TEESWORKS

LONG ACRES ENVIRONMENTAL STATEMENT

VOLUME 3: TECHNICAL APPENDICES
APPENDICES TO CHAPTER D (BIODIVERSITY AND ECOLOGY)

DECEMBER 2020

Long Acres, South Tees
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Chapter D: Biodiversity & Ecology

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Appendix D1: Biodiversity Metrics - Proposed Tees Estuary Partnership Definitions

Biodiversity Metrics – Proposed Tees Estuary Partnership definitions (April 2020)

Application

This iteration of the Tees Estuary Partnership Biodiversity Metric is based on the Defra Biodiversity Metric 2.0 (BM2.0) publication to which the rules and definitions below have been applied to give a local interpretation. This approach has been agreed by the steering group for the STDC Environment and Biodiversity Strategy, which included representatives STDC, Natural England, Environment Agency, Redcar & Cleveland Borough Council, Lichfields, INCA, Faithful & Gould, JBA and ARUP. These rules will be applied to that strategy and, as necessary, to imminent planning applications for that site. The principle of a local variation of the BM 2.0 metric has been agreed by the steering group of the Tees Estuary Partnership.

It is noted that should the Tees Estuary Partnership consider that it is preferable to use these definitions, or subsequent iterations, for other developments elsewhere on Teesside then there is the potential to do so until such time as the national Defra metric becomes mandatory.

Rationale

The local rules on Brownfield, Grassland and Pond habitats are not necessarily a departure from the BM 2.0 metric, rather they merely provide a more detailed interpretation on the Technical Guidance provided with BM 2.0.

The rule on Swamps is a slight departure from BM 2.0. There is very little of this habitat on STDC, other than on the SSSI so this will make little difference to the overall score but importantly it does allow for the opportunity to compensate for their loss where necessary and provides an incentive the improve their condition.

<u>Brownfield</u>

Habitats are classed as Open Mosaic Habitats (OMH) only where they meet all the descriptors set out in the definition of OMH for example as stated in the BM2.0 Technical Guidance.

Two descriptors of OMH from BM 2.0 that are particularly relevant to the classification of habitats at Teesworks are that there is a known history of disturbance with soils being moved or material added and that the site contains areas of bare, *loose* substrate. While most of the land at Teesworks (and the wider Teesside area) has been altered from its natural state by the addition of industrial spoil, principally in the form of blast furnace slag, this material has been added for the purpose of forming areas of flat, hardstanding as a base for industrial operations. The nature of this material, being porous, alkaline and low nutrient makes it conducive to colonisation by a diverse and slightly specialised flora, whilst retaining some bare ground, but in its structure it does not meet the description of OMH. In many cases this material has been in situ for decades and in places has developed a very thin layer of soil so that the surface may be loose but with certain exceptions this is merely a dressing on top of hardstanding and is not disturbed.

In these calculations such habitats are considered to fit with the Phase 1 Habitat classification as “ephemeral/ short perennial”. This does not have corresponding category under the UK Habitat Classification but does fit well with the would fit with the definition under Table TS-1 of the BM 2.0 Technical Supplement as, “sparsely vegetated land – Ruderal/Ephemeral”, which gives the following definition:

"The short lived transitory habitat of low growing early successional plants of open ground such as arable landscapes, derelict urban sites, quarries and railway ballasts. This will get replaced by more stable vegetation unless disturbance of soil continues. Reasonably variable in biodiversity value dependent on species present, do often provide important pollen and nectar sources along with open ground for insects."

These Ruderal/Ephemeral habitats are classed by BM2.0 as low distinctiveness so score a "2" for distinctiveness compared to a "6" for OMH.

Where an area is effectively unvegetated but is not sealed then this is classed as the BM 2.0 category of "artificial unvegetated; unsealed". This scores zero.

The criteria that have been used for condition assessments of the brownfield habitats are attached as Appendix 1 of this paper.

Grassland

Rank grassland of any kind, which would fit with the category of "Poor Semi-improved (B6)" in the Phase 1 Habitat classification, is classed as "Modified Grassland" which scores a "2" for distinctiveness.

Where grassland is other than Poor Semi-improved, it is classed as "Other Neutral Grassland", scoring a "4" for distinctiveness, except where there is some calcareous influence from the substrate, as evidenced in the composition of the flora, in which case it will be classed as "Lowland Calcareous Grassland" scoring "6" for distinctiveness.

Swamps

The BM 2.0 Technical Guidance classes Swamps as Fen, albeit in poor condition. Fen is therefore given a score of "8" for distinctiveness, albeit multiplied by a 1 for condition, and is classed as irreplaceable habitat thereby being taken out of the metrics calculations. This is considered to be an unintended consequence as some forms of Swamp and certainly most of those on Teesside are species poor and, it is argued, would be considered as being of lower conservation importance than Fen. There needs to be the opportunity to replace them with other habitats, of equal or greater distinctiveness, where it is considered beneficial to conservation and the incentive to improve them, which is lost if they are taken out of the metrics calculations.

A distinction is therefore made here between Swamps and other Fen communities, with Swamp defined as fitting the definition in "British Plant Communities Vol . 4" (Rodwell, 1995) as; "species-poor vegetation types, generally dominated by bulky-emergent monocotyledons, characteristic of open-water transitions with permanently or seasonally submerged substrates". (On Teesside these are typically the National Vegetation Classifications of S13, *Typha latifolia* swamp; S20 *Scirpus lacustris ssp. tabernaemontani* swamp and S21 *Scirpus maritimus* swamp. However S5 *Glyceria maxima* swamp, S8 *Scirpus lacustris ssp. lacustris* swamp and S14 *Sparganium erectum* swamp also occur and would come under this category) These are the ecological equivalent of Reedbeds and are therefore scored in the same manner with a "6" for distinctiveness. Condition assessment criteria specifically for Swamp/Reedbed have not yet been drawn up so professional judgement is used in assigning a condition score to them.

