of on-site bat foraging habitat (low, moderate and high-quality).

7.201. The new plantings of tall scrub on the northern embankment and within the Western Open Space will compensate for the loss of high and moderate quality bat foraging habitat.

7.202. The new plantings of tall grassland within the Western Open Space will part-compensate for the loss of low-quality bat foraging habitat from the Site.

7.203. These new plantings will be designed to maximise cover of pollen, nectar and berry producing species. These plantings will attract invertebrates, which in turn provide a foraging resource for bats.

GENERAL MEASURES

7.204. The mitigation measures below are recommended to further reduce the risk of construction works killing and/or injuring reptiles and/or adversely affecting other protected species, habitats and other important ecological features: -

- The project will appoint an Ecological Clerk of Works (ECoW) for the duration of the construction stage. The ECoW will be responsible for ensuring effective and robust implementation of the measures set out in this document and the CEMP.
- All Site workers and contractors are to be made aware of the potential presence of reptiles and toads on-site, and the sensitivity of adjacent off-site habitats as part of the Site induction. A tool-box talk during the induction, prepared by the project ecologist, will be provided to all new workers on-site. This will detail the Site specific ecological constraints and risks.

COMPLETION OF WORKS

7.205. Herptile exclusion fencing with badger gates will be used to prevent reptiles from re-entering the construction zones after Site clearance.

7.206. The exclusion fencing will be retained and maintained in good, functional condition throughout construction. Once construction works are complete the fencing will be removed. Confirmation of fencing removal will be provided to the local planning authority.

8. MITIGATION TIMETABLE

8.1. The timetable of works includes details associated with impact avoidance and mitigation. Collectively referred to as 'mitigation.' Table 1 (below) summaries key details.

Table 1: Approximate timing of works on-site.

Time	Action
October to end of February	**Site** Vegetation clearance under ecological supervision to remove potential bird nesting habitat before the main bird breeding season. Tree removal works outside of the bird nesting season. No breaking ground or limited ground breaking as advised by an ecologist. Vehicles will avoid tracking across areas of suitable reptile habitat, badger setts and other areas as advised by an ecologist. Vegetation clearance works within 2m of all badger sett entrances will be undertaken manually using unpowered tools under ecological supervision. Clearance works using a strimmer and/or brush cutter and chainsaw can be conducted up to (but no closer than) 2m from any badger tunnel entrance/sett.
March to mid-April	**Site** Under ecological supervision, the areas of suitable reptile habitat, scrub and bird nesting habitat will be cleared to a minimum height of 200mm. A check for nesting birds must be conducted by a suitably experienced ecologist before clearance commences. No breaking ground. Vehicles will avoid tracking across areas of suitable reptile habitat, badger setts and other areas as advised by an ecologist. Vegetation clearance works within 2m of all badger sett entrances will be undertaken manually using unpowered tools under ecological supervision. Clearance works using a strimmer and/or brush cutter and chainsaw can be conducted up to (but no closer than) 2m from any badger tunnel entrance/sett.

March to the end of April	**Reptile enhancements north of RMC** Vegetation clearance under ecological supervision to enhance and create suitable reptile habitat in areas north of the RMC. No breaking ground. Prior to vegetation clearance, a check for nesting birds must be conducted by a suitably experienced ecologist before vegetation clearance commences.
Mid-March to early August	**Site, preparation for reptile translocation** In suitable weather conditions, installation of herptile exclusion fencing. In suitable weather conditions, ACOs will be placed within suitable reptile habitat within the Site boundary. ACOs will be left to bed-down for a minimum of seven days.
April to September	**Reptile enhancements north of RMC** Ecological enhancements (log-piles ad hibernacula) at off-site reptile receptor will be created under ecological supervision.
April to September (inclusive)	**Site, prior to any construction works** During the vegetation growing season, on-going vegetation management as advised by an ecologist and under ecological supervision, including areas of suitable reptile habitat, scrub and bird nesting habitat. Prior to vegetation clearance, a check for nesting birds must be conducted by a suitably experienced ecologist before vegetation clearance commences. Vehicles will avoid tracking across areas of suitable reptile habitat, badger setts and other areas as advised by an ecologist. Vegetation clearance works within 2m of all badger sett entrances will be undertaken manually. Clearance works using a strimmer and/or brush cutter and chainsaw can be conducted up to (but no closer than) 2m from any badger tunnel entrance/sett.
Mid-April to the end of September(inclusive)	**Site** Reptile trapping and translocation visits in suitable weather conditions. Ecological advice will be provided when opportunities occur to concentrate animals into pockets of suitable habitat through vegetation manipulation. The vegetation manipulation will be conducted under ecological supervision and in suitable weather conditions.

