Harts Farm Way, Havant

Habitats Regulations Assessment – APP/21/00189

Produced for Clowes Developments (UK) Ltd

By Applied Ecology Ltd

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Summary

- This report details a Habitats Regulations Assessment completed to support a planning application for industrial development on an area of land off Harts Farm Way, Havant (planning application reference APP/21/00189), referred to hereafter as "the Site". The HRA is required principally with respect to the potential impact of the proposed development on Chichester and Langstone Harbours Special Protection Area (SPA).
- The Development Site is located 170 m to the north of Chichester and Langstone Harbours SPA, but the proposed development will have no direct impact on the SPA. The European site conservation objectives for Chichester and Langstone Harbours SPA have been reviewed and assessed with respect to the development proposal, and none would be adversely impacted by the proposal.
- The Development would result in the loss of a single Solent Wader and Brent Goose Strategy (SWBGS) Low Use Site (referred to as H08). H08 has not supported SPA qualifying bird species since 2007/08 and appears to have been unsuitable for qualifying species since 2011. H08 represents less than 0.1% of the entire SWBGS network of sites along the south coast, and while H08 remains a potential part of the SWBGS site network, its loss would not be significant in terms of maintaining the integrity of the overall SWBGS network. To compensate for its loss, a financial contribution by the developer, secured by a section 106 agreement, will be made to the SWBGS and, as per the SWBGS Mitigation Strategy, managed by the local authority to enable habitat creation, enhancement or management for the benefit of SPA qualifying features elsewhere within the Solent area.
- The potential for the Development to result in adverse impacts on adjoining SWBGS sites and the overall integrity of the SPA and as a result of increased levels of lighting and construction and operational noise have been assessed and no significant adverse impacts are predicted to occur.
- The potential for the Development to result in adverse impact on the SPA as a result of direct or direct adverse changes to water quality to the adjoining Hermitage Stream has been assessed by quantitative modelling. This concluded that the reduced infiltration rates post development would reduce the concentrations of ammonium (and by de facto other nitrogen species) within the Hermitage Stream by approximately 50%. Operationally, the development will discharge foul water via a mains foul drainage system connection to Southern Water which would not result in an adverse impact on the water quality of the SPA. Risks associated with hydrocarbon impacts post development will be mitigated by the installation of a dedicated surface water drainage system with appropriate interceptors. The considered overall net result of the operational phase is a minor positive impact on the water environment.
- We conclude that the development, given its location, design and the mitigation proposed, will not result in any significant direct or indirect adverse impact on any of the qualifying features of Chichester and Langstone Harbours SPA, and the ecological integrity of the SPA will be unaffected by the Development.

1 Introduction

Background

1.1 Natural England (NE) has requested that a Habitats Regulations Assessment (HRA) is completed to support a planning application for industrial development on an area of land off Harts Farm Way, Havant (planning application reference APP/21/00189), referred to hereafter as "the Site". The HRA is required principally with respect to the potential impact of the proposed development on **Chichester and Langstone Harbours Special Protection Area (SPA)**. The proposed development layout is provided in **Appendix A** and a Landscape Sections Plan is provided in **Appendix B**.

1.2 The Site is allocated for development for employment uses within the adopted Development Plan for Havant Borough, and the principle of this development is supported by the Local Planning Authority.

1.3 This report is provided to aid the competent authority (Havant Borough Council) in undertaking the HRA in accordance with the Conservation of Habitats & Species Regulations 2017.

1.4 The development being proposed (the "Development") is for new employment units to provide up to 29,000 m^2 (gross internal area) for flexible use across use classes E (light industrial), B2 and B8 with ancillary offices, car parking, service yards, drainage works, landscaping and associated works to prepare the Site for development. All matters are reserved except the primary means of access to the Site.

1.5 There are a range of designated sites of international significance within the Solent, comprising three Special Protection Areas, each of which is also designated as Wetland of International Importance under the Ramsar Convention (commonly known as Ramsar sites). These three sites, **Solent and Southampton Water SPA**, **Portsmouth Harbour SPA** and **Chichester and Langstone Harbours SPA**, are of European importance for wintering wildfowl and waders.

1.6 Much of the area is also designated as the **Solent Maritime Special Area of Conservation** (SAC).

1.7 The location of the Site in relation to these designated sites is shown by **Figure 1.1**.

1.8 The development Site is located 170 m to the north of Chichester and Langstone Harbour SPA, as shown by **Figure 1.2**.

1.9 Part of the Site is covered by a non-statutory designation known as a Solent Wader and Brent Goose Strategy (SWBGS) site, as shown by **Figure 1.3**. Historical records and survey work completed by AEL have shown that the Site itself is not used by wintering wildfowl or waders; however, the Site forms part of the complex of SWBGS coastal grassland sites located outside the SPA that have been identified as having varying degrees of importance to the maintenance of the wader and brent goose populations of the SPA.

Chichester and Langstone Harbours SPA

1.10 Chichester and Langstone Harbours SPA covers 5,812 ha of intertidal habitat and coastal grassland habitat and is made up of two component Sites of Special Scientific Interest (SSSI): Chichester Harbour SSSI and Langstone Harbour SSSI. The SPA is assigned international importance because it regularly supports more than 10,000 wintering wildfowl and also regularly supports more than 20,000 wintering waders.

1.11 The SPA qualifies under article 4.2 of the Directive (79/409) as it supports internationally important numbers of the following species: grey plover *Pluvialis squatarola* (3.9% of the west European population), shag *Phalacrocorax aristotelis* (3.1%), dunlin *Calidris alpina* (2.6% and over 20,000 birds), redshank *Tringa totanus* (1.4%), brent goose (12%), shelduck *Tadorna tadorna* (4%), and teal *Anas crecca* (1%).

1.12 The SPA also supports nationally important wintering numbers of the following migratory bird species: ringed plover *Charadrius hiaticula*, curlew *Numenius arquata*, bar-tailed godwit *Limosa lapponica*, turnstone *Arenaria interpres*, wigeon *Anas penelope*, pintail *Anas acuta*, shoveler *Anas clypeata*, and red-breasted merganser *Mergus serrator*.

1.13 The SPA also qualifies under article 4.1 of the Directive (79/409) because it supports breeding populations of the following bird species: common tern *Sterna hirundo*, sandwich tern *Sterna sandvicensis*, and little tern *Sternula albifrons*.

Relevant qualifying features

1.14 The SPA qualifying feature of particular relevance to the Site is considered to be brent goose, as this species will use grasslands surrounding the estuary for foraging. Impacts on other qualifying features, in particular the overall assemblage of wintering wildfowl and waders will be considered where relevant.

European Site Conservation Objectives for Chichester and Langstone Harbours SPA

1.15 In order to maintain the integrity of the SPA, and to achieve the Favourable Conservation Status of its Qualifying Features (listed above), the following factors need to be considered as part of the HRA:

- The extent and distribution of the habitats of qualifying features;
- The structure and function of the habitats of qualifying features;
- The supporting processes on which the habitats of qualifying features rely;
- The population of each of the qualifying features; and
- The distribution of qualifying species within the site.

Solent Wader and Brent Goose Strategy

1.16 The Solent Wader and Brent Goose Strategy relates to the internationally important brent goose and wading bird populations within and around the SPAs and Ramsar wetlands of the

Solent Coast[1]. It aims to identify a network of sites outside of the protected areas and make recommendations in order to protect the integrity of this network of sites.

1.17 A total of 1,036 potential sites known to be used in the past or considered potentially suitable (due to their location or habitat) were identified and mapped, but a number of these have been excluded from the scheme due to changes in land use or apparent unsuitability. The most recent review (2019) of these sites identified 894 sites of varying importance, as shown in **Appendix C**. Of these, 802 sites had records of waders and 649 had records of brent geese. These are allocated to the following categories, in descending importance for brent geese and waders as measured by a range of metrics: SPA Sites, Core Areas, Primary Support Areas, Secondary Support Areas, Low Use Sites and Candidate Sites.

1.18 The western part of the Site is covered by SWBGS site H08. Historic data indicate that small numbers of brent goose used this part of the Site in the winter of 2007–08 and the site is classified by the SWBGS as a Low Use Site (a site that has records of birds, but in low numbers). The maximum number of brent geese recorded on the Site in 2007–08 was 69 birds which represents circa 0.2% of the estimated total of the Solent wintering geese population.

