Bellozanne Sewage Treatment Works; Phase 1 Habitat Assessment Survey Report

States of Jersey

June 2012

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EXECUTIVE SUMMARY

Executive Summary

Parsons Brinckerhoff Ltd (PB) was commissioned by the States of Jersey Transport and Technical Services Department (TTS) to undertake an Extended Phase 1 habitat survey to inform the potential expansion of the Sewage Treatment Works (STW) at Bellozanne.

Field based surveys were undertaken to record and map broad habitat types and to identify and investigate any potential for protected/notable species, on the basis these might comprise a future ecological constraint to the potential extension of the SWT.

The site lies in the Bellozanne Valley to the north-west of St. Helier. The valley contains a number of established waste and commercial operations, including a scrap yard, household waste amenity and recycling facilities, and sewage treatment works. The areas surveyed comprised predominantly the eastern valley sides adjacent to the existing waste and commercial operations.

Habitats recorded on site were dominated by semi-natural broadleaved woodland, with pockets of dense and scattered scrub and pockets of inland cliff. Jersey BAP habitats recorded on site, include the woodland, banques and freshwater.

The habitats recorded on site were considered to have potential to support a range of protected and notable species. These included bats, birds, red squirrel, hedgehog, reptiles and amphibians and small mammals. The flora species recorded on site were common and widespread in similar habitats in Jersey.

The current draft proposals for the extension of the STW would result in the loss of an area of semi-natural broadleaved woodland, areas of scrub and areas of inland cliff. There may also be some small-scale loss of agricultural land. In addition, an area of hedgerow to the east of the site would be lost and some mature trees within the woodland would be lost.

It is recommended that options to retain or replant woodland along the eastern edge of the potential STW extension footprint are considered. Maintaining a woodland fringe along the valley top would reduce the impacts on protected/notable species and reduce landscape impacts from the proposed works.

It is considered likely that an Environmental Impact Statement would be required for the proposed works, should they go ahead. This would need to establish the size and value of populations of protected/notable species to be affected by the works, in order to identify appropriate mitigation. In addition, consideration would need to be given to the implications of habitat loss/disturbance resulting from the works. Therefore Phase 2 surveys have been recommended with respect to the following protected and/or notable species.

- Targeted bat activity surveys within the woodland;
- Bat emergence surveys at the derelict house;
- Bird surveys;
- Reptile surveys;
- Amphibian surveys; and
- Red squirrel surveys.

SECTION 1

INTRODUCTION

1 INTRODUCTION

1.1 Background

1.1.1 Parsons Brinckerhoff Ltd (PB) was commissioned by the States of Jersey Transport and Technical Services Department (TTS) to undertake an Extended Phase 1 habitat survey of a potential extension to the Sewage Treatment Works (STW) at Bellozanne.

1.1.2 Field based surveys were undertaken to record and map broad habitat types and to investigate and identify any potential for protected/notable species, on the basis they might comprise an ecological constraint to the potential extension of the SWT. This included an assessment of the value of ecological features within the site. This survey work was complemented by an ecological desk study.

1.1.3 The ecological assessment has been undertaken as follows:

- Collation and review of relevant legislation and planning policy;
- Audit of ecological resource through detailed ecological desk study and field based surveys;
- Valuation of existing ecological resource; and
- Identification of constraints and opportunities for the potential extension of the STW associated with the defined ecological baseline.

1.2 Project Context

1.2.1 The potential STW extension is planned to provide a phased replacement of the existing STW which dates back to the 1950's. This existing facility has been subject to a series of upgrade/adaptations over the intervening period. A new sludge treatment facility is under construction at the time of reporting. The potential extension to the STW would provide larger capacity which would allow discharged water from the site to meet required water quality standards, and to meet the needs of the expanding Jersey population.

1.2.2 The development would require the widening of the valley bottom to accommodate a new STW facility, as it would be necessary for this to be built whilst the existing STW is still fully functioning. The widening of the valley floor would involve cutting into the eastern side of the valley.

1.3 Site Context and Surroundings

1.3.1 The site is in the Bellozanne Valley to the north-west of St. Helier. The valley contains a number of established waste and commercial operations, including a scrap yard, household waste amenity and recycling facilities, and sewage treatment works.

1.3.2 The site itself is approximately 0.6 hectares (6,000 square metres) in total, and comprises the eastern valley slopes around the existing STW and other waste facilities.

The site also includes some existing areas of hard-standing and external plant. There is also an administration/office building which may potentially be lost under the draft proposals for the STW expansion. There is a derelict residential property within the footprint of the potential STW expansion site. To the west of the site lies the existing

STW and to the east lies predominantly agricultural land, with some residential properties present. Further afield, the western slopes of the valley support deciduous woodland.

1.4 Legislative Context

1.4.1 Mechanisms for environmental conservation include European, National and Local Legislation, conventions and polices. Jersey's status as a semi-autonomous state limits the applicability of the European Community Directives such as The conservation of natural habitats and of wild fauna and flora, known as the 'Habitats Directive' 92/43/EEC and The Conservation of Wild Birds, known as the 'Birds Directive' 79/409/EEC.

1.4.2 The Articles of Wildlife and Countryside legislation, planning policy guidance and references to Jersey Biodiversity Action Plans relevant to the potential STW expansion are set out below. Their context and applicability is explained as appropriate in the relevant sections of the report. The Conservation of Wildlife (Jersey) Law 2000 was written with the intent of incorporating the requirements of international and European agreements into local law.