Where Swamp/ Reedbed forms the fringe of an open water body and its total area is less than that of the open water then it is classed as part of the waterbody. Where the area Swamp/Reedbed is greater than that of the open water then the habitat is classed as Swamp/ Reedbed.

Appendix 1. Brownfield conditions assessment criteria used in the calculations

1.1 Open Mosaic Habitat

In addition to meeting all criteria that define OMH, these additional criteria will be used to differentiate the condition of the OMH.

1. Has a minimum of ten early-successional plant species that typify this habitat (see list to be appended)
2. Incorporates more than one early successional habitat type, in addition to bare ground
3. Incorporates a wetland feature or has topographical heterogeneity over at least 25%
4. Contains more than one substrate type
5. Significant potential for both burrowing insect species and pollinating insect species.
6. Non-native plant species cover less than 5% (other than Buddleia and Red Valerian, which can total up to 10%)

Good condition = meets four of the above criteria
Fairly good = meets three of the above
Moderate = meets two of the above criteria
Fairly poor = meets one of the above criteria
Poor = meets none of the above criteria

1.2 Vacant/ derelict/ bare ground (=Ephemeral/ short perennial)

This differs from OMH in terms of the substrate, which is not loose. It is typical of the flat areas of made-ground on industrial Teesside with compacted but unsealed substrates, principally blast-furnace slag but in some cases crushed building materials. Condition depends principally on the diversity and coverage of typical herb species though like OMH some scattered bare ground is a positive factor.
Where grasses comprise >50% of the habitat block then it should be assessed under the relevant grassland category.

The following factors are used to determine the condition:

1. The number of early-successional plant species that typify this habitat (see list to be appended)
2. The percentage cover of early-successional herb species
3. The mixture of bare ground. Bare ground should be scattered. Where it occurs in blocks of >10% of the area it is a negative factor. Any blocks of bare ground of 0.25ha or larger should be recorded as a separate habitat.
4. The percentage cover of non-native, invasive plant species. (NB except Buddleia and Red Valerian. These can total up to 10% between them with anything above that being counted in the total invasive species cover)

The table below indicates the typical ranges for each condition category but as there are various permutations then professional judgement is needed in the assessment.

	No. species	% cover	Bare ground	Invasive species
Good	10 or more	75-90	10-20% unevenly distributed	<5%
Fairly Good	8 or more	65-90	10-20% unevenly distributed	<5%
Moderate	6 or more	50-90	10-40% unevenly distributed	<10%
Fairly Poor	4 or more	40-90	40-75%	<20%
Poor	Less than 4	10-25%	>75%	>20%

1.3 Unvegetated, unsealed surface.

This is defined as areas where the total vegetation cover including bryophytes and lichens is <10%. These areas do not score in the metric.

Appendix D2: INCA Report 202011 Reptile Survey 2020

Report ID INCA 202011

Reptile Survey

Ian Bond

July 2020

Industry Nature Conservation Association

1. Introduction

This report details surveys carried out in spring 2020, to establish the presence of Common Lizard at land at South Tees. The surveys were carried out for South Tees Development Corporation.

A total of four separate areas were surveyed. Three of those areas had previously recorded a single Common Lizard during a suite of surveys carried out in line with current guidelines, in either 2018 or 2019. The fourth area had not previously been surveyed for reptiles. As only a single lizard was found in each of the three areas previously surveyed it was unclear whether this represented a vagrant individual or a small population.

2. Background Information

It is known that Common Lizards *Zootoca vivipara*, are present across various habitats on the coastal strip from South Gare to Coatham Green, outside of the former Steelworks site.

In 2009 a single Common Lizard was recorded on the NWL Pumping Station, north of Dabholm Beck.

A series of reptile surveys were undertaken by Quants Environmental in 2018 on South Tees Development Corporation (STDC) land, at four sites on and adjacent to the area known as the "Tear Drop" site. The surveys found a single Common Lizard on one of the four sites, with no reptiles found at the other three sites. The location of the lizard was just north of the Fleet at National Grid Reference NZ57362452. The location is shown in Figure 1. The report concluded that the there was a low population of Common Lizards and that no other species of reptile were present.

Surveys by INCA in 2019 found a single Common Lizard on the road verge at Blue Main, Warrenby and a single Common Lizard on an isolated, shrub covered mound in the centre of area CLE31 B. In addition, at least two Common Lizards were found at each of the mound at area CLE31 A and at Warrenby, in both cases within a few metres of the STDC site boundary. The locations of the 2018 and 2019 records are shown in Figure 1.

Figure 1. Locations where Common Lizards had been found up to 27th September 2019 (Yellow = 2018 Quants surveys; red = 2019 INCA surveys)

3. Relevant Legislation

All reptile species are protected under the Wildlife & Countryside Act (1981), as amended. For widespread reptile species, such as Common Lizard, protection is limited to Section 9(1) whereby it is an offence to intentionally kill, injure or take such animals. It is not an offence to disturb them or destroy their places of rest or shelter.

4. Survey methods

The survey locations are shown in Figures 2 and 3.