1.19 The eastern part of the Site was formerly covered by SWBGS site H07D, but with no history of brent goose or wader records from this site it has subsequently been removed from the strategy.

1.20 Since the winter of 2007–08 repeat winter survey visits for geese and waders have been completed within the Site, most recently by AEL during January–March 2021, but none of these surveys have ever reported a positive record for brent geese, indicating brent goose absence since it was first noted on the Site in 2007/08.

1.21 In summary, the Site appears to have been unsuitable for brent geese since at least 2011, most likely due to habitat changes, a lack of grassland management, and increasing recreational disturbance.

1.22 Low Use Sites have the potential to be used by waders or brent geese and therefore the potential to support the existing network and provide alternative options and resilience for the future network. The in-combination loss of such sites is considered to impact the continued ecological function of the wader and brent goose network[2].

1.23 The SWBGS sites H07A, H07B and H07C lie in relative proximity to the Site, within Broadmarsh Coastal Park and between the Site and the SPA. Of these, H07A is identified as a Primary Support Area, H07B is a Secondary Support Area, and H07C is a Low Use Site (see **Figure 1.2**), although during five survey visits within two hours of high tide during January–March 2021, an AEL survey found no evidence of brent goose or other waterbirds using any of these sites.

1.24 As with H08, all three of these sites currently appear to be of suboptimal value to brent geese or roosting waders, primarily due to the significant amounts of recreational disturbance from dog walkers, relatively small field sizes and mature boundary vegetation which limits sight lines. The most recent survey data, provided by the Hampshire

[1] Whitfield, D. (2020) *Solent Waders and Brent Goose Strategy.* Hampshire and Isle of Wight Wildlife Trust. Curdridge.

[2] Solent Wader and Brent Goose Strategy Steering Group (2018) *Solent Waders and Brent Goose Strategy – Guidance on Mitigation and Off-setting Requirements – Final Report.* SWBGS Steering Group.

Biodiversity Information Centre, did show some use of these sites by oystercatcher *Haematopus ostralegus* brent geese during the winter of 2016/17.

1.25 All three sites have the potential to be of greater value to wintering waterbirds in the future, but this would require changes in habitat management and levels of public access.

1.26 The loss of the Low Use Site H08 will require a financial contribution to the SWBGS as compensation. This contribution will be used to support schemes across the network, including those in neighbouring authorities, and the precise nature of the habitat creation or management delivered will be at the discretion of the relevant local authority.

Brent Goose Ecology

1.27 The brent goose is a winter visitor to the Solent and is of high international nature conservation importance. Following several decades of low population levels numbers increased to a peak in the early 1990s, after which a general downward trend has been observed. The most recent population estimates give a total of 98,000 wintering in the UK (Frost *et al* 2019)[3].

1.28 It is estimated that the Solent supports about 10–13% of the world population of dark-bellied brent geese and about 30% of the UK population (Stillman *et al*, 2009)[4]. During the winter of 2007–08, the maximum number of brent geese recorded within the Site (H08) was 69 birds on one survey occasion which represents circa 0.2% of the Solent wintering population. Since this time no positive brent geese records have been reported within the Site.

1.29 Brent geese arrive in the UK from mid-September with numbers reaching a peak in January, and most departing by late-February. Brent geese traditionally winter on coastal mud flats and saltmarsh, feeding on eelgrass and other species of the intertidal zone; however, since the 1950s, brent geese have diversified their feeding habits to include farmland with cereals and pasture and amenity grassland. Brent geese feed in daylight and use terrestrial feeding sites most frequently at high tide.

1.30 The suitability of a grassland site for brent geese depends on a number of factors, including proximity to the coast, the size of the available grazing area, the type of grassland management, visibility, and disturbance.

1.31 Most sites used by brent geese are within 5 km of the coast and are large, open fields with clear sight lines (McKay *et al*, 1996[5]; Hampshire Brent Goose Strategy Group, 2020). Brent geese prefer large field sizes and avoid smaller fields, with a study in North Norfolk finding a mean size of 5 ha being the minimum size required (Summers and Critchley, 1990)[6].

[3] Frost, T., Austin, G., Hearn, R., McAvoy, S., Robinson, A., Stroud, D., Woodward, I., and Wotton, S. (2019) *Population estimates of wintering waterbirds in Great Britain*. British Birds 112: 130–115.

[4] Stillman, R.A., Cox, J, Liley, D., Ravenscroft, N., Sharp, J., and Wells, M. (2009) *Solent disturbance and mitigation project: Phase 1 report.* Solent Forum.

[5] McKay, H.V., Langton, S.D., Milson, T.P., and Feare, C.J. (1996) *Prediction of field use by brent geese: an aid to management.* Crop Protection 15(3): 259–268.

[6] Summers, R.W. and Critchley, C.N.R. (1990) *Use of grassland and field selection by brent geese Branta bernicla.* Journal of Applied Ecology, 27(3): 034–046.

1.32 On coastal grassland, short grass is preferred (McKay *et al*, 1996), and fields with the fewest thistles are also preferentially selected by foraging geese. The addition of fertilisers significantly improves the attractiveness of sites to brent geese.

1.33 Brent geese are also sensitive to disturbance, such as that from walkers with or without dogs, and avoid sites where such disturbance is too great (Riddington *et al*, 1996[7]; Hampshire Brent Goose Strategy Group, 2020).

1.34 Summary of brent goose habitat preferences on coastal grassland:

- Large sites / fields with good sight lines – fields heavily enclosed by trees or buildings being avoided;
- Short grass <12 cm, but typically <5 cm if not heavily fertilised, with longer swards and those with many thistles avoided;
- Free from disturbance.