1.4.3 The key legislation and guidance which provided the framework for undertaking this assessment is as follows:

- Bern and Bonn Convention (on the Convention of European Wildlife & Natural Habitats; and on the Conservation of Migratory Species of Wild Animals) 1979;
- Ramsar Convention (Convention on Wetlands of International Importance 1971);
- Conservation of Wildlife (Jersey) Law 2000;
- Jersey Island Plan 2002;
- Jersey Island Plan Review 2009;
- Biodiversity: A strategy for Jersey 2000; and
- States of Jersey Island Plan 2011.

1.4.4 The Conservation of Wildlife (Jersey) Law 2000 (as amended) lists species of flora and fauna that are subject to special protection. The most stringent protection is afforded to species considered particularly scarce or vulnerable at a state (Jersey), national (British) or international context. Other listed species receive more limited protection from specific activities such as their sale or trade, and some species are merely subject to seasonal restrictions over when they may be hunted.

1.4.5 The Convention on Biological Diversity (Biodiversity Convention or CBD) was adopted at the Earth Summit in Rio de Janeiro, and entered into force in December 1993. It was the first treaty to provide a framework for biodiversity conservation. Contracting Parties are required to create and enforce national strategies and action plans to conserve, protect and enhance biological diversity. In Jersey this has been translated

into 'biodiversity: A strategy for Jersey (2000). Key habitats for the conservation of biodiversity in Jersey (contributing to wider global biodiversity) were identified to be:

- Costal Heathland and Cliff Slopes;
- Sand Dunes;
- Intertidal habitats; and
- Marine habitats.

1.4.6 In addition four other habitats have been identified, that whilst not being of international importance are valuable in a local context, these are:

- Wet Meadow;
- Woodland;
- Marsh and Freshwater;
- Walls and Banques.

1.4.7 The States of Jersey Island Plan 2011 contains policies for nature conservation within section 2, The Natural Environment. The policies most relevant to this proposal are NE1 Conservation and enhancement of biological diversity, NE2 Species Protection, NE4 trees, woodland and boundary features and NE8 access and awareness.

SECTION 2

METHODOLOGY

2 METHODOLOGY

2.1 Desk study

2.1.1 A desk study was undertaken to collect existing records of protected and notable species and habitats. The "search area" included a radius of up to 2km from the site for all Jersey protected and notable species and statutory and non statutory designated sites.

2.1.2 The desk based study searched for the following statutory and non-statutory designated sites:

- Ramsar sites;
- Sites of Special Interest (SSI); and
- Proposed Sites of Importance for Nature Conservation (SINC).

2.1.3 The following groups were contacted for the data search:

- State of Jersey (SoJ), ecology department; and
- The Guernsey Biological Records Centre.

2.1.4 In addition to the above, the following information sources were used during the desk study exercise:

- The Jersey Amphibian and Reptile Group (JARG) was contacted for amphibian and reptile records in the local area[1];
- Societe-Jersiaise was contacted for notable and protected species records in the local area[2];
- Action for Wildlife Jersey was contacted for notable and protected species records in the local area[3];
- The Jersey Bat Group was contacted for any bat records within the local area; and
- Mick Dryden was contacted as the Jersey representative for the British Trust for Ornithology (BTO) for any bird records in the local area.

2.2 Walkover Phase 1

2.2.1 An Extended Phase I Habitat Survey was carried out for the Bellozanne Sewage Treatment Works Facility. The methodology was based on the standard Phase I

[1] http://groups.arguk.org/jarg/
[2] http://www.societe-jersiaise.org/
[3] http://actionforwildlifejersey.wordpress.com/

auditing methodologies developed by the Joint Nature Conservancy Council (JNCC)[4] and the 'Guidelines for Baseline Ecological Assessment' issued by the Institute of Environmental Assessment (IEEM)[5].

2.2.2 The surveys were carried out on the 23rd of March 2012 by two suitably qualified PB ecologists. The areas subject to survey are shown on Figure 1a and Figure 1b, and will henceforth be described as the "survey area".

2.2.3 The aim of the extended survey was to identify the type, quality and extent of habitats present within the survey area and the potential of these to support protected and notable species.

2.2.4 Vegetation types, land use and ecological features of note were marked on a map using the standardised colour codes and symbols specified by JNCC. Target notes were recorded to provide supplementary information on the structure and species composition of the habitats, and to identify the presence of habitats suitable to support protected and notable species, and any species observations made during the survey.

2.3 Nature Conservation Evaluation Methodology

2.3.1 The ecological features of the site have been evaluated in accordance with guidelines provided within the Institute of Ecology and Environmental Management (IEEM) 'Guidelines for Ecological Impact Assessment' (EcIA). The Guidelines were developed for use in the United Kingdom, and there is therefore some disparity when attempting to apply them strictly to Jersey, due to Jersey's semi-autonomous status as a crown dependency.

2.3.2 The guidance provides a framework for the evaluation of features which takes into account the direct biodiversity value of habitats and species, the indirect value of features which help support the ecological integrity of key features, legal protection for both sites and species and evaluation against national and local planning guidance and objectives.

2.3.3 It uses a geographic frame of reference for assigning value to features of ecological importance. These have been modified to reflect the biogeographical context of Jersey. Examples of the types of features that are typically assigned to each geographic scale are given in the right hand column.

Table 2.1: The geographical scale at which features are assessed for nature conservation value

Geographical Scale at which Feature is Important	Example of Feature
International	Ramsar sites.

4 Joint Nature Conservation Committee (1993) Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit, Joint Nature Conservation Committee, Peterborough.