Surveys were carried out using the standard method of placing a suite of artificial cover objects (ACOs), in the form of tiles of roofing felt, in places likely to attract reptiles. The ACOs heat up much more effectively than the surrounding vegetation therefore in cooler weather reptiles seek them out as places to bask, which they do either on top of or underneath the ACO. The ACOs are then checked for the presence of reptiles in suitable weather conditions.

As the intention had been to resurvey the areas of CLE31 B and Blue Main in 2020, the ACOs had been left out since the 2019 surveys and these were augmented with additional ACOs. New ACOs were placed out at Iron Ponds and the Fleet. The area of each survey site and the number of tiles of roofing felt that were laid out at each are given in Table 1. While there is no agreed best practice guidance on the number of ACOs that are laid out, a minimum of 10/ha is a standard recommendation. In addition to the roofing felt ACOs set out for these surveys, at all sites there were already a number of suitable ACOs in the form of discarded metal, tyres and railway sleepers, which had been present for some time and would therefore have been found by any reptiles that might have been present. These were also checked for reptiles.

Table 1. Numbers of tiles of roofing felt

Location	Area (ha)	No ACOs	ACO/ ha
CLE 31B	0.1	17	170
Blue Main	0.6	32	53
Iron Ponds	1.0	26	26
The Fleet	0.8	18	22

Figure 2 Survey areas at The Fleet and CLE31 B

Figure 3. Survey areas at Iron Ponds and Blue Main

The surveys were undertaken by scanning ahead with binoculars to try and see any reptiles basking on ACOs, without disturbing them. Using binoculars, any other bare areas such as rocks, piles of wood, gaps in vegetation etc were also checked for lizards. If no reptiles were seen on the tiles of roofing felt or on other ACOs that could be safely moved, these were turned over to check for lizards underneath them.

Current guidance is that a series of seven visits in suitable weather conditions at the optimal time of year are considered sufficient to establish presence/absence of reptiles though further surveys may be required if carried out under sub-optimal conditions. The optimal seasons for surveying are late March to late May and late August to early October as the weather is generally cooler then and reptiles are more likely to bask and therefore be more easily seen. The two surveys in June at The Fleet were outside of this optimal timing. This was because the prolonged hot weather in May made some days too hot to be suitable for reptile surveying so instead some surveys were postponed until cooler weather. The timing of the surveys was related to weather conditions. Where conditions were predicted to be too cold to be optimal earlier in the day then the survey was carried out late morning or early afternoon. All surveys were carried out under suitable weather conditions and there are not considered to be any constraints on the results of the survey. The weather conditions and timings of the surveys are given in Tables 2 and 3. The requirement to re-survey The Fleet was not apparent until later in the season hence most of the survey dates differ from the other three sites.

Table 2. Timings and weather conditions at CLE 31B, Blue Main and Iron Ponds

Date	Weather	Temp °C	Wind Beaufort	Start Time	End Time
19/03/20	4/8 cloud cover; mainly sunny	9	1	10:00	13:00
01/04/20	6/8 cloud cover; intermittent sun	10.5	2	11:00	12:25
06/04/20	2/8 cloud cover	14	4	13:30	14:45
14/04/20	6/8 cloud cover	12	1-2	13:20	14:40
16/04/20	3/8 cloud cover	12	2	11:25	13:05
21/04/20	Full sun	11	4	13:30	14:55
24/04/20	1/8 cloud cover	12	1	10:20	12:10

Table 3. Timings and weather conditions at The Fleet

Date	Weather	Temp °C	Wind Beaufort	Start Time	End Time
24/04/20	1/8 cloud cover	14	1-2	12:35	13:00
30/04/20	6/8 cloud cover	11	4	10:20	10:45
06/05/20	Full sun	13	3	12:00	12:45
26/05/20	7/8 cloud cover	16	2	08:35	09:00
28/05/20	Full sun	14	2	08:30	09:05
04/06/20	Full cloud cover	10	2	08:30	09:10
05/06/20	7/8 cloud cover	10	2	08:30	09:20

4. Survey results

The survey results are given in Table 4. No lizards were found at areas CLE31 B or Iron Ponds.

A single adult male Common Lizard was found on the first survey at Blue Main. The animal was captured and moved to the STDC site perimeter close to the golf course. No further reptiles were found at Blue Main for the remaining six surveys.

A single adult female was found at The Fleet on the last of the suite of seven surveys. The animal did not appear to be gravid although it was perhaps too early in the season for that to have been apparent.

Table 4. Survey results

Date	Location	
19/03/20	Blue Main	1 adult male found on top of a roofing felt tile at NZ5744 2499.
05/06/20	The Fleet	1 adult female found under a roofing felt tile at NZ5733 2456.

5. Assessment

5.1 Iron Ponds. No reptiles were found at the Iron Ponds site. Although the habitat is suitable for reptiles it is isolated from other suitable habitat outside the STDC land at Coatham Dunes by around 200m of bare ground, which would be a barrier to reptile dispersal. It is therefore concluded that reptiles are absent and that no further surveys would be required for any future works on this area.

5.2 CLE31 B. A single juvenile Common Lizard had been found in this area in September 2019. There is only a very small amount of suitable reptile habitat in this area and it is isolated from other suitable habitat. The absence of any further sightings of Common Lizards in the spring 2020 surveys suggests that the animal found in 2019 was a vagrant individual that has either died over winter or moved off. Consequently it is concluded that reptiles are currently absent from this area. The habitat was removed in this area at the conclusion of these surveys consequently there is no opportunity for recolonisation by Common Lizards.