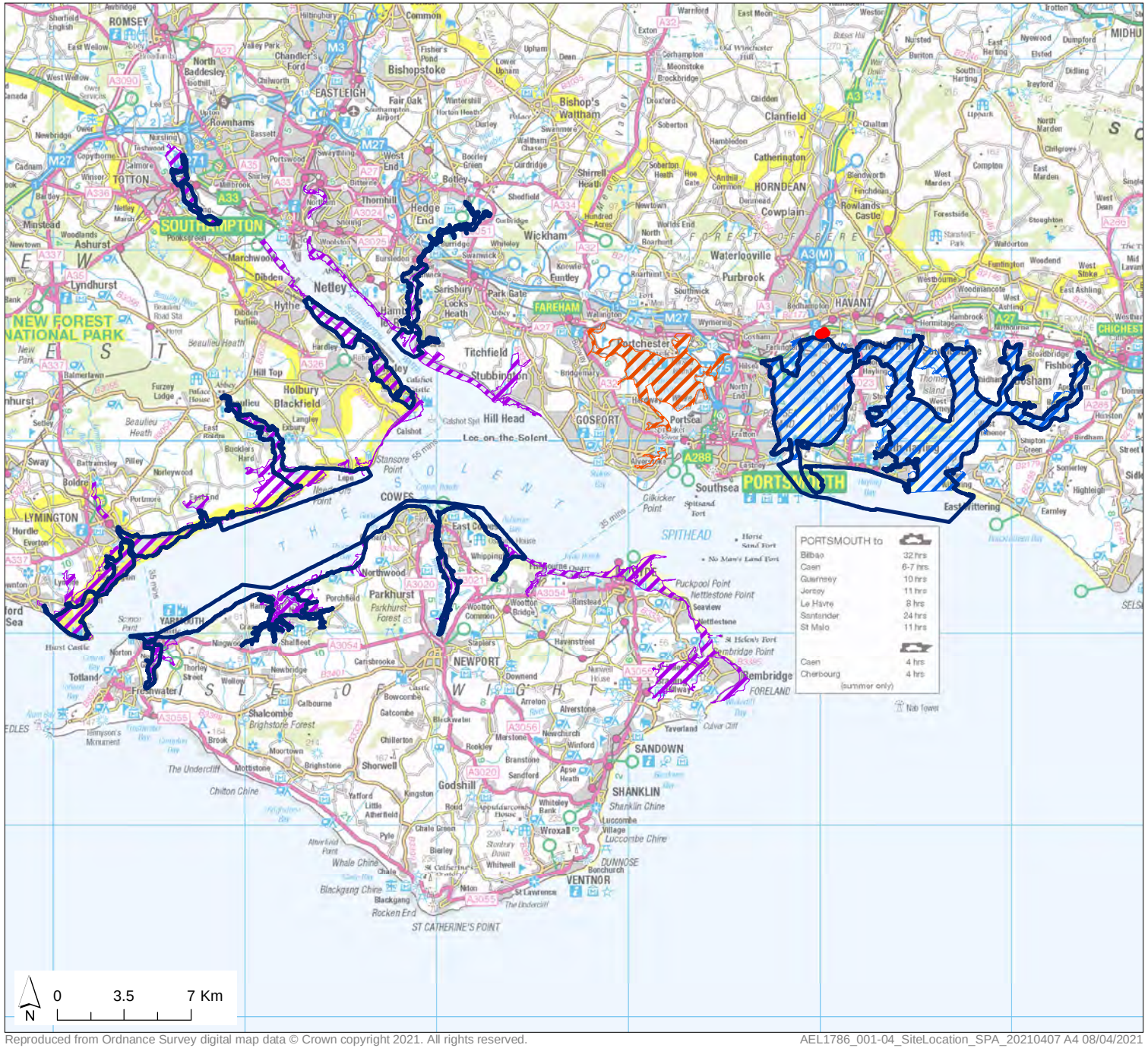
Wader Ecology

1.35 Significant number of wading birds of various species winter on the Solent, with the overall assemblage exceeding 90,000 birds annually.

1.36 The pattern of movement of wintering wader communities is dependent on a number of factors including time of day, tidal water movements and weather conditions. Waders typically roost at high tide and feed at low tide when intertidal mud is exposed. Typical roost sites include saltmarsh areas, shingle banks and coastal grasslands. Roost sites are typically within 100 m of mean high water and are usually situated away from sources of disturbance and have good visibility. Some wader species, including redshank and curlew, both qualifying features of the SPA, will feed on wet coastal grassland.

1.37 Wader species that make some use of coastal grassland, either for roosting at high tide, often on the highest tides when more usual roost sites are covered, or in some cases as a foraging resource, include the following qualifying features of the SPA:

[7] Riddington, R., Hassall, M., Lane, S.J., Turner, P.A., and Walters, R. (1996) *The impact of disturbance on the behaviour and energy budgets of Brent Geese Branta bernicla*. 43: 269–279.



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AEL1786_001-04_SiteLocation_SPA_20210407 A4 08/04/2021

Harts Farm Way, Havant

Site location and Solent internationally important designated sites

- Site boundary
- Solent Maritime SAC
- Chichester and Langstone Harbours SPA and Ramsar
- Portsmouth Harbour SPA and Ramsar
- Solent and Southampton Water SPA and Ramsar

Figure 1.1

Map Scale @ A4: 1:300,000

Surveyed by: n/a	
Survey date: n/a	
Drawn by: RD	
Checked by: DP	
Status: Final	

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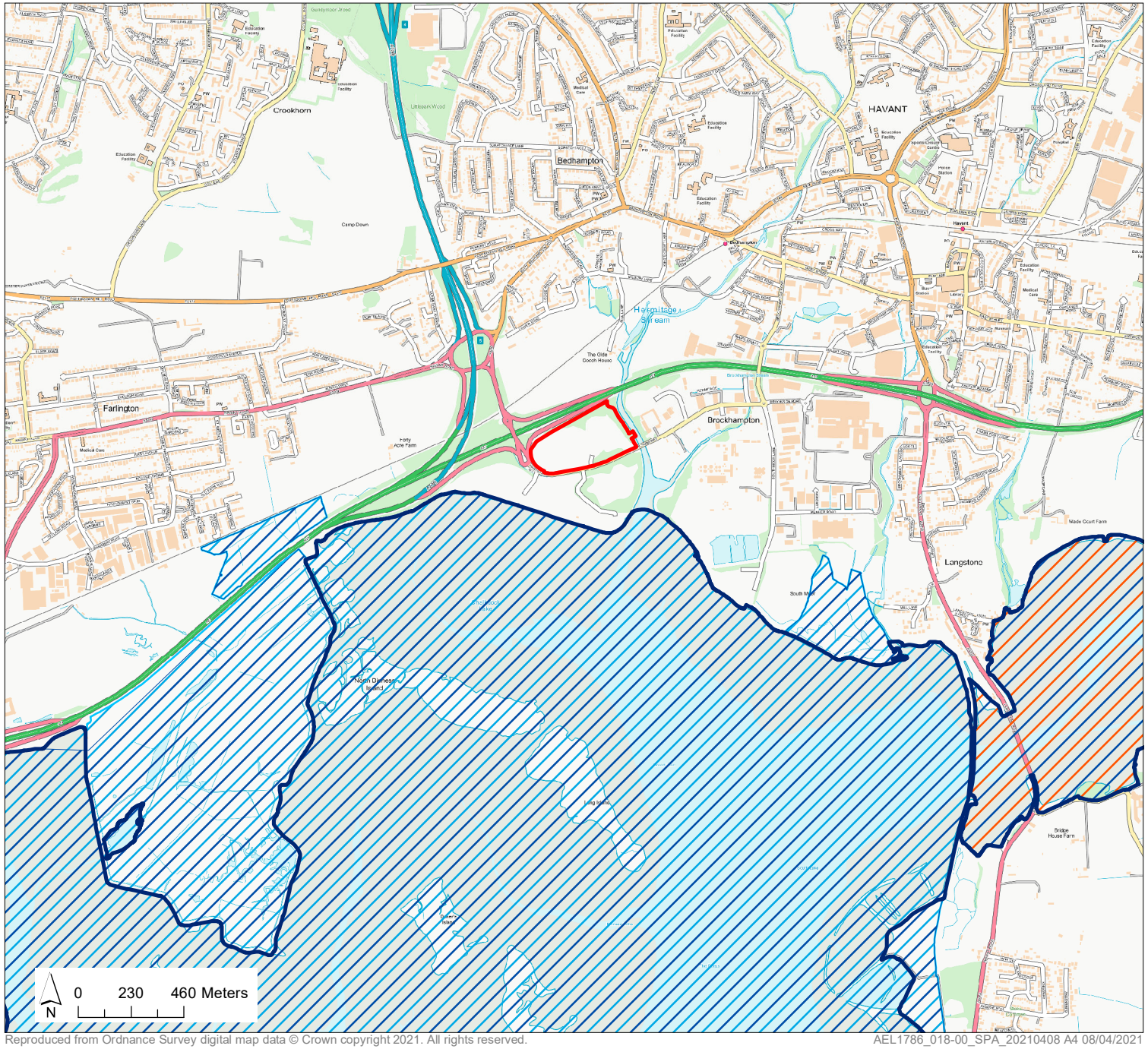

Harts Farm Way, Havant

Chichester and Langstone Harbours SPA

- Site boundary
- Chichester and Langstone Harbours SPA
- Chichester Harbour SSSI
- Langstone Harbour SSSI
- Solent Maritime SAC

Figure 1.2

Map Scale @ A4: 1:25,000

Surveyed by: n/a	Applied Ecology Ltd
Survey date: n/a	
Drawn by: RD	
Checked by: DP	
Status: Final	