5 Institute of Ecology and Environmental Management (2006) Guidelines for Ecological Assessment,

State (Jersey)	Sites of Special Interest (SSI). Ecological features providing ecosystem services of significance to the State. Areas of BAP habitat exceeding 1% of the State resource, populations of protected or notable species exceeding 1% of the island population.
Parish	Proposed Sites of Importance for Nature Conservation (SINC'S) Wildlife areas supporting a parish significant area of Jersey priority habitat; or large population of species in the Jersey BAP or of national nature conservation concern protected species level. Ancient woodlands, large areas of priority BAP habitat offering a significant wildlife resource at county level. Large populations of a legally protected species or species included in the Jersey BAP or other species considered to be threatened at a national level
Local 'vingtaine'	Old hedges, woodlands, ponds, significant areas of species rich grassland or other habitat, small scale examples of priority Jersey BAP habitat or areas supporting small populations of protected species, species included in the Jersey BAP or other species considered to be threatened at a national level.
Of value within the context of the Site (Survey Area) or zone of influence of the scheme/project	Woodland plantations, structure planting, small areas of species rich grassland or other species rich habitat that is not included in the Jersey BAP.
Negligible	Areas of built development, active mineral extraction or intensive agricultural land with low interest for nature conservation and little/no ability to support Jersey BAP species or species considered threatened nationally.

2.3.4 It should be noted that whilst the evaluation considers the presence of protected species that receive legal protection at various levels (national, international) and non-statutory protection (through policies and plans), the simple presence of a species does not necessarily infer value at the level of protection it receives. Therefore, the value of a site for protected species is dealt with on a species by species basis, taking into account the recorded/potential level of activity, the level of protection the species receives, the overall value of habitat on that site for that species, and the relative scarcity of the species at the different geographical scales considered.

2.4 Survey Limitations

Desk study

2.4.2 The desk study utilises data collected from both statutory and non-statutory organisations and contains both published and un-published material, and although a useful basis for this investigation, the validity of a proportion of the data cannot be verified.

2.4.3 The absence of protected species records does not necessarily confirm the absence of the species; in many cases it is more likely to represent an unknown status due to limited survey effort for the specific species or area.

Field Survey

2.4.4 Since the site was only visited on one occasion, seasonal variations have not been observed and only a selection of the species that potentially occur within the site will have been noted, therefore the survey provides a general assessment of potential nature conservation value, and recommendations for further surveys have been made accordingly.

Summary of limitations

2.4.5 Overall it is considered that the combination of desk study records and the Extended Phase 1 surveys provides a sufficient representation of the nature conservation value of the survey area.

SECTION 3

RESULTS

3 RESULTS

3.1 Desk-study

Designated Sites

3.1.1 No designated Sites of Special Interest (SSI) or proposed Sites of Special Interest (pSSI) were identified within the 2 km search area during the desk study.

Protected and/or notable species

3.1.2 No records for protected or notable species were received from the organisations contacted during the desk study. The records centre and other organisations contacted confirmed that they had no records for this area. A copy of the correspondence confirming the absence of records can be found in Appendix 1 (*personal communication* Dr P. Chambers).

3.1.3 The lack of records does not prove the absence of species (particularly as previous survey work at Bellozane has confirmed the presence of a number of protected and/or notable species), and is considered likely to reflect a lack of biological recording within the area. Protected and notable species previously recorded in the wider Bellozane site include green lizard (*Lacerta bilineata*), and small mammals (unidentified vole and shrew species)[6].

3.2 Field Survey

Extended Phase 1 Habitat Survey

General habitat types

3.2.2 The site supported a number of habitat types as defined by the JNCC standard methodology for Phase 1 Habitat Survey. The code used for categorisation is included in brackets after the habitat type to allow cross reference. The nature conservation evaluation is included within this section for each habitat type found on site. The conservation value of habitats has not been assessed unless it is considered they could be significantly affected by the proposed EfW demolition. An indication of the relative abundance of the plant species recorded is provided in some instances, through use of the DAFOR scale. This grades the relative abundance of the species recorded by categorising them as dominant, abundant, frequent, occasional or rare.

3.2.3 The Phase 1 Habitat survey results are shown on Figure 1a and 1b.

Broadleaved semi-natural woodland (A.1.1.1)

3.2.4 Semi-natural broadleaved woodland was identified within the survey area in the valleys surrounding the sewage treatment works, covering the majority of the potential STW expansion footprint. Mature trees occurred more frequently along the woodland margins, with the majority of trees on the steeply-sided valley slopes being immature or potentially stunted. The woodland was dominated by holm oak (*Quercus ilex*) and pedunculate oak (*Quercus robur)* with species of pine (*Pinus spp.)*.

[6] Grontmij (2011) Bellozanne Sludge Treatment Centralisation, Environmental Impact Assessment Volume 2 – Main Report

Sycamore (*Acer pseudoplatanus),* ash (*Fraxinus excelsior),* larch (*Larix decidua*), elder (*Sambucus nigra),* holly (*Ilex aquifolium)* and cedar species *(Cedrus spp.)* were also recorded within the woodland. Generally the understorey was somewhat reduced with limited shrub and herb layers. Species present were dominated by bracken (*Pteridium aquilinum)* and ivy (*Hedera helix)* with frequent bramble (*Rubus fruticosus),* occasional hogweed (*Heracleum sphondylium),* wood sorrel (*Oxalis corniculata)* and common nettle (*Urtica dioica).* The dominant grass recorded was cock's-foot (*Dactylis glomerata)*.