5.3 Blue Main Road Verge. A single juvenile Common Lizard had been found in this road verge in August 2019, approximately 100m further west than the adult male found in March 2020. These are unlikely to be the same individual as there has been insufficient time for the juvenile to attain adult size. Nevertheless the juvenile was not re-found in 2020 and once the adult male had been translocated no further lizards were found. Consequently it is considered that lizards are currently absent from this road verge.

There is a narrow corridor of approximately 200m of suitable reptile habitat connecting this road verge with the STDC site perimeter and the land immediately outside, where a small population of Common Lizards is known to be present. Consequently it is possible that lizards could recolonise this road verge over time. Therefore the conclusion that reptiles are currently absent from this area is only considered to be valid for 18 months.

5.4 The Fleet. A single juvenile Common Lizard was found in this area in October 2018 approximately 40m to the east of where the adult female was found during this survey in June 2020. It is conceivable that this was the same individual but if even if not, it is clear that this is a very small population. Nevertheless the species is still present in this area and measures must be taken to prevent it being killed or injured, in order to comply with legislation as set out in section 3 above.

6. Conclusion and recommendations

No further surveys for reptiles are required at Iron Ponds or CLE31 B.

Reptiles are considered to currently be absent from Blue Main Road Verge. Any works affecting this area can take place up to the end of September 2021. Should suitable reptile habitat remain in this area and that habitat remain connected to other existing suitable reptile habitat, then a further reptile survey will be required before any works likely to affect reptiles can proceed in this area.

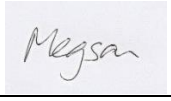
Common Lizard remains present in a small area of The Fleet. In order to comply with legislation then it will be necessary to either remove the lizard (s) or to retain this this particular area of habitat.

Appendix D3: Barn Owl Survey 2020

GRAY'S
ECOLOGY

Barn owl report for disused buildings on South Tees Development Corporation land

Version control

Version	Prepared by	Status	Date
1.0	Graham Megson, MSc Ecology	Final	13/10/2020
			

Contents

Summary

- Five disused suitable barn owl nesting/ roosting buildings were surveyed for barn owl occupation across four sites.
- Two buildings are used for nesting and roosting
- Two buildings are used for roosting only
- One building is not used
- At least one building was used by nesting swallows and wrens
- Barn owls are not currently nesting but may do so from 01 March next year
- The buildings can be lawfully demolished prior to 01 March 2021
- Mitigation should be provided

Terms of reference and quality assurance

Gray's Ecology was commissioned by Industry and Nature Conservation Association (INCA) to undertake a licensed nesting barn owl check on an empty building, using Natural England 'Barn owls: licence to survey them to guide future development work' licence number CL29/00335. The work follows: Colin R. Shawyer, 2011, 'Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment, Developing Best Practice in Survey and Reporting'.

The surveys were undertaken and the report has been prepared by Graham Megson (MSc Ecology) who has 38 years' experience working in the Ecology sector. Survey work followed the Chartered Institute of Ecology and Environmental Management (CIEEM) guidance 'Competencies for species survey: Barn Owl'.

Legislation

The Wildlife & Countryside Act 1981 (as amended) provides protection for barn owls and most other wild bird species in England, Scotland and Wales. The eggs and nests of barn owls and most bird species are also protected. Specifically, under Part 1, Section 1 (1), it is an offence to intentionally:

- Kill, injure or take any wild bird
- Take, damage or destroy the nest* of any wild bird while that nest is in use or being built
- Take or destroy an egg of any wild bird

*Barn owls do not intentionally 'build' a nest. However, their nest-places are characterised by a compacted layer of nest debris that is considered to be their nest. Man-made boxes are readily used. Removing whatever supports, surrounds or shelters the nest should be considered as nest damage or destruction.

The barn owl has further protection under Schedule 1 of the Wildlife & Countryside Act which states that it is an offence to intentionally or recklessly disturb adults and their young at, on or near an active nest. The penalties for infringement of the Wildlife & Countryside Act 1981 for an offence involving a barn owl, its nest, or egg, includes a fine of up to £5,000, or up to six months imprisonment, or both, per bird, nest or egg.

Roosting sites used by barn owls have no protection *per se*, other than that afforded by virtue of the presence of other protected flora or fauna. However, because nesting adults and dependent young are protected against disturbance, the buildings or trees they occupy are effectively protected during nesting periods. At other times nest and roost sites can be legally altered or destroyed.

Method

During ecological site survey work in the spring and summer of 2020 in the area of the buildings, barn owl(s) had been observed close to the buildings and nesting was suspected. In the late summer, five disused buildings across four sites were checked under the appropriate licence and the findings are presented. Recommendations are made regarding the demolition of the buildings and appropriate mitigation.