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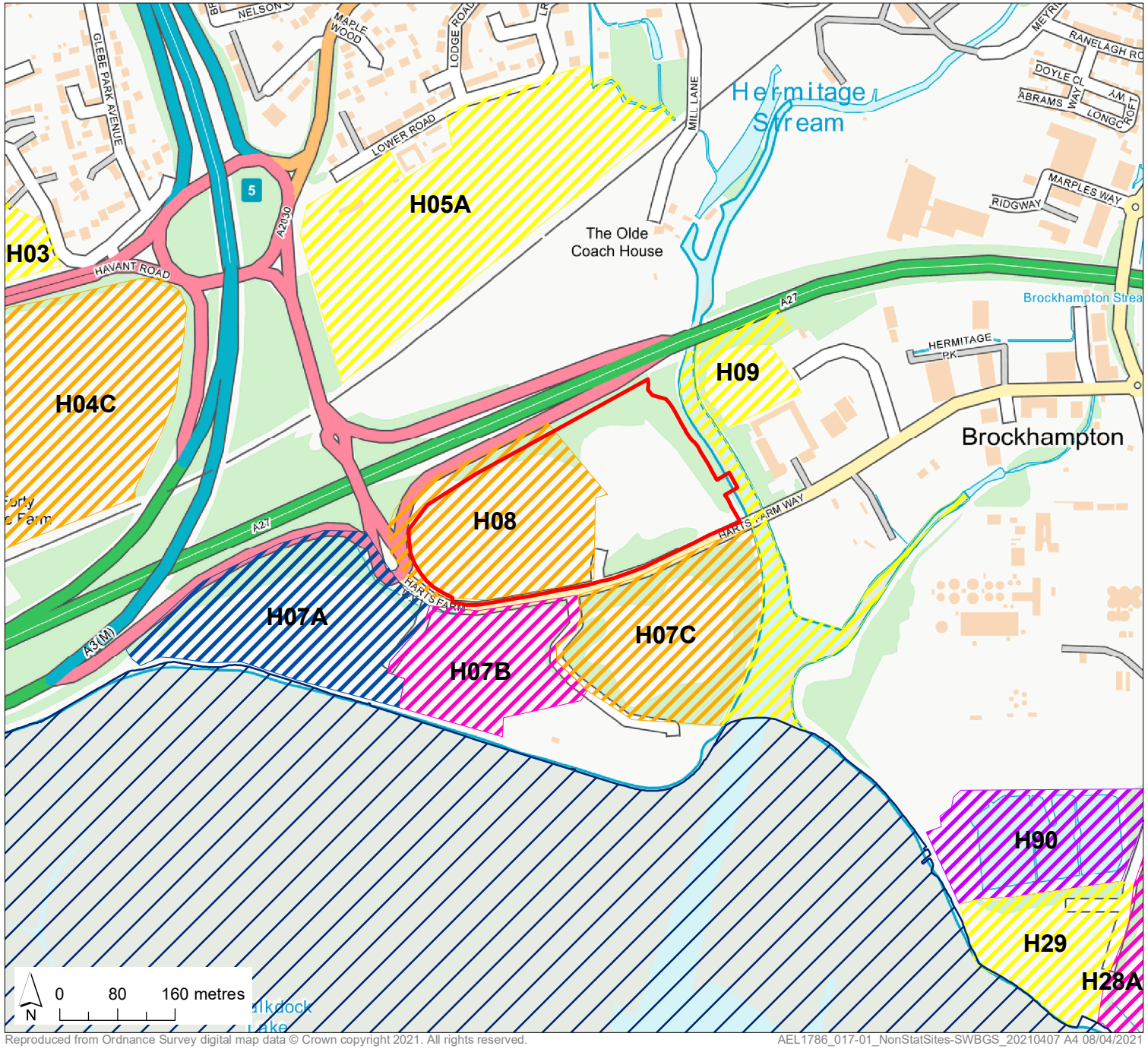

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AEL1786_017-01_NonStatSites-SWBGS_20210407 A4 08/04/2021

Harts Farm Way, Havant

SWBGS sites

- Site boundary
- Chichester and Langstone Harbours SPA and Ramsar
- Core Area
- Primary Support Area
- Secondary Support Area
- Low Use Site
- Candidate Site

Figure 1.3

Map Scale @ A4: 1:8,000

Surveyed by: n/a	
Survey date: n/a	
Drawn by: RD	
Checked by: DP	
Status: Final	

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2 Habitats Regulations Assessment

Background

2.1 In order to maintain the integrity of the Chichester and Langstone Harbours SPA, and to achieve the Favourable Conservation Status of its Qualifying Features, the following factors need to be considered and assessed in relation to the development proposal:

- The extent and distribution of the habitats of the qualifying features;
- The structure and function of the habitats of the qualifying features;
- The supporting processes on which the habitats of qualifying features rely;
- The population of each of the qualifying features; and
- The distribution of qualifying species within the site.

2.2 These factors are considered in turn below with respect to the development, drawing on Natural England's supplementary advice regarding the European Site Conservation Objectives relating to Chichester and Langstone Harbours SPA[8], which lists the following relevant attributes in association with the relevant qualifying features, which are considered to be those which best describe the site's ecological integrity and which if safeguarded will enable achievement of the Conservation Objectives:

- Connectivity with supporting habitats;
- Disturbance caused by human activity;
- Non-breeding population: abundance;
- Supporting habitat: air quality;
- Supporting habitat: conservation measures;
- Supporting habitat: extent and distribution of supporting habitat for the non-breeding season;
- Supporting habitat: food availability;
- Supporting habitat: vegetation characteristics for feeding;
- Supporting habitat: water quality – contaminants;
- Supporting habitat: water quality – dissolved oxygen;
- Supporting habitat: water quality – nutrients; and
- Supporting habitat: water quality – turbidity.

[8] Natural England (2019) *European Site Conservation Objectives: supplementary advice on conserving and restoring site features. Eversden and Wimpole Woods Special Area of Conservation (SAC)* Site code: UK9011011.

The extent and distribution of the habitats of qualifying features

2.3 This relates to the extent and distribution of suitable habitat (either within or outside the SPA boundary) which supports the features for all necessary stages of the non-breeding / wintering period (moulting, roosting, loafing, feeding). The areas of importance for waterbirds around the SPA are indicated by the SWBGS.

2.4 Brent geese typically use short-sward, improved or amenity grassland for foraging when high tides prevent access to their favoured intertidal seagrass beds, while waders will use grassland fields adjacent to the coast for roosting.

2.5 The Site lies outside the SPA, and as such the proposed development will have no direct impact on the extent and distribution of designated habitats that support any of the qualifying features within the SPA.

2.6 Historically small numbers of brent geese have used the Site and consequently part of the Site has been designated as a Low Use SWBGS site referred to as H08. H08 represents less than 0.1% of the total area covered by SWBGS network of sites along the south coast (see Appendix C) and as such, the loss of H08 to the Development constitutes a negligible impact on the extent and distribution of SWBGS sites.

2.7 H08 once supported small numbers of brent geese in the winter of 2007/08, but since this time conditions have changed that limit the value of H08 for brent geese and waders and no further use of H08 by the SPA qualifying species has been recorded by monitoring surveys. The Site is relatively enclosed by mature boundary trees and scrub, which limit goose sight lines within the Site, and the grassland consists of an unmanaged, long sward containing ruderal species unpalatable to brent geese. These two factors, along with the frequent use of the Site for recreational purposes, principally dog walking, explain why H08 has not had SPA qualifying species recorded within it for over 13 years.

2.8 In summary, it has been demonstrated, through historic records, field survey and an analysis of the suitability of the habitats present for SPA qualifying features, that SWBGS site H08 is of negligible importance for brent geese or any wader species. The proposed development will, therefore, have no bearing on the extent and distribution of the habitats of qualifying features of the SPA.

2.9 As compensation for the loss of the Low Use Site H08 and its potential to contribute to the SWBGS network, a financial contribution, secured by a section 106 agreement, will be made by the developer as required by the SWBGS to facilitate the creation, enhancement or management of suitable habitat of value to waders and brent geese elsewhere within the SWBGS network as per the SWBGS Mitigation Strategy:

2.10 "The funding secured, via section 106 agreements, will be used to enhance, manage and monitor the wider Solent wader and brent goose ecological network. This funding will be managed by the respective local authority and will be used to support schemes across the network, this includes those in neighbouring authorities".

The structure and function of the habitats of qualifying features

2.11 The structure and function of the habitats of the qualifying features relates to the need to maintain the estuarine and coastal grassland habitats, both within and outside the SPA, such that they provide suitable feeding and roosting habitat for the qualifying bird species. In terms of brent geese this relates to maintaining suitable feeding (intertidal mud, saltmarsh and coastal improved grassland) and roosting areas (open water) free from disturbance and with good visibility.

2.12 The Site lies outside the SPA, and as such the proposed development will have no direct impact on the structure and function of intertidal, saltmarsh or improved grassland habitats that support any of the qualifying features within the SPA.

2.13 The Site is partially covered by SWBGS Low Use Site H08. Although designated as such due to historic records of small numbers of brent geese using the site in 2007/08, it has been demonstrated that the site no longer supports habitat of suitable structure and function to support this species.