Dense Scrub (A.2.1)

3.2.5 This habitat was recorded in several locations within the survey area. Areas of scrub were recorded in the surrounds of the woodland and adjacent to the areas of exposed rock. These habitats were generally dominated by gorse (*Ulex europaeus)* often with an ivy dominated understorey and locally abundant foxgloves (*Digitalis purpurea)*.

Scattered scrub (A.2.2)

3.2.6 Areas of scattered scrub were recorded adjacent to the area of dense scrub in the south of the survey area. These habitats were dominated by blackthorn (*Prunus spinosa)*.

Scattered broadleaved trees (A.3.1)

Scattered broadleaved trees were recorded in several locations within the survey area. These habitats on site were dominated by sycamore and oak.

Improved grassland (B.4)

3.2.7 Areas of improved grassland were recorded adjacent to the cliff and areas of dense scrub in the south of the survey area. This habitat type was dominated by cock's-foot and meadow grasses (*Poa spp.)* with abundant red clover (*Trifolium pratense),* red dead nettle (*Lamium purpureum)I* and frequent ribwort plantain (*Plantago lanceolata)* herb Robert (*Geranium robertianum)* and navelwort with occasional daffodil (*Taraxacum officinalis agg.)* and hogweed and geranium species (*Geranium sp.)*.

Species poor semi-improved grassland (B.6)

3.2.8 Small areas of semi-improved neutral grassland were recorded in the south east of the survey area and in the far west of the site adjacent to an existing road. These habitats were dominated by Yorkshire fog (*Holcus lanatus)* and cock's-foot with frequent meadow grass (*Poa spp.),* red fescue (*Festuca rubra)* and creeping soft grass (*Holcus mollis*). Frequent creeping buttercup (*Ranunculus repens),* navelwort (*Umbilicus rupestris),* wood sage (*Teucrium scorodonia)*, common nettle (*Urtica dioica)*, lords and ladies (*Arum maculatum)*, Alexander's (*Smyrnium olusatrum)*, sheep's sorrel (*Rumex acetosella)*, spear thistle (*Cirsium lanceolatum)*, hogweed (*Heracleum sphondylium*) and herb Robert were also recorded within these grasslands.

Tall ruderal (C.3.1)

3.2.9 This habitat was only identified in one location within the survey area; in the north of the area adjacent to a pond. This habitat was dominated by common nettle and bramble with abundant cleavers (*Galium aparine)* and hogweed with occasional

hemlock water-dropwort (*Oenanthe crocata)* and rare black medick (*Medicago lupulina)*, dandelion and introduced daffodil.

Standing water (G.1)

3.2.10 Three areas of standing water were identified; one pond was identified in the garden of the derelict house to the east of the survey area; and two ponds were recorded in woodland within the north of the survey area.

3.2.11 The pond recorded within the garden of the derelict house was a small (~1m^2) concrete garden pond devoid of aquatic or marginal vegetation. The pond had become overgrown and was partially filled with debris and soil.

3.2.12 Pond 2 was recorded within the north of survey area. The pond was roughly spherical with a radius of approximately 15m, at the time of survey it was chocked with duckweed (*Lemna minor*) which may have reduced the water quality of the pond. There was limited marginal or aquatic vegetation present although the surrounding habitats, comprising scrub and woodland, provided potentially suitable terrestrial habitat.

3.2.13 Pond 3 was oblong, measuring approximately 10m x 8m, with a partially exposed artificial membrane lining and was located just outside the northern boundary of the survey area. The pond had no aquatic or marginal vegetation at the time of the survey and surrounding terrestrial habitats were amenity grassland and hedgerows. Koi carp were recorded within the pond during the survey.

Running water (G.2)

3.2.14 Running water was recorded in one location in the east of the survey area, running into the woodland from the surrounding semi improved neutral grassland. This comprised a shallow stream with low (~5cm) flowing water at the time of survey. No aquatic vegetation was recorded at the time of survey, although it should be recognised that the survey was undertaken at a time of year when this might not be evident, if present.

Inland cliff (I.1)

3.2.15 Areas of inland cliff were recorded in several locations within the survey area. These were generally man-made, and were believed to be the result of previous works to widen the valley floor for the existing industrial sites present. Most of the steep rock faces surveyed were covered with rock catch fencing. The cliffs had some areas of bare rock through to areas with 100% vegetation cover. Where vegetation was present these habitats were dominated by gorse with frequent bramble, red valerian (*Centranthus ruber)* and navelwort with occasional ivy-leaved speedwell (*Veronica hederifolia)* and herb Robert.

Arable (J.1.1)

3.2.16 This habitat was identified to the east of the site boundary. The arable land was being used to grow potatoes at the time of survey.

Amenity grassland (J.1.2)

3.2.17 This habitat was identified in one location on site; adjacent to the substation at the entrance to the existing STW. This habitat appeared to be regularly maintained and

was dominated by meadow grass species (*Poa sp.)* with frequent red clover, ribwort plantain, and common nettle, with locally abundant Cock's-foot and occasional daisy (*Bellis perennis)* and daffodil.

Species poor continuous hedge with trees (J.2.3.2)

3.2.18 A species poor hedge with trees was recorded within the survey area. This was dominated by blackthorn.

Buildings and hardstanding (J.3.6)

3.2.19 This was the dominant habitat recorded on site. The majority of buildings were infrastructure and offices for the sewage works as well as large settling tanks. These buildings were generally surrounded by hardstanding.

Bare ground (J.4)

3.2.20 Areas of bare ground were recorded on site, these areas appeared in most cases to have been relatively recently cleared of vegetation, and were associated with the derelict house identified by TN 4.