April to September (inclusive)	**Site** Build artificial sett as early as possible and before excluding badgers from Setts B and C - ensure that badgers have found artificial sett before excluding them from these original / natural setts.
May to the end of September (inclusive)	**Site** Under ecological supervision and in suitable weather conditions, the reptile exclusion fence will be installed. Reptile capture data will be used to inform the precise timing of works and where risks to reptiles are greatest.
July to November (inclusive)	**Site** Under NE licence and direct ecological supervision: closure of any badger setts that have shown signs of 'current use' (currently Setts B and C). Once badgers have been successfully excluded in accordance with the licence conditions, these setts should be destroyed (if appropriate) as soon as possible to reduce the chances of badgers re-occupying – and/or ensure these setts are securely proofed against re-entry by badgers by using heavy-gauge chain-link or weldmesh. Additional measures may need to be considered to minimise the risk of badgers recolonising these areas and other areas of the Site.
Mid-July to end-August	**Site** Destructive search works of the Site in suitable weather conditions and under ecological supervision. Only completed once reptile trapping works completed within a given area of the Site and ECoW confirms that there are no badger setts in 'current use' within the clearance areas or 30m of these areas.
Year 1 following completion of reptile translocation.	**Receptor** <u>1st late summer / early autumn</u> Reptile receptor habitat assessment. Reptile monitoring work of the off-site reptile receptor. If habitat is found to be not in its Target State (to be specified in the LEMP), plan and implement remedial measures and/or changes to habitat management. Information submitted to planning authority.

Year 1 following completion of the implementation of compensatory habitats	**Site** 1st late summer / early autumn On-site habitat assessment. Reptile monitoring work of the on-site Western Open Space, Linear Embankment and Northern Embankment. If habitat is found to be not in its Target State (to be specified in the LEMP), plan and implement remedial measures and/or changes to habitat management. Information submitted to planning authority.
Year 2 following completion of reptile translocation.	**Receptor** 2nd late summer / early autumn Reptile receptor habitat assessment. Reptile monitoring work of the off-site reptile receptor and Western Open Space. If habitat is found to be not in its Target State (to be specified in the LEMP), plan and implement remedial measures and/or changes to habitat management. Information submitted to planning authority.
Year 2 following completion of the implementation of compensatory habitats	**Site** 2nd late summer / early autumn On-site habitat assessment. Reptile monitoring work of the on-site Western Open Space, Linear Embankment and Northern Embankment. If habitat is found to be not in its Target State (to be specified in the LEMP), plan and implement remedial measures and/or changes to habitat management. Information submitted to planning authority.
Year 3 following completion of reptile translocation.	**Receptor** 3rd Autumn On-site and reptile receptor habitat assessment. Reptile monitoring work of the off-site reptile receptor, a population size class estimate assessment will be conducted. If habitat is found to be not in its Target State (to be specified in the LEMP), plan and implement remedial measures and/or changes to habitat management. Information submitted to planning authority.

Year 3 following completion of the implementation of compensatory habitats	<u>3rd Autumn</u> On-site habitat assessment. Reptile monitoring work of the on-site Western Open Space, Linear Embankment and Northern Embankment. A population size class estimate assessment will be conducted. If habitat is found to be not in its Target State (to be specified in the LEMP), plan and implement remedial measures and/or changes to habitat management. Information submitted to planning authority.

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10. APPENDIX 1: SUMMARY OF RELEVANT LEGISLATION

10.1. The level of protection afforded to protected species varies dependent on the associated legislation. A full list of protected species and their specific legal protection is provided within the Schedules and/or Sections of the associated legislation. Case law may further clarify the nature of the legal protection afforded to species.

10.2. The legal protection afforded to protected species overrides all planning decisions.

European Protected Species (EPS) - and the Conservation of Habitats and Species Regulations 2017

10.3. European Protected Species (EPS) are afforded the highest level of protection through the Conservation of Habitats and Species Regulations 2017. EPS are also afforded legal protection by parts of the Wildlife and Countryside Act 1981 (as amended).