2.14 The individual attributes relevant to the structure and function of the habitats of qualifying species are addressed in turn below.

Landscape

2.15 This relates to the preference of brent geese, as well as several other SPA qualifying bird species, for large areas of open terrain, largely free of obstructions in and around roosting and feeding areas, with uninterrupted lines of sight within roosting or feeding habitat to detect approaching predators.

2.16 The relatively enclosed nature of the Site, in addition to the type of grassland present, is likely to be a key reason for the unsuitability for of the Site for wintering brent geese and wading birds. The historic records of brent goose at the Site occurred at a time when the boundary trees and scrub were largely absent or of much reduced extent and the site less enclosed than it currently is.

2.17 The proposed development will, therefore, have no impact on the landscape in relation to any qualifying feature.

Vegetation characteristics for feeding

2.18 This relates to the need to maintain the extent and distribution of predominantly short (<10 cm) grassland swards in areas used for feeding by brent geese.

2.19 **The grassland at the Site comprises an unmanaged, long sward, that contains ruderal species unpalatable to brent geese and is, along with the increased obstruction of sight lines with boundary trees and scrub, likely to be a key reason for the apparent unsuitability of the Site for wintering brent geese. The historic records of brent goose at the Site occurred at a time when the grassland was younger, subject to management and of shorter sward length.**

2.20 **The proposed development will, therefore, have no impact on the availability of short-sward grassland.**

Food availability

2.21 This relates to the distribution, abundance and availability of key food items. Main food resources for brent goose can be found within the saltmarsh, intertidal and improved grassland habitats within and around the SPA.

2.22 As described above, the grassland at the Site is unsuitable for feeding brent geese due to its lack of regular management, resulting in a long sward, rank structure and presence of ruderal species unpalatable to brent geese.

2.23 The proposed development will not cause any reduction in the availability of food resources to brent goose, or any other qualifying feature.

The supporting processes on which the habitats of qualifying features rely

Air quality

2.24 This relates to the potential sensitivity of the structure and function of the habitats on which the qualifying features rely to changes in air quality.

2.25 The proposed development will not be a significant contributor to air pollution affecting the SPA and will therefore have no significant adverse impacts on the habitats on which the SPA qualifying features rely.

Connectivity with supporting habitats

2.26 This relates to the ability of qualifying features to safely and successfully move between feeding and roosting areas, both within and outside the SPA.

2.27 The Site includes a SWBGS Low Use Site (H08) which will be lost, thereby resulting in a degradation of the overall connectivity of the SWBGS network. H08 represents <0.1% of the entire SWBGS network and, as such, its loss is not likely to significantly adversely impact the connectivity of the network. Additionally, the financial contribution made towards the SWBGS as compensation for the loss of H08 will potentially allow improvement or expansion of the network. The proposed Development will therefore not significantly adversely impact the connectivity between the supporting habitats of any qualifying feature.

Conservation measures

2.28 This relates to the need for active and ongoing conservation management to maintain the structure, function and supporting processes associated with the qualifying features and their supporting habitat, either within or outside the SPA boundary.

2.29 The Site has never been subject to conservation management that may benefit the SPA qualifying features. Beneficial conservation management would include grassland management, removal/management of boundary trees and scrub to open-up goose

sightlines from the centre of the Site, and restrictions of public access to limit recreational disturbance during the winter months.

2.30 The proposed development will, therefore, not negatively impact any conservation management measures relating to any qualifying feature.

Disturbance caused by human activity

2.31 This relates to the potential of human activities to disturb feeding or roosting birds at a level that may substantially affect their behaviour, and consequently affect the long-term viability of a population. The Solent Disturbance and Mitigation Project found that a significant effect on the SPA arising from new housing development around the Solent could not be ruled out and avoidance and mitigation measures are required for all residential development within 5.6 km of the SPA. Evidence from monitoring suggests that disturbance levels are having a significant effect of the qualifying features of the SPA.

2.32 Disturbance associated with human activities may take a variety of forms, including noise, light, vibration, trampling, and the presence of people, animals and structures.

2.33 The proposed development is industrial in nature it is unlikely to generate significant additional recreational pressure on the SPA or its adjoining SWGBS sites in the winter months. However, the possibility of indirect impacts on SPA qualifying features through sound and vibration during the construction phase, and light impacts during the operational phase of the development, are possible due to the proximity of the Site to SWBGS sites to the south.

2.34 Direct visual disturbance from the Site can be discounted due to the development design, which will incorporate a 5 m high bund and extensive vegetation screening around the southern and western boundaries of the Site – see Landscape Sections Plan in Appendix B.

Light disturbance

2.35 The predicted lux levels resulting from the proposed development are provided in Appendix D. The lux level plan shows that the design of the lighting scheme, screening bund and vegetation will limit the amount of light spill beyond the development footprint to negligible levels. No significant light spill is predicted to impact any habitat relied upon by any qualifying features, either within or outside the SPA.

Noise / vibration disturbance

2.36 Research carried out by Wright *et al* (2010) investigated the effect of impulsive noise on waterbirds and identified a range of noise levels which cause a behavioural response. Based on this and other studies, a noise level of 70 dBA has been widely used as a suitable threshold to indicate a level of effect where disturbance due to noise may cause a behavioural effect.

2.37 Since this time Natural England (NE) has advised that this threshold is no longer acceptable and that consideration should be given to changes in noise levels as a result of the development. NE proposes that both background (L_{A90}) and maximum (L_{Amax}/L_{A01}) noise levels to which birds are exposed are taken into account when assessing the impacts of future noise sources.

2.38 With regards to impulsive/sporadic events, such as percussive driven piling, the guidelines are as follows:

- **In the case of sporadic noise, a greater than 3 dBA increase in peak noise might be a useful and sufficiently precautionary rule-of-thumb when considering the likelihood of a significant effect.**
- **With regards to continuous noise sources, as a rule of thumb, increases of 3 dBA or more above existing levels could be significant.**

2.39 Noise and vibration impacts associated the operational stage of the development have been assessed in detail by a noise assessment[9], which concluded that the operational impact on the adjacent SWBGS sites (and by extension, the SPA), will be below the suggested criteria for disturbance suggested by NE and are therefore no significant. The impacts of construction-related noise were also assessed. In particular, the noise associated with the use of percussive driven piles for a limited time period during the groundworks and foundations stage of the development.

2.40 The main impact from piling activity will be a potential increase in peak noise levels at a maximum distance of 100 m from the piling location where the existing maximum noise levels are currently 71 dBA. Piling noise could be as high as 77 dBA which would represent an increase in 6 dBA above the existing maximum noise level in this location and would constitute a significant increase that could result in disturbance to geese and wading birds. Figure 2.1 highlights the 100 m maximum noise contour beyond which noise levels would be at or below the existing maximum noise peak.

2.41 In summary, any goose or wading bird making use of the land along the 100 m contour could be disturbed by the piling activity. The 100 m maximum pile noise contour covers land that would not be used by SPA qualifying bird species – namely road edge, plantation woodland, scrub or grassland close to the road edge, and it can be concluded that the theoretical impacts of noise generated by percussive piling on SWBGS sites H07B and H07C is likely to minor/negligible and unlikely to result in significant disturbance impacts on qualifying species use of H07B and H07C.

2.42 As highlighted in the noise assessment report, the use of noise mitigation measures will be employed, in line with good industry practice, to limit the impacts of construction and operational noise disturbance on the adjacent land including the following:

- **Where possible, locating plant so that it is screened from receptors by on-site structures, such cabins.**
- **Siting stationary plant away from the southern boundary of the site.**
- **Using localised screening to shield receptors from particularly noisy equipment/activities;**
- **Using modern quiet equipment and ensuring such equipment is properly maintained and operated by trained staff;**
- **Applying silencers/enclosures to particularly noisy equipment where possible.**

[9] Sharps Redmore (2021) *Noise Assessment – Harts Farm Way, Havant.* Unpublished report to Clowes Developments UK Ltd.

Hydrology / flow within intertidal zone

2.43 This relates to the need to maintain the availability of fresh water on mudflats and within feeding and resting areas.