3.3 Nature conservation evaluation

3.3.1 The nature conservation interest of the habitats described above is evaluated below.

- Broadleaved semi-natural woodland: Woodland is a Jersey BAP species. Semi-natural broadleaved woodland was the dominant habitat type within the survey area and further areas were present north up the valley. The woodland also provided habitat for a limited range of woodland ground flora. Semi-natural broadleaved woodland also holds an intrinsic value in itself and therefore the woodland was deemed to be of parish value.

- Dense and scattered scrub: Scrub was recorded in small patches throughout the survey area and in the wider local area. Areas of dense and scattered scrub had potential to be used by a number of species including breeding birds, small mammals and potentially reptile species. Therefore, scrub was deemed to be of value within the context of the survey area.

- Scattered broadleaved trees: Broad-leaved scattered trees were present in a small number of locations throughout the survey area. The trees were a mixture of mature and immature specimens and comprised predominantly common species with a large number of sycamore and oaks. While scattered trees do not always have the diverse ground flora often associated with woodland they hold an intrinsic value in themselves. A proportion of the mature trees provided nesting or roosting opportunities for birds or bats and are likely to support a variety of other species. Therefore, scattered broad leaved trees were deemed to be of local value.

- Improved grassland: the habitat was common within the survey area and also considered common more widely in Jersey, and was species poor. Therefore this habitat was considered to be of negligible conservation value.

- Species poor semi-improved grassland: the habitat was common within the survey area and was generally species poor, although a relatively disturbed area provided suitable habitat for faunal species, particularly reptiles. Therefore the

semi-improved grassland was deemed to be of value within the context of the survey area.

- Tall ruderal: A limited number of areas within the survey area contained stands of tall ruderal herbs, often dominated by common nettle. Although these habitats were species poor and may be ephemeral in their nature, (reflecting recent disturbance/enrichment) they often have a varied structure and can support some species, particularly invertebrates, therefore this habitat was deemed to be of value within the context of the survey area.

- Standing water: These habitats were generally devoid of substantial aquatic vegetation, however some were considered to have the potential to support protected and notable fauna species and provide foraging habitats, for example in relation to bats, and freshwater is included as a habitat of local importance within the Jersey BAP Therefore this habitat is considered to be of local value.

- Running water: This habitat was present in one location within the survey area and was shallow and devoid of aquatic vegetation. Subsequent inspections have also confirmed that this feature is ephemeral, i.e. water is not always present. Although this habitat is less common in the wider context of the island and is listed as a priority habitat on the Jersey BAP, given the transient nature of the on-site resource it is deemed to be of value only in the context of the site.

- Inland cliff: Although these habitats were generally species poor they did provide some opportunities for protected and notable species, in particular reptiles. Further they are listed as key habitats for the conservation of biodiversity in Jersey (on the Island BAP), therefore these are considered to be of parish value for nature conservation.

- Arable: Arable land was recorded outside of the survey area and was very common throughout the wider landscape within Jersey. Arable fields tend to be mono-cultures and provide habitat for a limited number of species relative to most other habitat types. Due to the species poor nature of arable land and due to the amount of arable land present within the wider area it was considered to be of negligible value for nature conservation.

- Amenity grassland: This habitat was recorded within the survey area and was species poor and limited in extent. Amenity grasslands tend to provide habitat for a limited number of species relative to most other habitat types. Due to the species poor nature of amenity grassland it was considered to be of negligible value for nature conservation.

- Species poor continuous hedge with trees: This habitat was recorded within the survey area and was species poor and limited in extent. Although this habitat was uniformly species poor some mature trees were present which could support protected and protected species, bird and bats for example, therefore this habitat was considered to be of local value for nature conservation.

- Buildings and hardstanding: Buildings within the survey area were considered to be of negligible conservation value. However, it should be noted these could potentially be used by roosting bats/nesting birds.

- Bare ground: This habitat was recorded in small areas on site where habitats had recently been cleared of vegetation. As these habitats were species poor and

considered unlikely to support protected or notable species they were considered to be of negligible conservation value.

3.4 Target Notes

3.4.1 The following features of interest have been target noted (TN) on the Phase 1 map (Figure 1a and 1b).

Target Note (TN)	Description
TN 1	Rock face. This habitat has the potential to support reptile species, although these areas would be in the shade during most of the day reducing their ability to support these species.
TN 2	Broadleaved woodland. The woodland had the potential to support birds, bats, small mammals and red squirrel.
TN 3	Rock face. This habitat has the potential to support reptile species.
TN 4	Derelict house. Disused derelict house with the potential to support bats and birds. The derelict house had a large open basement which may have potential to support hibernating bats.
TN 5	Small concrete pond. This pond was full of debris and had concrete sides.
TN 6	Large mature sweet chestnut tree. This mature tree was considered to have potential to support roosting bats and birds.
TN 7	Large pond. Considered to have potential to support amphibian species.
TN 8	Large pond outside of survey area. Considered to have potential to support amphibian species.

3.5 Habitats with the potential to support protected species and/or species of conservation importance

Bats

3.5.2 The survey area contained habitats which had potential to support commuting, roosting and foraging bats.

3.5.3 Buildings and mature trees within the survey area presented opportunities for roosting bats. Buildings on site were considered to have some potential to support crevice dwelling roosting bat species.

3.5.4 Habitats within the survey area were suitable to support foraging bat species. Areas of woodland, hedgerows and ponds all provided opportunities for feeding bats. In addition to this, linear features may provide regularly used commuting paths for bats within the site and in the wider landscape of the Bellozanne valley.