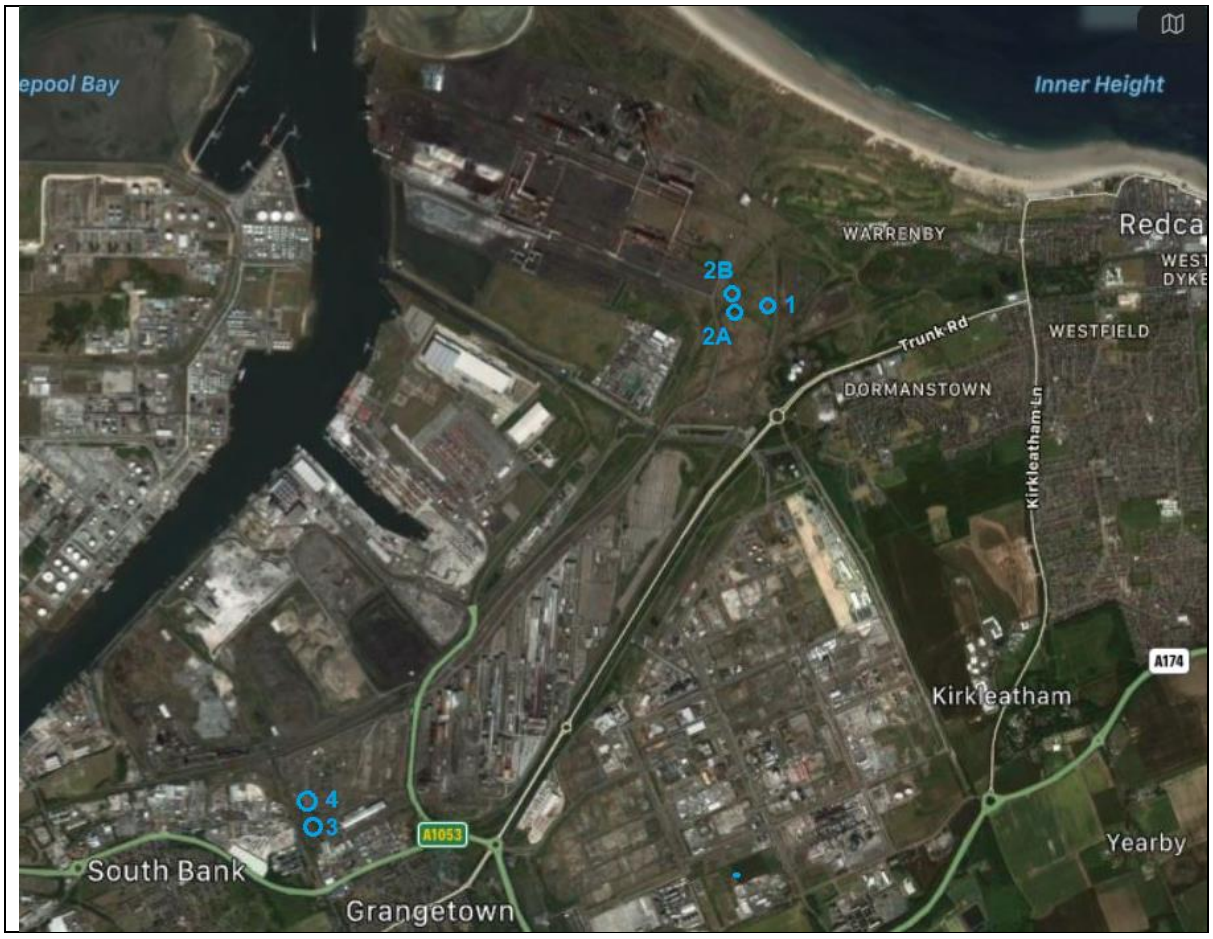
The main body of this report covers the results, recommended timing for demolition and the recommended mitigation measure. Appendices 1 to 4 provide the individual results for each site.

Description of the buildings

Table 1. The buildings

Building (fig.1)	National Grid Reference	Description
1	NZ 57368-24528	Brick, flat concrete roof
2A	NZ 57176-24505	Brick, flat concrete roof
2B	NZ 57175-24511	Brick, flat concrete roof
3	NZ 54523-20996	Brick, steel, glass – large engine shed
4	NZ 54497-21117	Brick, flat roof – Oxygen Plant

Figure 1. Location of the buildings



Results

Table 2. Barn owl occupancy

Building (fig.1)	Barn owl	Other wildlife
1	Nesting site; roosting site	Feral pigeon nesting site
2A	-	Swallow & wren nesting site
2B	Nesting site; roosting site	-
3	Roosting site	Feral pigeon nesting site
4	Roosting site	-

Four of the five buildings are used by barn owls (nesting and/or roosting), as well as several other species.

Recommendations

All five buildings only have legal protection during the nesting period. If they are to be demolished as part of pre-development ground works, this should be completed prior to the 2021 nesting season which commences on 01 March. If the buildings have not been demolished by 28/02/2020, a further barn owl nesting survey will be legally required.

The loss of two barn owl nest sites and four barn owl roost sites needs to be mitigated for.

Mitigation

Mitigation is required for barn owls as outlined in the documents below:

- Policies and principles within the adopted Redcar and Cleveland Local Plan (2018) and the South Tees Area SPD (all development proposals will be expected to demonstrate net environmental gain).
- South Tees Regeneration Master Plan (November 2019), see below.
- National Planning Policy Framework [NPPF (2018) paragraph 170 d)] includes the bullet point: *Planning policies and decisions should contribute to and enhance the natural and local environment by: d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*.
- Government planning update bulletin of July 2019 introduced Biodiversity Net Gain (BNG) and the intention for developments to deliver a minimum of 10% gain (in the Environment Bill 2020).
- Tees Valley Local Biodiversity Action Plan.
- Barn Owl Trust guidelines.

The South Tees Regeneration Master Plan covers 'Environmental Protection and Enhancement' in section 4.05 and says:

Recognising that the STDC area hosts sites and species designated at international, national and local levels for reasons of ecological importance, the area's industrial led regeneration must provide appropriate protection for ecological interests. Comprehensive regeneration also provides an important opportunity to enhance environmental quality through remediating contaminated land and creating a coherent habitat network within the STDC area, which should be developed in tandem with a public open space strategy (see below) in order to maximise landscape and ecological benefits. Providing appropriate environmental protection and enhancement therefore forms a key thematic strand of this masterplan strategy and will apply to all development proposals within the STDC area.