2.44 **The proposed development will not have any impact on the source, depth, duration, magnitude or timing of water supply and therefore not impact any qualifying features in this respect.**

Water quality

2.45 This relates to the need to restrict aqueous contaminants, maintain the dissolved oxygen concentration at levels equating to High Ecological Status, restore water quality to dissolved nitrogen levels where biological indicators of eutrophication do not affect the integrity of the site of qualifying features, and maintain natural levels of turbidity across the SPA.

2.46 The Site lies adjacent to the Hermitage Stream, a tidal watercourse which flows into the SPA. Delta-Simons (the developers Geo-environmental Consultant) have undertaken a significant amount of investigation and monitoring works to assess risks to the Hermitage Stream. The assessment concluded, via quantitative modelling, that the reduced infiltration rates post development would reduce the concentrations of ammonium (and by de facto other nitrogen species) within the Hermitage Stream by approximately 50%. Operationally, the development will discharge foul water via a mains foul drainage system connection to Southern Water which would not result in an adverse impact on the water quality of the SPA. Risks associated with hydrocarbon impacts post development will be mitigated by the installation of a dedicated surface water drainage system with appropriate interceptors. The considered overall net result of the operational phase is a minor positive impact on the water environment.

2.47 The construction of the proposed development has the potential to change existing patterns of surface water run-off into the Hermitage Stream and/or result in an uncontrolled pollution event. During construction the potential risk of a pollution incident, or other contamination or run-off from the Site into the Hermitage Stream, would be mitigated by the use of an appropriate Construction Environmental Management Plan (CEMP) which will outline how such impacts will be avoided or satisfactorily mitigated. The CEMP should specifically include an appropriate Surface Water Quality Monitoring Plan that dictates a water quality sampling strategy for the construction phase of the development. Should adverse impacts be identified an agreed action plan should be implemented.

The population of each of the qualifying features

Brent goose

2.48 The size of the brent goose population using the SPA has remained relatively stable since classification, in line with both UK and regional trends. The five-year peak mean for the period 2009/10–2013/14 is 14,599 individuals.

2.49 The Site has been shown not to have been used by brent geese since 2007/08, and has likely been unsuitable for the species since approximately 2011 due to habitat changes

detailed previously. The Site does not therefore contribute to supporting the SPA brent goose population, or any other SPA qualifying features, and the proposed development will therefore not result in any adverse impact on the populations of the qualifying geese and wading bird species.

2.50 The potential for indirect adverse off-Site impacts as a result of increased levels of light and noise disturbance that may cause temporary or permanent small-scale changes in the distribution of qualifying features in close proximity to the Site by disturbance of roosting or feeding geese and waders is also not likely to be significant as outlined previously.

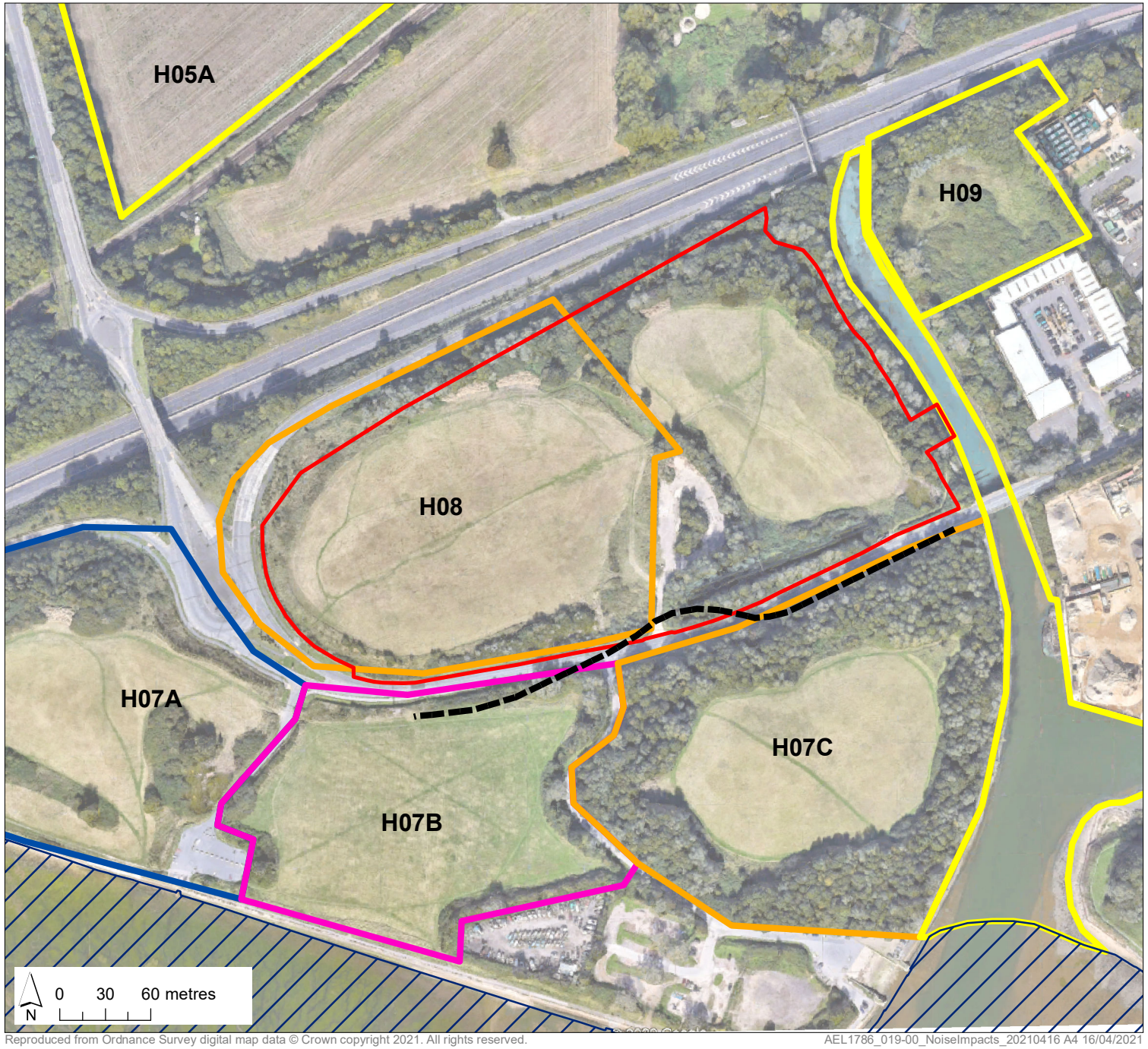
2.51 In summary, the Development is highly unlikely to result in any adverse impact on the size of the SPAs qualifying bird species.

The distribution of qualifying species within the site

2.52 The distribution of brent goose and other qualifying features throughout the SPA and supporting network of SWBGS sites is monitored through Wetland Birds Survey (WeBS) and SWBGS survey data.

2.53 The part of the Site identified as SWBGS Low Use Site H08 represents <0.1% of the overall SWBGS network. Historical data and survey work confirms that the Site is not currently used by qualifying bird species of the SPA and has been unsuitable for these qualifying features since approximately 2011.

2.54 The proposed development will therefore have no adverse impact on the distribution of any qualifying features within the Site.



Harts Farm Way, Havant

Noise impact assessment

- Site boundary
- maximum pile noise contour
- Chichester and Langstone Harbours SPA and Ramsar

SWBGS sites

- Core Area
- Secondary Support Area
- Low Use Site
- Candidate Site

Figure 2.1

Map Scale @ A4: 1:3,800

Surveyed by: n/a	
Survey date: n/a	
Drawn by: RD	
Checked by: DP	
Status: Final	

Applied Ecology Ltd

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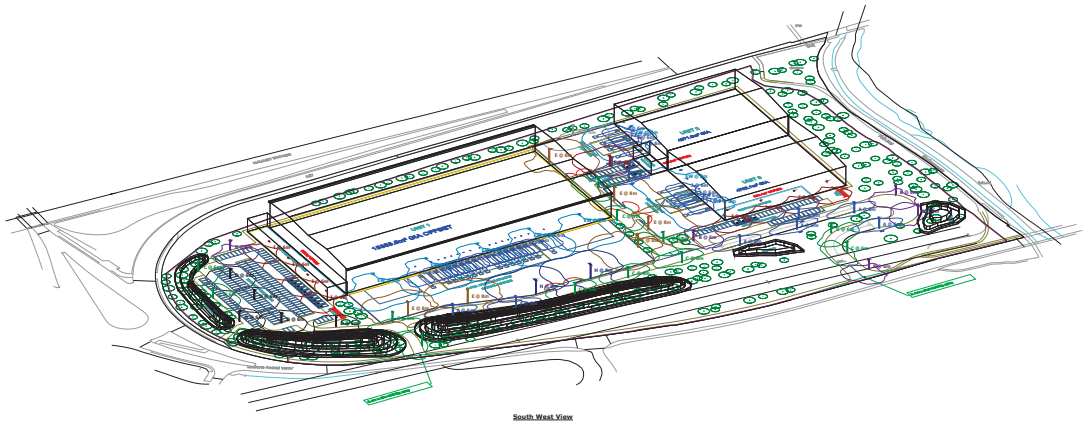
Appendix A
Development Masterplan