Birds

3.5.5 The survey area had potential to support foraging, roosting, and breeding birds.

3.5.6 Areas of woodland recorded within the survey area were considered to present opportunities for a range of bird species. Areas of scrub within the woodland and on the surrounds of the cliffs were also identified to have potential to support breeding birds. Woodland edges, streams, hedgerows and cliff edges were considered likely to provide commuting corridors for birds from farmland/woodland habitats to the north of the survey area.

Amphibians

3.5.7 Three ponds were recorded within the survey area and its immediate surroundings and were considered to have some potential to support small numbers of amphibian species. The two larger ponds recorded in the north east of the survey area and to the north of the boundary contained some limited aquatic and emergent vegetation and were well connected to surrounding terrestrial habitats which were considered suitable to support amphibians and contained abundant natural refuge opportunities.

3.5.8 No records of agile frogs were received and the distribution of this species is believed to be confined to one area in the south west of the island. The habitats present were also sub-optimal for the species. Therefore agile frog is considered unlikely to be present.

Reptiles

3.5.9 The survey area contained small pockets of isolated habitats with the potential to support reptile species.

3.5.10 Within the survey area areas of inland cliff were recorded which were considered to have potential to support small numbers of reptiles, providing areas for basking as well as areas for foraging and hibernation. Areas of scrub and tussocky grassland were also recorded within the survey area and considered to provide potential for foraging and commuting reptile species. Woodland edge habitats recorded within the survey area were also considered to have reptile potential.

Hedgehog

3.5.11 The survey area contained continuous connected habitats considered to have the potential to support hedgehog.

3.5.12 Habitat suitable for hedgehog included areas of woodland and small areas of scrub on the surrounds of the cliff areas. Habitats such as open woodland, amenity grassland, hardstanding and arable land provided limited opportunities for this species.

Small mammals

3.5.13 The survey area contained habitats with the potential to support small mammals.

3.5.14 Habitat suitable for small mammals such as French shrew, common shrew and Jersey bank vole was present within the woodland, scrub and semi-improved grassland habitats, although no burrows or evidence of small mammals was recorded within the survey area.

Red squirrel

3.5.15 The survey area contained connected woodland habitats with the potential to support red squirrel.

3.5.16 Areas of woodland and scrub within the survey area were considered to have the potential to support red squirrel, although no dreys, squirrel activity and/or sightings were recorded during the Phase 1 survey.

Invertebrates

3.5.17 The survey area contained a mosaic of different habitats, some of which had potential to support common assemblages of terrestrial invertebrates.

3.5.18 Areas of amenity grassland and hardstanding provided limited opportunities for invertebrates; however the semi-improved grassland, tall ruderal and woodland edge habitats were of greater potential value. As the habitats present on site were widely represented in the surrounding landscape, and did not include any habitats noted for supporting rare invertebrate assemblages, it is considered unlikely any significant use of the site by rare or notable species occurs.

Flora

3.5.19 No notable or protected plants were recorded during the survey, and on the basis of the habitats present it is considered unlikely that any will be present.

3.5.20 No invasive or noxious plants were identified during the survey.

Key

- Broad-leaved Woodland
- Dense continuous scrub
- Scattered scrub
- Scattered Trees
- I — Improved grassland
- SI — Semi-improved grassland
- Tall ruderal
- Standing water
- Running water
- Inland cliff
- A — Arable land
- Defunct species poor hedge
- Fence
- Wall
- Building
- Bare ground
- HS — Hard standing
- Target notes
- Study Area

N

TN8

TN7

0 50 100 metres

1:1,000

Rev	Date	Description	By	Chk	App

Notes:

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Client: States of Jersey

Project: Bellozane

Title: Phase 1 Habitat map

Drawn: JSdS		Checked: SA	
Designed: LM		Approved:	
Date: 30/03/2012	Scale: 1:1,000 A3	Sheet:	
Project Number: HHT91745AB		Drawing Number: Figure 1a	Revision:

Login: De Souza, Judith
Plot Date: 20/04/2012 10:50:43
File Name: N:\HHT\91745AB - States of Jersey\Z Dwgs\1-current\Ecology\Bellozane\Phase 1.dwg

Key

- Broad-leaved Woodland
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HS SI A I TN1 TN2 TN3 TN4 TN5 TN6

N

0 50 100
metres
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Rev	Date	Description	By	Chk	App	Notes:

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Drawn: JSdS		Checked: SA	
Designed: LM		Approved:	
Date: 30/03/2012	Scale: 1:1,000 A3	Sheet:	
Project Number: HHT91745AB		Drawing Number: Figure 1b	Revision:

Login: De Souza, Judith
Plot Date: 20/04/2012 10:52:19
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SECTION 4

DISCUSSION AND RECOMMENDATIONS

4 DISCUSSION AND RECOMMENDATIONS

4.1 Discussion

4.1.1 The proposed extension of the Bellozanne STW will require the widening of the valley bottom to accommodate the construction of a new works whilst the existing treatment capacity is maintained. The widening of the valley base would involve cutting into the valley sides resulting in the loss of habitats within the site.

4.1.2 A number of the habitats that will be affected, are considered to be of value for nature conservation, and also have the potential to support a number of protected and notable species.

4.1.3 It is considered that there is a requirement for Phase 2 protected species surveys, further consultation with the Department of the Environment (DoE) and most likely the production of an Environmental Impact Statement (EIS) in relation to the potential STW extension.