Mitigation measures

A purpose-made nesting building should be built in an open area of habitat which is to be retained within the master plan area. The Barn Owl Trust has an example of a wildlife tower which demonstrates the type of building which would be suitable (Figure 2). https://www.barnowltrust.org.uk/barn-owl-nestbox/wildlife-tower/

A wildlife tower is a small building that provides nesting and hibernation opportunities for a range of wildlife, including barn owl, little owl, kestrel, stock dove, swallow, house martin, blue tit, great tit and house sparrow, as well as bats and hibernating invertebrates including peacock and small tortoiseshell butterflies.

The Barn Owl Trust can supply professional architectural drawings in return for a nominal £50 donation (website 2020). This proven design has a footprint of 2 x 2 m, is 4.5 m tall. Low-cost alternatives have been built from reclaimed house bricks and concrete blocks.

Figure 2. Wildlife tower examples

The building should have a concrete foundation (with bare earth in the centre) and stone walls, or concrete blocks, reclaimed bricks and natural stone may be used. The more cavities that can be incorporated, and the rougher the walls, the better.

Wildlife features

East Facing Wall: The barn owl entrance hole is 3.5 metres above ground level and leads into a deep nest box. To maximise chances of occupation the hole should overlook open ground.

West Facing Wall: Kestrels prefer a shallow open-fronted nest cavity. Directly below the kestrel nest is a small hole leading to a small, deep nest box for little owls to use.
A perch is provided just below and in front of each owl hole.

South Facing Wall: on the warmer south-facing wall there are numerous small cavities in the mortar to suit a range of invertebrates.

All Four Walls: on all four sides, the building has a variety of sparrow-sized openings for hole nesting bird species. Stone piles should be left at the foot of the refuge to provide a habitat for amphibians and reptiles.

Interior: the lower half of the building is a hibernation area for bats, designed to be permanently dark, cool and damp with a simple earth floor. A variety of bat species can access this through a wide horizontal slot situated just below the level of an internal floor, which separates the top half of the building from the hibernation area. A second bat hibernation space is accessed through a smaller horizontal slot at the top of the north-facing wall. Breeding bats need a much warmer cavity so the third area for bats (the bat nursery) is situated behind the top of the south-facing wall. This extends right up to the roof tiles and has its entrance hole at the bottom thus trapping warm air.

End

Appendix 1. Building 1

Summary

- **The building is used by barn owls for nesting**
- Barn owls are not currently nesting but may do so from 01 March next year
- The building can be lawfully demolished prior to 01 March 2021
- Mitigation should be provided

The building is a small, brick structure with a flat roof (Figure 1), historically used as an electrical sub-station or similar. It is located at NGR NZ 5737 2452 and is an isolated building within a large area of brownfield land north of Steel House (Figure 2). The north-east facing doorway has a missing door, providing the only opening into the building. A man-made barn owl nest platform with box is situated in the northern corner and it is likely that it has been in place for several years. The central space of the building is dominated by old machinery.

Figure 1. Photograph of the building

Figure 2. Location of Building.

Results

The site visit and building check was undertaken on 12/08/2020. The following observations were made:

- There is good access to the building for barn owls
- The building contains an owl nesting platform and box
- The nesting box was occupied by a feral pigeon (Figure 3)
- On a subsequent visit (09/09/2020) the feral pigeon had been removed from the building and decapitated, most likely by a territorial barn owl (Figure 3)
- The nesting platform contained a considerable build up of droppings, owl pellets and owl nesting detritus
- The interior of the building contained a considerable amount of white splash marks (droppings), typical of barn owl use (Figure 4).
- There was no currently nesting barn owl
- The building is likely to have been used by a pair of barn owls in 2020, with the nesting attempt completed by 12/08/2020

Figure 3. Nesting feral pigeon, before and after being predated

Figure 4. White splash marks (droppings)

End

Appendix 2. Buildings 2A and 2B

Summary

- One of the two buildings is used by barn owls for nesting
- Barn owls are not currently nesting but may do so from 01 March next year
- The buildings can be lawfully demolished prior to 01 March 2021
- Mitigation should be provided