Schedule						
Symbol	Label	Quantity	Catalog Number	Description	Lumen Output	Wattage
	A	9	DSX1.2 LA263.NR	D-Series NR Distribution, column mounted at 6m	5452	44
	B	5	DSX1.2 LA063.FW	D-Series FW Distribution, column mounted at 6m	6463	52
	C	12	DSX1.2 LA063.AY	D-Series AY Distribution, column mounted at 6m	6279	52
	D	5	DSX1.2 LA083.SY	D-Series SY Distribution, column mounted at 6m	8573	68
	E	6	DSX1.2 LA223.FW	D-Series FW Distribution, column mounted at 8m	22512	208
	EW	8	DSX1.2 LA223	D-Series FW Distribution, wall mounted at 8m	22512	208
	F	1	DSX1.2 LA163.FW	D-Series FW Distribution, column mounted at 6m	15821	131
	G	1	DSX1.2 LA163.AY.BLS	D-Series AY Distribution, column mounted at 6m with integral backlight shield	12454	131
	H	2	DSX2.2 LA303.FW	D-Series FW Distribution, column mounted at 8m	30993	282
	I	8	WAP.1 LA053.FW	WALLPACK, FW Distribution, wall mounted at 6m	4835	42
	J	21	TBHF.BLS.B040AR035EL	TBHF BLS 1 Asymetric distribution, wall mounted at 6m	990.25	35

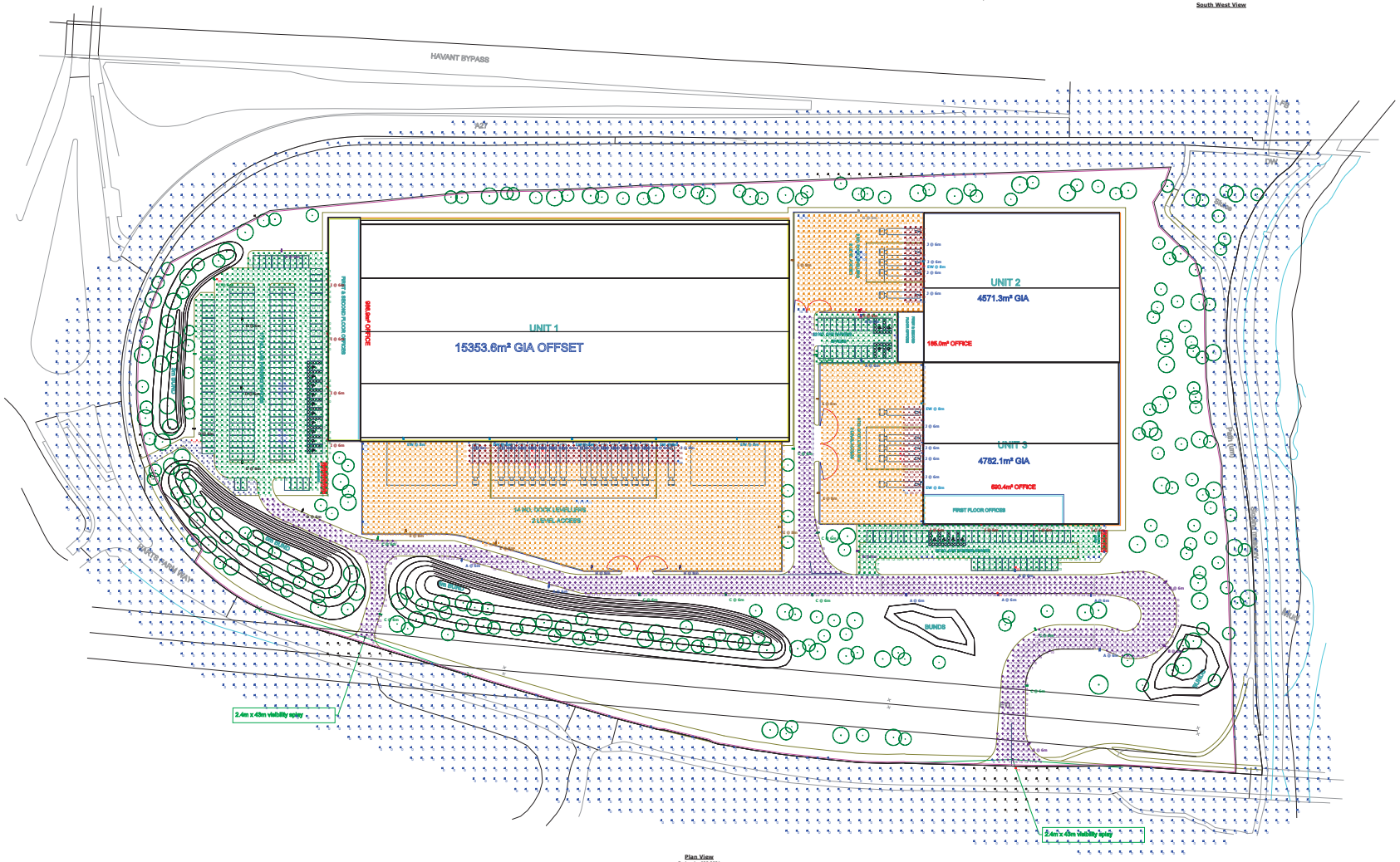
Statistics				
Description	Symbol	Avg	Min	Min/Avg
Pedestrian Access		9 lux	2 lux	0.22
Roadway		16 lux	5 lux	0.31
Spill Light Outside Boundary		0 lux	0 lux	N/A
Unit 1 Loading Zone		80 lux	49 lux	0.61
Unit 1 Parking		12 lux	5 lux	0.42
Unit 1 Service Yard		26 lux	11 lux	0.42
Unit 2 Loading Zone		59 lux	24 lux	0.41
Unit 2 Parking		22 lux	6 lux	0.27
Unit 2 Service Yard		27 lux	10 lux	0.37
Unit 3 Loading Zone		58 lux	34 lux	0.59
Unit 3 Parking		34 lux	7 lux	0.50
Unit 3 Service Yard		25 lux	11 lux	0.44

Note

1. Queries regarding this drawing should be addressed to David Goodchild on (07793) 041599 or dgoodchild@holophane.co.uk.
2. All calculations are maintained at 8,000 hours.
3. The contour lines on the 3-D view represent 5 lux from source.



South West View



Plan View
Scale - 1 : 600.0001

Note

Holophane Europe Ltd offer a Lighting Design Service in good faith and without charge, every effort is made to ensure we interpret the design specification accurately. All luminaire values shown are the results of theoretical computer calculations; summarised by luminaires positioned in a fixed solution ready to work site and the ideal case, in practice the values may vary due to tolerances in colour, installation, luminaire orientation, surface reflectance and fluctuations in power supply voltage/frequency. Results provided within this design are derived from product specific photometry, the substitution of alternative luminaires will not produce comparable results.