10.4. There are a few relatively common and widespread EPS. This includes great crested newts and all species of UK bat.

10.5. In general, any person and/or activity that: -

- Damages or destroys a breeding or resting place of an EPS. (This is sometimes referred to as the strict liability or absolute offence);
- Deliberately captures, injures or kills an EPS (including their eggs);
- Deliberately disturbs an EPS, and in particular disturbance likely to impair animals' ability to survive, breed or nurture young, their ability to hibernate and migrate and disturbance likely to have a significant effect on local distribution and abundance;
- Intentionally or recklessly disturbs an EPS while occupying a structure or place used for shelter and/or protection (Wildlife and Countryside Act 1981 (as amended)); and
- Intentionally or recklessly obstructs access to any structure or place that an EPS uses for shelter or protection (Wildlife and Countryside Act 1981 (as amended)).

...may be guilty of an offence.

10.6. The legislation applies to the egg, larval and adult life stages of great crested newts and to bat roosts even when they are not occupied.

10.7. Actions affecting multiple animals can be construed as separate offences and therefore penalties can be applied per animal impacted.

10.8. Under certain circumstances licences can be granted by the Statutory Nature Conservation Organisation (Natural England in England) to permit actions that would otherwise be unlawful.

10.9. There are some very specific defences associated with the Conservation of Habitats and Species Regulations 2017. However, these are unlikely to apply to construction related projects. The Sections of the Regulations provide further details of these defences.

10.10. The Wildlife and Countryside Act (1981) includes defence for those aspects of the legislation that apply to an EPS. These defences are unlikely to apply to construction related projects and do not apply to those acts included in the Conservation of Habitats and Species Regulations 2017. The Schedules of the Act provide further details of defences.

10.11. Local authorities have obligations under sections 40 and 41 of the Natural Environment and Rural Communities Act (NERC) 2006 to have regard to the purpose of conserving biodiversity in carrying out their duties. Most EPS are listed on Section 41 the NERC Act.

Wildlife and Countryside Act 1981 (as amended)

10.12. The level of protection afforded to species listed on the Wildlife and Countryside Act 1981 (as amended) varies considerably.

10.13. 'Fully protected species', such as water vole, are afforded the highest level of protection. Any person who intentionally kills, injures, or takes 'fully protected species', or who intentionally or recklessly damages or destroys a structure or place used for shelter and/or protection, disturbs the animal whilst occupying a structure and/or place used for shelter and protection, or obstructs access to any structure and/or place used for shelter or protection is likely to have committed an offence.

10.14. Other species, such as common reptiles, are afforded less protection and for these species it may only be an offence to intentionally or recklessly kill or injure animals.

10.15. All active bird nests, eggs and young are protected from intentional destruction. Schedule 1 listed birds are also protected from intentional and reckless disturbance whilst breeding.