The site

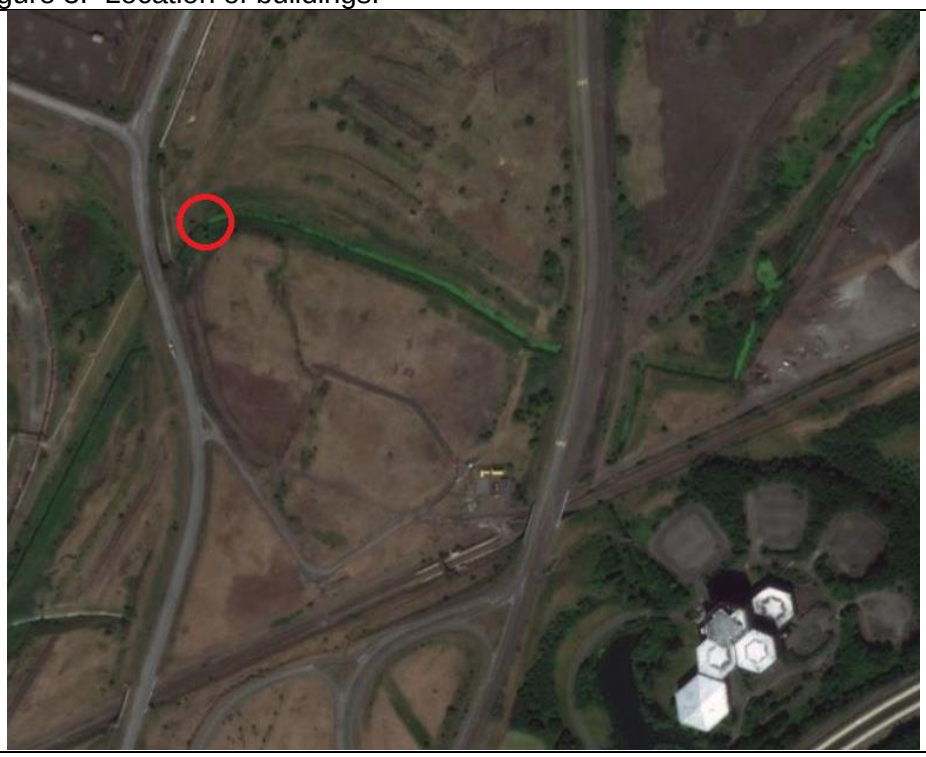
The two buildings are almost identical small, brick structures with a flat roof laid on concrete and steel girders (Figures 1 & 2), historically used as electrical sub-stations or similar. A chimney is located in one corner. The south facing doorways are both open, providing the main way in and out of the building. The South building has three small openings towards the top of the north facing wall.

They are located at NGR NZ 5717 2450 within a large area of brownfield land north of Steel House (Figure 3). A stell runs to the north of the buildings.

Figure 1. Photographs of the buildings (North on left and South on right)

Figure 2.

Figure 3. Location of buildings.



Results

The site visit and building check was undertaken on 09/09/2020. The following observations were made:

- There is good access to both buildings for barn owls
- The North building showed no sign of barn owl occupancy
- The North building contained three swallow nests (Figure 4) and a wren's nest.
- The South building contained a roosting barn owl and is likely to have been used by a pair of barn owls in 2020, with the nesting attempt completed
- The interior of the South building contained a considerable amount of white splash marks and pellets – typical of barn owl use
- There was no currently nesting barn owl in either building

Figure 4. Interior of building showing one of three swallow nests

Figure 5. Wren’s nest

End

Appendix 3. Building 3

Summary

- The building is not used by barn owls for nesting
- The building is used by barn owls for roosting
- The building can be lawfully demolished
- Mitigation should be provided for loss of a barn owl roost site

The site

The building is at NGR NZ 5452-2100, north of Grangetown (Middlesbrough), Figure 1. The building is a former locomotive shed in a very dilapidated condition (Figure 2). It is made of brick, concrete, corrugated iron sheeting, metal struts and glass windows.

Figure 1. Location of Building 1.

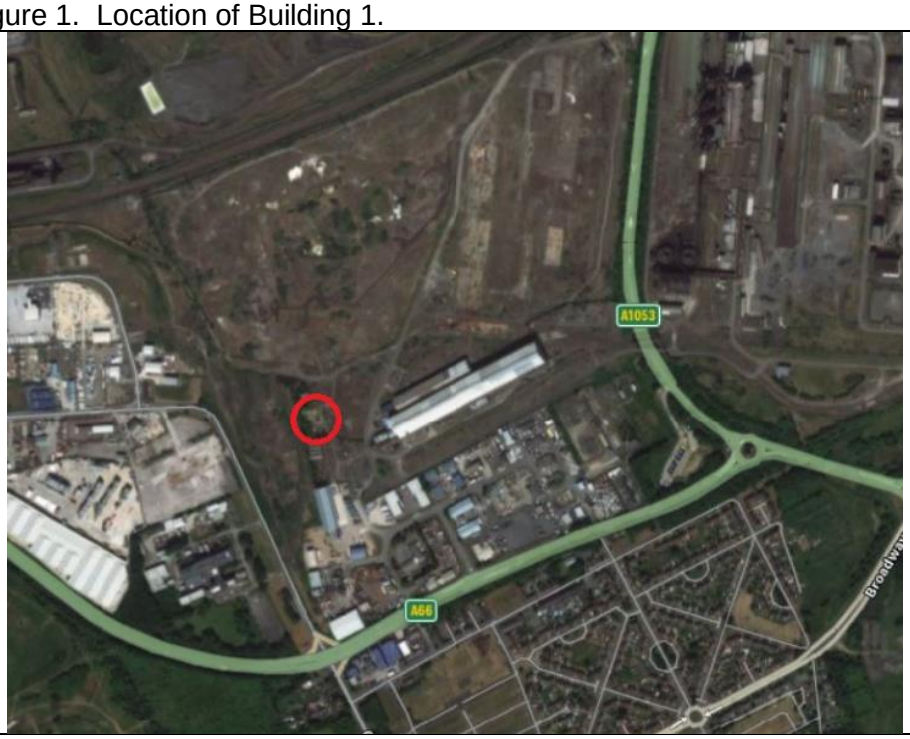


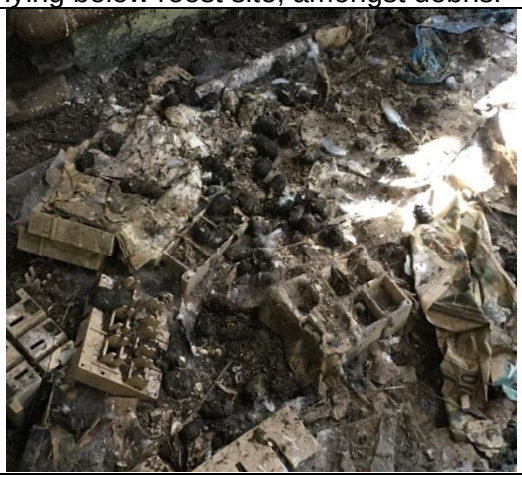
Figure 2. Photographs of the building

Results

The site visit and building check was undertaken on 09/09/2020. The following observations were made:

- There is good access to the building for barn owls
- The building has recently been used by a roosting barn owl
- The building contained a large number of barn owl pellets (Figure 3)
- There was no currently nesting barn owl and no barn owl nest was present
- The building is unlikely to be used by barn owls for nesting

Figure 3. Barn owl pellets lying below roost site, amongst debris.