HOLOPHANE
An Acuity Brands Company

4856 Broadhampton West Havant
External Lighting
for Watkins Payne

Designer	D Goodchild
Date	25/01/2021
Scale	As shown at A1
Drawing No.	P115-3014-01

1 of 1

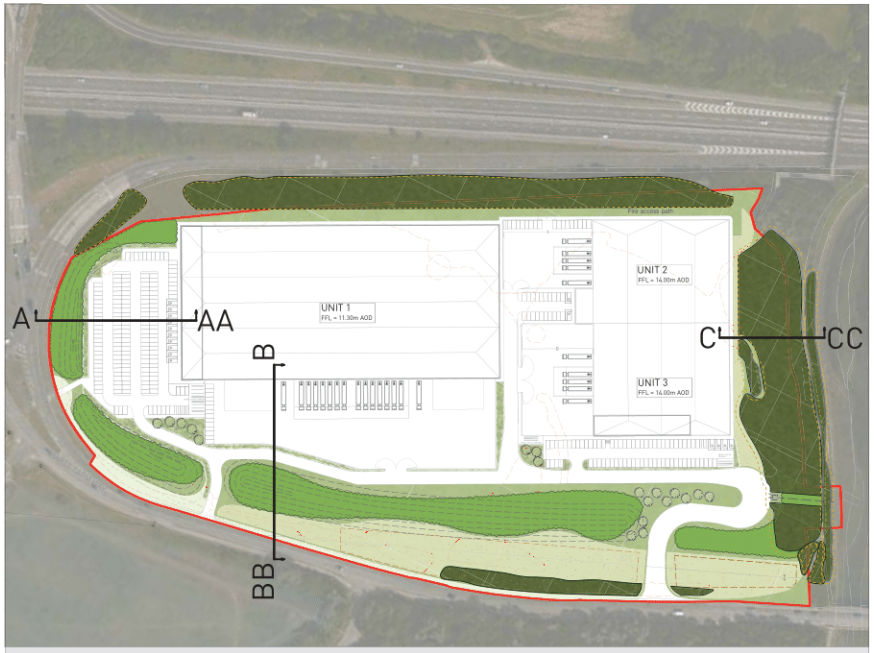
Appendix B

Landscape Sections Plan

Section A-AA (Scale 1:250)

Section B-BB (Scale 1:250)

Section C-CC (Scale 1:250)



Section Location Plan (Scale 1:1500)

Indicative Planting Schedule

Woodland Buffer Planting – Outline Specification and Approximate Growth Rates

Species	Common Name	Percentage	Size (cm)	Height (m) Year 1	Height (m) Year 5	Height (m) Year 10	Height (m) Year 15	Mature Height
Acer campestre	Field maple	5	ST (250-300)	2.5	5	7.5	10.0	12.0
Acer campestre	Field maple	10	F (125-150)	1.25	3.75	6.25	8.75	12.0
Alnus glutinosa	Alder	5	ST (250-300)	2.5	5	7.5	10.0	20.0
Alnus glutinosa	Alder	10	F (125-150)	1.25	3.75	6.25	8.75	20.0
Acer pseudoplatanus	Sycamore	5	ST (200-250)	2.0	4.5	7.0	9.5	20.0+
Acer pseudoplatanus	Sycamore	10	F (125-150)	1.25	3.75	6.25	8.75	20.0+
Crataegus monogyna	Hawthorn	10	F (125-150)	1.25	3.0	3.0	3.0	3.0
Corylus avellana	Hazel	10	T (1+1 40-60)	0.4	2.9	4.0	4.0	4.0
Euonymus europaeus	Spindle	2	BR (60-80)	0.6	3.1	5.6	8.1	9.0
Prunus spinosa	Blackthorn	3	BR (60-80)	0.6	3.1	5.0	5.0	5.0
Quercus cerris	Turkey Oak	5	ST (250-300)	2.5	5	7.5	10.0	20.0+
Quercus robur	Common Oak	10	F (125-150)	1.25	3.75	6.25	8.75	20.0+
Rosa canina	Dog Rose	2	BR (60-80)	0.6	2.0	2.0	2.0	2.0
Salix caprea	Goat Willow	10	BR (60-80)	0.6	3.1	4.0	4.0	4.0
Viburnum opulus	Guelder Rose	3	BR (60-80)	0.6	3.0	3.0	3.0	3.0

0 25m

Revisions:
First Issue- 11/02/2021 JN

Landscape Sections

Harts Farm Way, Brockhampton West, Havant

Client: Clowes Developments (UK) Ltd

DRWG No: **P21-1528_16** Sheet No:_ REV: _

Drawn by : JN Approved by: RF

Date: 11/02/2021

Scale: 1:250 @ A1

Pegasus Design

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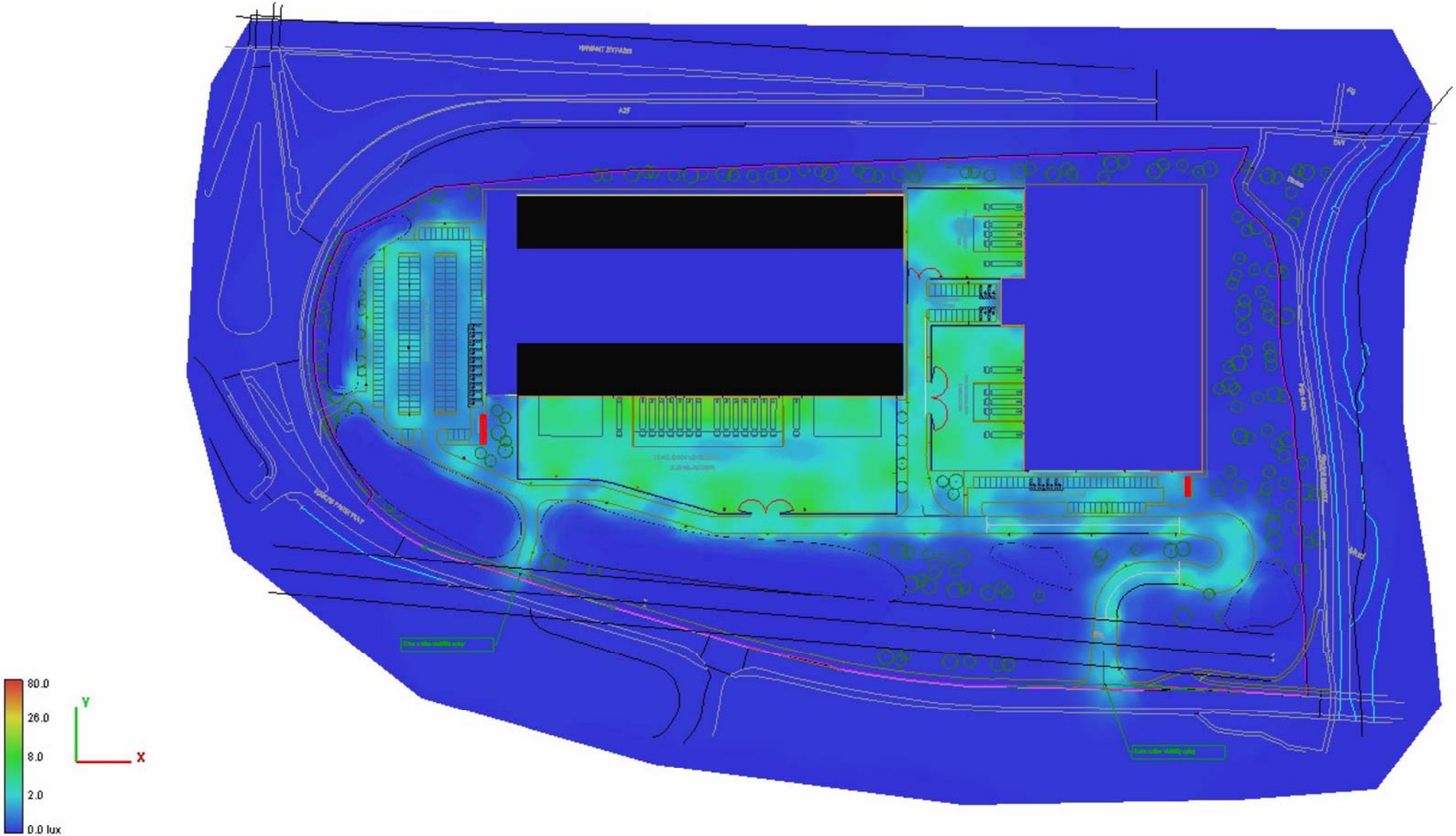
Appendix C

Solent Wader and Brent Goose Strategy sites

Solent Wader and Brent Goose sites 2019. http://www.solentwbgs.wordpress.com/page-2/ accessed 08/04/2021

Site location

Appendix D
Lighting Levels Plan


80.0
26.0
8.0
2.0
0.0 lux
Y
X

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