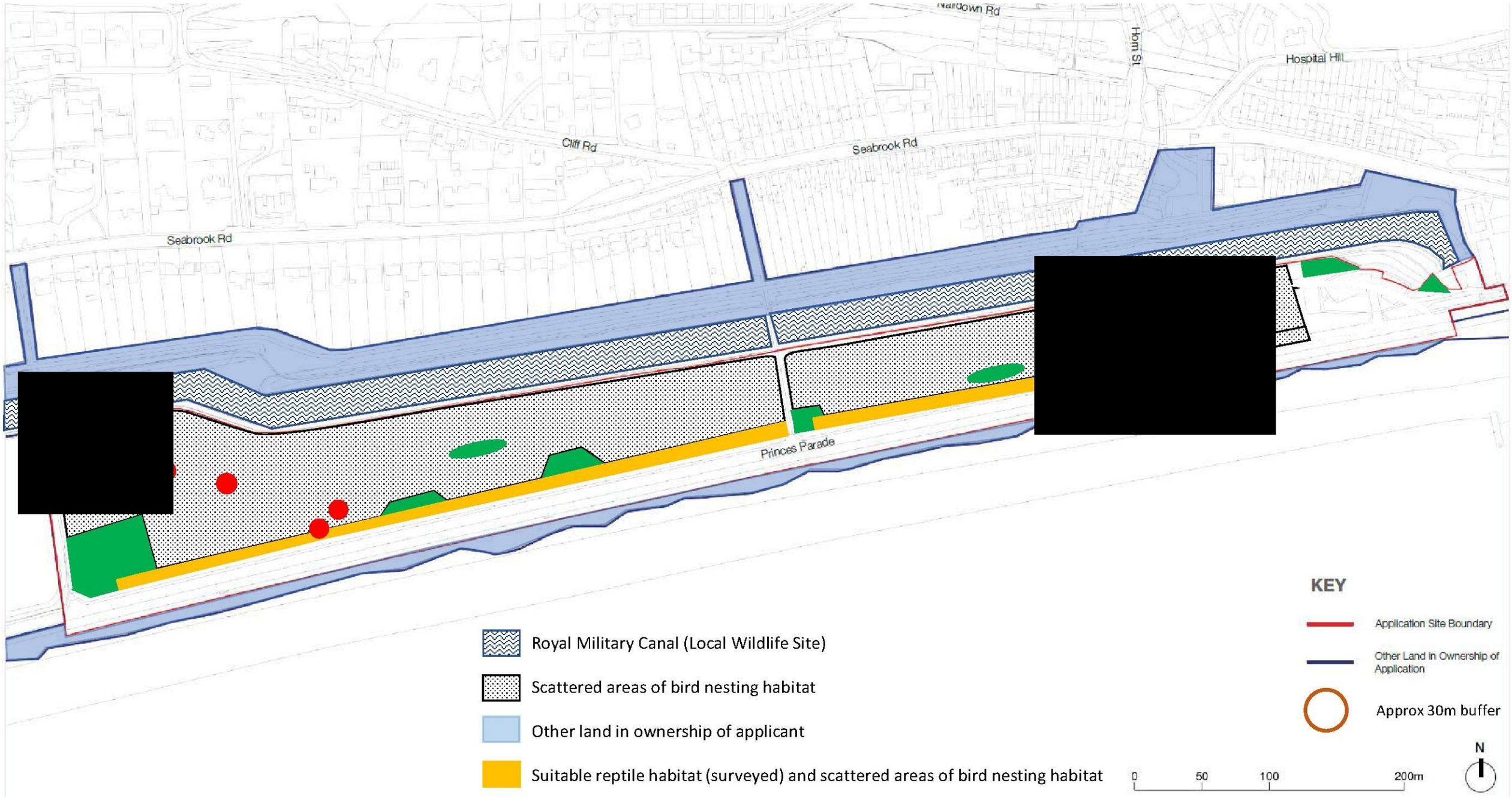
10.16. Schedule 9 of The Wildlife and Countryside Act lists plant species for which it is an offence for a person to plant, or otherwise cause to grow in the wild. Schedule 9 also lists animals for which it is an offence to release into the wild.

The Protection of Mammals Act 1996 (as amended)

10.17. The Protection of Mammals Act (1996) provides protection for all wild mammals against certain cruel acts with the intention of causing unnecessary suffering, including crushing and asphyxiation.

11. APPENDIX 2: ECOLOGICAL CONSTRAINTS PLAN (LARGE COPY)

Constraints Plan



Royal Military Canal (Local Wildlife Site)