4.1.4 The Phase 2 protected species surveys will enable further exploration into the ecological value of the habitats present on site in relation to their ability to support protected and notable species. These recommended works (listed below and summarised within the specific recommendations) will support the subsequent production of an EIS assuming this is required, and enable the impacts of the proposals and subsequent requirements for mitigation to be identified.

Designated Sites

4.1.5 No designated sites were identified within 2km of the site and it is considered unlikely there will be any impact from the proposed extension to any designated sites within Jersey, providing there is no reduction in the quality of water discharged from the site during either construction or operation of the potential STW extension.

Jersey BAP Habitats

4.1.6 As described in Section 3.3, a number of Jersey BAP habitats were recorded within the footprint of the potential STW extension.

4.1.7 The extension of the STW and the removal of the woodland band to widen the lower valley would result in the loss of the majority of the woodland on the eastern valley slopes. This loss will have to be mitigated for by compensation and enhancement, and is likely to require the creation and enhancement of areas of woodland within the local area. Screening, site selection and development of an initial management plan are likely to be required in the development of any EIS that will be required for the works.

4.1.8 It is recommended that a strip of the existing woodland along the eastern side of the valley is retained if at all possible, in order to minimise impacts and mitigation requirements. This would reduce the impacts on commuting species and reduce landscape impacts from the proposed works.

Protected and Notable Species

Birds

4.1.9 All birds, their nests and eggs are protected under the Conservation of Wildlife (Jersey) Law (as amended) with the exception of carrion crow, feral pigeon, wood pigeon and magpie, which are listed on Part 2 of Schedule 1 as pest species. It is an offence to intentionally kill, injure, or take any wild bird (not including the exceptions), or take or destroy an egg of any wild bird. It is also an offence to damage or destroy the nest of any wild bird (whilst being built, or in use). Therefore, clearance of vegetation within the site boundary, or immediately adjacent to the site during the nesting season could result in an offence occurring under the Act. In addition Schedule 2 bird offences have a special penalty.

4.1.10 The breeding bird season can be taken to run between March and August inclusive with some species, for example ravens occasionally nesting in February due to Jerseys warmer climate relative to the UK.

4.1.11 Wherever possible potential nesting habitat should be retained however, it is recognised that clearance of the woodland will remove areas of breeding bird habitat. It is therefore recommended that staged vegetation clearance should be undertaken outside of the breeding bird season (i.e between September and the end of February). The removal of breeding bird habitat in the form of scrub, trees, bramble and gorse should be completed before the breeding season commences.

4.1.12 The potential loss of nesting habitat is considered relatively significant and therefore it is likely to be necessary to provide replacement roosting opportunities.

4.1.13 In order to fully assess the impacts of the potential STW extension on the local bird populations, it is recommended that targeted surveys be undertaken, in accordance with the Common Birds Census (CBC) methodology.

Other species

4.1.14 All wild animals listed on Schedule 1 of the Conservation of Wildlife (Jersey) Law 2000 (as amended) receive legal protection. It is offence for any person to kill, injure or take schedule 1 animals from the wild. It is also an offence for any person to knowingly damage or destroy a place of shelter while it is in use by a protected species or obstruct access to it while it is in use. It also states that a den or nest may be in use notwithstanding that it is at the time of any act unoccupied.

In addition to the above it is an offence for any person to export from Jersey any reptile or amphibian species listed on Schedule 4 of The Act.

Bats

4.1.15 A total of ten bat species are known to be present within Jersey. Four species of pipistrelle have been recorded within Jersey, these are common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius pipistrelle (*Pipistrellus nathusii*) and Kuhl's pipistrelle (*Pipistrellus kuhli*). Two species of long eared bats are also known to be resident within Jersey: grey long-eared (*Plecotus austriacus*) which is relatively common in Jersey and brown long-eared (*Plecotus auritus*) with individuals recorded only rarely. The only species of Myotis recorded within Jersey is Natterer's bat (*Myotis nattereri*). Two larger bat species have been recorded within Jersey, serotine bats (*Eptesicus serotinus*) which are known to be resident and limited records of Leisler's bat (*Nyctalus leisleri*), which is believed to be a vagrant within Jersey. Greater horseshoe bats (*Rhinoloplus ferrumequinum*) have been recorded within Jersey, although these were last recorded in 1959 so the current status of the species is uncertain.

4.1.16 All bat species are protected under Schedule 1 part 1 of the Conservation of Wildlife (Jersey) Law 2000 as amended.

4.1.17 The protection afforded to these species makes it an offence to:

- Intentionally and/or deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb bats;
- Intentionally or recklessly damage, destroy or obstruct access to a den used for shelter or protection by a bat; and
- Sell or keep in captivity a bat.

4.1.18 In this interpretation a den is a bat roost and is "any structure or place which any bat uses for shelter or protection". Bats tend to reuse the same roosts, although their usage of roosts in any one year can be quite transitory.

4.1.19 Under the law all bats and their roosts have protected status. Planning applications that may affect known roosts are given detailed consideration. They may require ecological survey to confirm the presence or absence of bats, which may lead to requiring that the new development protects, replaces or enhances any bat-friendly features that it may affect. Bats are afforded the same protection for works affecting roosts that do not require planning consent.

4.1.20 The Environmental Division should be consulted with regards to any works affecting any bat roosts. The Minster may grant a licence which would allow activities which would otherwise lead to an offence.

4.1.21 In addition, all ten species of bats are listed on the States of Jersey Species Action Plan (SAP) for bats. The main objectives of the SAP are to:

- Increase knowledge on the status, trends, population, distribution and ecology of the bat species found on the island.
- Encourage bat populations.
- Protect and enhance roosting and foraging sites.