End

Appendix 4. Building 4

Summary

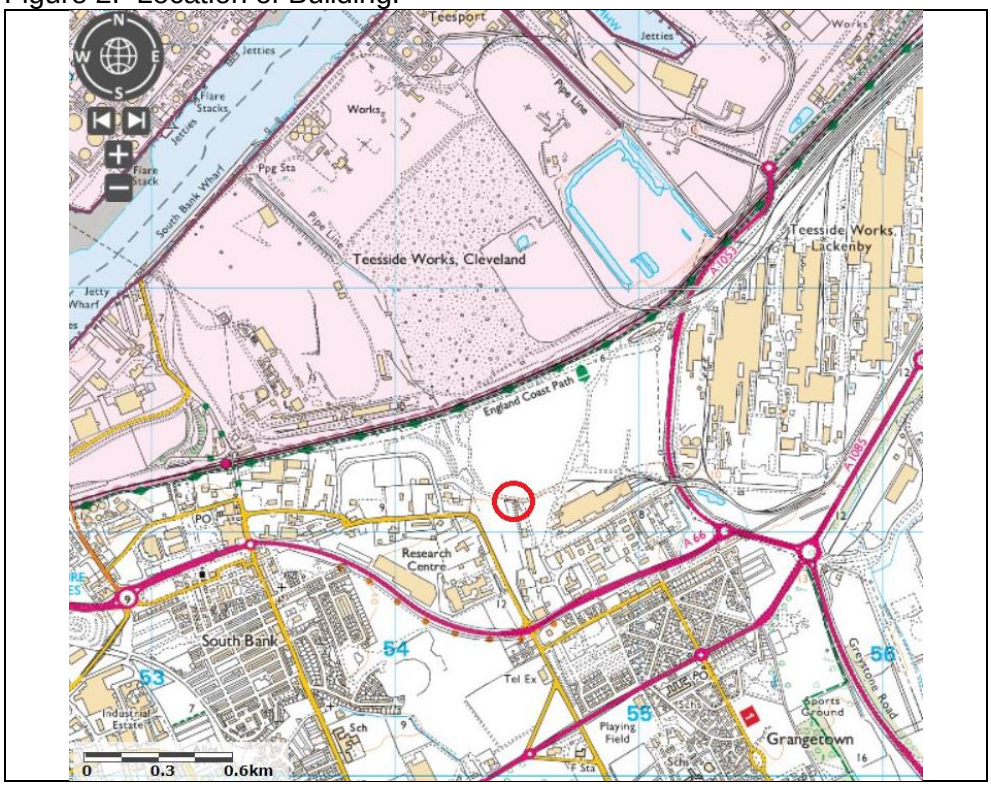
- The building is not used by barn owls for nesting
- The building is used by barn owls for roosting
- The building can be lawfully demolished
- Mitigation should be provided for loss of a barn owl roost site

The site

The building is a mostly, brick structure with a flat roof (Figure 1), and is named as Oxygen Plant in lettering on the east-facing wall. It is located at NGR NZ 5448-2111 and is an isolated building within a large area of brownfield land north of Grangetown (Middlesbrough) (Figure 2). The building is reported to have asbestos inside and all of the access points have been boarded up. The interior of the building was not inspected, however, the supervisor for the visit reported numerous black-coloured owl pellets inside the building and these are from a barn owl. Similar pellets were shown to the supervisor in the locomotive shed to the south, which was surveyed earlier in the visit. As can be seen from the aerial photograph (Figure 2), there are numerous openings in the roof, which provide access and egress for barn owls.

Figure 1. Photograph of the building

Figure 2. Location of Building.



Results

The site visit and building check was undertaken on 12/08/2020. The following observations were made:

- There is good access to the building for barn owls
- The building has recently been used by a roosting barn owl
- The building contained a large number of barn owl pellets
- There was no currently nesting barn owl and no barn owl nest was present
- The building is unlikely to be used by barn owls for nesting

End

Appendix D4: UK Habitats Classification – Habitat Survey Map

Legend

- Sites
- g3c - other neutral grassland
- g3c5 - Arrhenatherum neutral grassland
- g3c6 - Lolium-Cynosurus neutral grassland
- f2 - fen, marsh and swamp
- u1a - open mosaic habitats on previously developed land
- s - sparsely vegetated land
- g3c - other neutral grassland
- g4 - modified grassland
- w1g - other woodland-broadleaved
- w1h - other woodland mixed
- f2e - reedbeds
- u - urban
- u1a - open mosaic habitats on previously developed land
- u1b - developed land. sealed surface
- u1b5 - buildings
- u1c - artificial unvegetated unsealed surface
- s - sparsely vegetated land
- r1 - standing open water and canals
- r1a - eutrophic standing waters
- r2 - rivers and streams