Scattered areas of bird nesting habitat

Other land in ownership of applicant

Suitable reptile habitat (surveyed) and scattered areas of bird nesting habitat

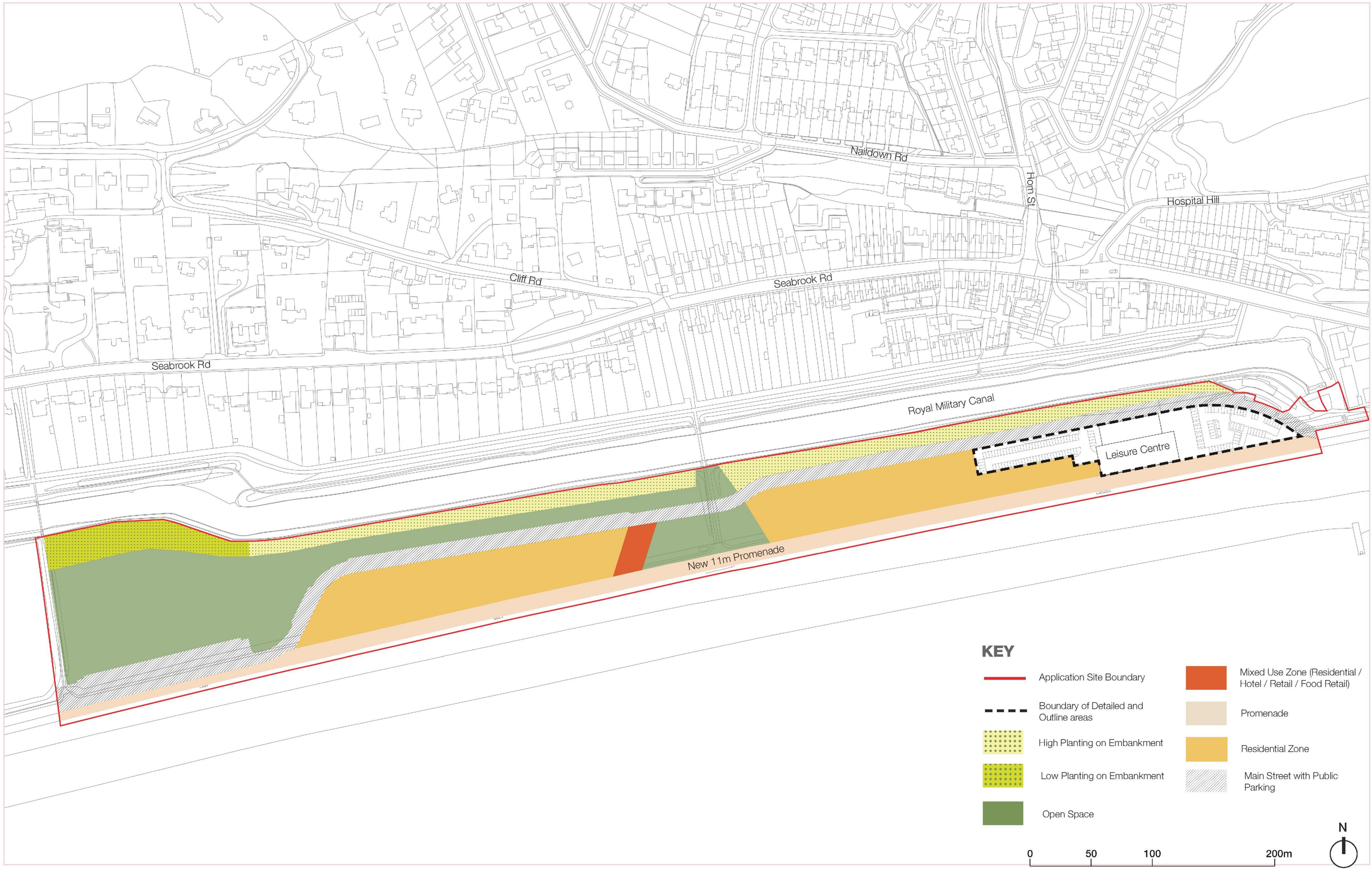
Suitable reptile habitat – surveyed

Giant hogweed – approximate locations

Badger sett – approximate locations

Lloyd Bore Ltd.
Date: 13th June 2018
Produced by: John Young

12. APPENDIX 3: DEVELOPMENT PLAN (LARGE COPY)



Princes Parade

Parameter Plans - Land Use Plan

drawing no. PP - LU 003

scale 1: 2,000 @ A2

date 07-08-2017

Tibbalds

13. APPENDIX 4: REPTILE MITIGATION AND ENHANCEMENT PLAN (LARGE COPY)

Reptile receptor

Key

Opportunities to create new reptile habitat.

Receptor enhancement works prior to use as a receptor.

Lloyd Bore Ltd.
Date: 13th June 2018
Produced by: John Young

Reptile receptor

Key

Opportunities to create new reptile habitat.

Receptor enhancement works prior to use as a receptor.

Lloyd Bore Ltd.
Date: 13th June 2018
Produced by: John Young

14. APPENDIX 5: 'BUFFER' OF SEMI-NATURAL HABITATS

Naildown Rd

Horn St

Hospital Hill

Cliff Rd

Seabrook Rd

Seabrook Rd

Royal Military Canal

Proposed road distances from canal

13.32m

14.47m

16.17m

16.23m

18.21m

16.78m

18.03m

20m

31.4m

32.7m

20m offset from canal

Leisure Centre

Proposed road distances from canal

33.16m

32.83m

41.22m

96.8m

116.8m

139.1m

20m offset from canal

New 11m Promenade

KEY

- Application Site Boundary
- Boundary of Detailed and Outline areas
- High Planting on Embankment
- Low Planting on Embankment
- Open Space
- Mixed Use Zone (Residential / Hotel / Retail / Food Retail)
- Promenade
- Residential Zone
- Main Street with Public Parking
- 20m offset from canal Note: Line taken from OS plan NOT full measured survey
- Proposed width of development free buffer zone

N

0 50 100 200m

Princes Parade

Land Use parameter plan showing proposed width of development free buffer zone

drawing no. CA 001 a

scale 1: 2,000 @ A2

date 17-05-2018

Tibbalds

15. APPENDIX 6: WILDLIFE PROTECTION NOTICE

WILDLIFE PROTECTION AREA

WILDLIFE IN THIS AREA IS LEGALLY PROTECTED AND/OR PROTECTED BY PLANNING CONDITIONS