4.1.22 There are opportunities for roosting, foraging and commuting bats within the survey area. Buildings within the STW and the 'derelict house' at TN 4 are considered to have potential to support roosting bats.

4.1.23 Phase 2 bat activity surveys are recommended to establish likely presence/absence of roosting bats within the derelict house, and bat activity transects are required to establish the levels of bat activity within the woodland along the valley.

4.1.24 It is recommended that 3 surveys are carried out of the derelict house with one survey being a dawn re-entry survey[7]. Also in accordance with current guidance it is recommended that three dusk transect surveys are carried out across the entire site. These surveys will help identify any important foraging areas and any well used bat commuting routes.

The results of these surveys will determine any mitigation measures required for the loss of the woodland and will inform any compensation or enhancement measures required based on the carrying capacity of the woodland and adjoining habitats for bats.*Amphibian and Reptiles*

[7] Bat Conservation Trust (2012) Bat Surveys: Good Practice Guidelines

4.1.25 The survey area contains habitat suitable for all native reptile species and for common toad and palmate newts. A reptile translocation was carried out in 2011, with a receptor site created to the north west of the site. Incidental records of green lizards in this location were provided by staff at the STW. Therefore it is considered that reptiles and amphibians have the potential to be present within the potential STW extension footprint of works.

4.1.26 It is recommended that reptile surveys are carried out using artificial refuges combined with direct observation counts along transects and searches of existing artificial refugia. Due to the ecology of green lizards, it is considered that the direct observation counts may prove a more valid survey technique for this species, whilst artificial refuge checks are likely to provide more valid survey results in relation to slow-worms.

4.1.27 Surveys for palmate newts and common toad are required to determine presence/absence and broad population size class assessments for inclusion with any subsequent planning application and EIS. It is recommended that these utilise a combination of torching, bottle trapping, egg searching and netting survey techniques.

Red squirrel

4.1.28 Red squirrels are known to occupy areas surrounding the site and incidental records of red squirrels were provided by staff at the STW. Therefore, it is considered that red squirrel have the potential to be present within the potential footprint of works for the STW extension.

4.1.29 It is therefore recommended that red squirrel surveys be carried out as per best practice guidance[8]. It is recommended that two red squirrel transects are carried out, with direct counts, feeding sign searches and drey counts. This will enable presence/absence to be determined and a broad population estimate to be calculated, in order to further determine impacts associated with the potential STW extension and identify a suitable mitigation strategy.

Hedgehogs

4.1.30 The survey area is considered to contain suitable habitat for hedgehogs in the form of semi-improved grassland, scrub and woodland. It is therefore considered that hedgehogs could be present within the footprint of works associated with the potential STW extension.

4.1.31 It is therefore recommended that to ensure this species is not impacted by the proposed construction works, that sympathetic habitat manipulation/clearance should be undertaken to ensure any hedgehogs present leave the footprint of works prior to construction commencing. These works can be combined with those for small mammals potentially be present within the footprint of works. The provision of replacement habitat as part of the overall scheme mitigation strategy is also recommended.

Voles and Shrews

[8] Forestry Commission, 2009. Practical Techniques for Surveying and monitoring Red Squirrels

4.1.32 The survey area was considered to contain suitable habitat for jersey bank voles, common shrew and French shrew. It is considered that these species may be present within the footprint of works.

4.1.33 It is therefore recommended that to ensure this species is not impacted by the proposed construction works, that sympathetic habitat manipulation/clearance should be undertaken in combination with those for other species present, and that alternative habitats are made available as part of any wider mitigation strategy for the potential STW extension.

4.2 Recommendations Summary

4.2.1 It is recommended that removal of woodland and other habitats along the eastern side of the valley be minimised as far as possible, with a continuous strip of woodland habitat being retained along the eastern edge of the valley slopes.

4.2.2 Furthermore, the following further survey/mitigation works are recommended;

- Targeted bat activity surveys;
- Bat emergence surveys of the derelict house;
- CBC bird surveys;
- Reptile surveys;
- amphibian surveys;
- Red squirrel surveys; and
- Habitat manipulation to disperse any small mammals from the footprint of the

4.2.3 These surveys are considered necessary in order to support and inform any EIS/planning application for the potential STW extension works. These surveys will enable identification of the carrying capacity of the woodland which is to be lost for protected and notable species. It is also recommended that the SoJ Ecologist is formally consulted over the proposals and the level of information required to inform any planning application, once sufficiently detailed proposals are available. It is considered likely that compensation and enhancement measures will be required to offset the impacts of habitat loss that would result from the potential STW extension.

SECTION 5

CONCLUSIONS

5 CONCLUSIONS

5.1.1 The proposed extension of the STW at Bellozanne, Jersey would result in the loss of woodland, scrub, hedgerows and areas of inland cliff and is likely to impact on protected and notable species. The woodland was considered to be of parish value and in common with the cliff habitats present is covered by the Jersey BAP.

5.1.2 It is recommended that habitat loss associated with the proposals is minimised, with a woodland corridor to be retained laong the eastern edge of the valley if at all possible.

5.1.3 In order to provide sufficient information to inform any subsequent planning application/EIS, it is considered necessary for further survey and mitigation works to be undertaken, as set out in Section 4 of this report.

5.1.4 In addition to the recommended surveys, it is likely that replacement habitat creation enhancement will be required in order to compensate for residual impacts associated with habitat loss, where these cannot be adequately mitigated.