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SGN

EMSWORTH GAS HOLDER DEMOLITION

HABITATS REGULATIONS ASSESSMENT

OCTOBER 2014

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HABITATS REGULATIONS ASSESSMENT

OCTOBER 2014

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1 INTRODUCTION

1.1 Background

1.1.1 Wardell Armstrong LLP (WA) were appointed by Southern Gas Networks to produce a report to inform a Habitats Regulations Assessment (HRA) of the demolition of the above ground gas holder and boiler house at Palmers Road, Emsworth. The objective of the assessment is to identify any aspects of the project that would cause 'likely significant effects' on the interest features of Natura 2000 sites, specifically the Chichester and Langstone Special Protection Area (SPA) and Ramsar site along with the Solent Maritime Special Area of Conservation (SAC) (Ramsar sites are treated as equivalent to European sites as a matter of Government policy). In order to fully assess the likely significant effects of works upon these internationally designated sites this project has been assessed both in isolation and in combination with other plans and projects. This report also advises on appropriate mechanisms for delivering mitigation where such effects would otherwise occur.

1.1.2 Figure 1 shows the location of the existing above ground gas holder and associated boiler house.

1.1.3 This structure has now become defunct and is scheduled to be demolished during the summer of 2015. The following sections describe the works required both within the designated site and beyond the northern boundary of this site.

1.2 Works within the designated site

1.2.1 No works are scheduled to take place within internationally designated sites.

1.3 Works beyond the boundary of the European and Ramsar site

1.3.1 Demolition and decommissioning of the gas holder facility will be subject to phased works. Methods to be used during each phase of demolition and decommissioning are discussed below.

1.3.2 *PHASE 1 - De-watering of tank*

1.3.3 Discharge from the gasholder shall be passed through a Water Treatment Unit (WTU) (one larger or two smaller units) located adjacent to this holder. Discharge shall pass by gravity through this WTU to the adjacent site oil interceptor and through this to the public sewer. The WTU shall be fitted with a high level STOP float valve and an emergency high level overflow to interceptor. The WTU also incorporates an inlet filter

followed by intermediate oleophilic filters plus final compartment Granular Active Carbon gravity filter media (to be utilised dependent upon water quality).

- 1.3.4 All discharge sampling shall be undertaken in accordance with Southern Gas Networks (SGN) Minimum Operating Standard for Gasholder Dewatering and analysed for the required minimum analysis suite as confirmed by the Statutory Authority. This analysis shall be undertaken by an SGN approved laboratory. An initial treated discharge sample will be taken with rapid analysis turnaround (minimum 5 days). Discharge shall not be commenced prior to client approval of this analysis. Discharge will then continue with further sampling/analysis at 7-day intervals (also rapid turnaround) as required in the above referenced Minimum Operating Standard. Discharge will cease at any stage should analysis results breach discharge consent criteria. Appropriate remedial action will be taken immediately to rectify inadequacies and further sampling/analysis undertaken to validate accordingly.
- 1.3.5 All cable shall be armoured where exposed and located above ground and secured to the gasholder structures where possible. Cable marking tape will be utilised to clearly identify such services.
- 1.3.6 Treated waters may be collected directly at the WTU discharge point for chemical analysis. A flow meter shall be incorporated into the system to record volumes and rate of discharge. All analysis results will be submitted by the Dewatering contractor to the Demolition Contractor upon receipt to ensure compliance with the discharge consent.
- 1.3.7 The final residual water removal shall be passed at a reduced rate through a small WTU with filters replaced regularly as necessary to ensure continued compliance with the discharge consent.
- 1.3.8 *PHASE 2 - Cutting of access and ventilation*
- 1.3.9 When water has been removed to ground level the demolition contractor will cut access panels and remove roof sections as required
- 1.3.10 Following the receipt of the permit to works from the client, operatives will progress the works in a safe diligent manner in accordance with BS 6187:2000 Approved code of practice for demolition. Following the confirmation of the termination of services, operatives will identify the isolation points to ensure they are clear of demolition activities. Activities will include:

1. Enclose work area using Heras fencing, work area extents to be formalised on site but to include (wherever possible) an area for processing and loading of waste materials. This area is to be segregated from the remainder of the site, with a single controlled access point preventing inadvertent access during demolition activities.
2. A horizontal, and vertical hot cut will be made at ground level using Oxy/Propane cutting equipment. This operation shall be carried out under permit and the observation of a fire watcher, equipped with charged fire-fighting equipment. This cut will be made to enable the machine access to be formed. This operation will be repeated at a point 180 degrees from the first opening.
3. The roof sections will be removed using cold cutting equipment to allow approximately 30% minimum crown removal which should supply adequate ventilation. Additional mechanical ventilation will be provided should this become necessary to ensure an adequate supply of fresh air for phase 3.

1.3.11 *PHASE 3 - De-sludging of tank*

- 1.3.12 Demolition Contractor shall have removed an agreed percentage of the gasholder roof prior to commencement of de-sludging operation
- 1.3.13 DC shall provide and maintain an approved system for man-access onto the holder base.
- 1.3.14 Upon completion of de-sludging phase, DC shall remove all internal steelwork and tip cups sludge onto top of gasholder base/dumpling for subsequent cleaning.
- 1.3.15 A written checklist and record of personnel entering and leaving the gasholder shall be kept by the De-Watering Contractors Supervisor on the "operations notice board" adjacent to the access way. Additionally, a daily permit to work will be issued and displayed on this notice board.
- 1.3.16 Gas monitoring will be undertaken during all de-sludging works. Each operative working within the gasholder shall wear a personal gas monitor. This device monitors CH₄, O₂ and H₂S levels and emits an audible alarm at recommended HSE levels. All personnel working within the gasholder shall also carry an emergency B.A. saver set. Additionally, an outside watchman and a second confined spaces trained outside man shall always be available. An emergency rescue stretcher will be available at all times. Additionally, harnesses will be worn and a lifeline will be available at all times.

- 1.3.17 Polymer granules are spread manually onto the sludge material in the localised cleaning area and mixed into the material by agitation. Sludge is then either mobilised by hydraulically driven sludge pump or manually collected and transferred to pre-prepared dewatering bags. These bags are located within the cleaned annulus bays around the periphery of the gasholder base. The sludge dewateres by gravity over a short period after which it may be topped up again for further de-sludging. Removal of dewatering bags for disposal/storage is possible after 24-48 hours.
- 1.3.18 A sample of treated polymerised sludge shall be taken by DE-Watering Contractor prior to commencement of de-sludging works to ascertain sludge classification. This analysis shall determine whether or not the material is acceptable for disposal to landfill (most probably hazardous landfill). Upon receipt of waste analysis results, dewatered sludge shall be consigned for disposal to suitable licensed facility. All sludge disposal consignment notes to be signed by Demolition Contractors site representative and green copies retained on site.
- 1.3.19 *PHASE 4 - Holder demolition*
- 1.3.20 Exclusion zones will be established to restrict entry to the individual work areas; Heras fencing will be used to segregate the site set up from the main area of works. Additional fence is available on site to form supplementary zones if necessary. This will be monitored by the site manager.
- 1.3.21 Edge protection will be erected at all live edge situations to prevent falls from height. Heras fence is to be used and positioned a minimum of 1.2m from the edge to be protected; while the hot cutting is taking place the excavator will not be working on the holder roof.
- 1.3.22 A demolition excavator, equipped with shearing attachment, will then proceed to make vertical cuts from roof line to ground level in the outer skin. The removed material will be “folded/rolled” by the excavator and set aside for loading to skips.
- 1.3.23 The excavator will then continue to cut the skins away; using the same vertical cuts until there is a complete opening to the holder. The excavator will remove any ancillaries (access steps, etc...) as they are encountered. Where any old cast iron mains are present the joints will be broken out to allow the gaskets to be set aside separately for disposal as Contaminated Material waste.
- 1.3.24 Once an opening of between 90° & 120° has been formed a ramp into the holder and stable working base will be established using, if required, a suitable fill material; any

open edges will be protected using “heras” type panels. The excavator will then work its way onto the holder footprint, shearing and removing sections of any remaining roof structure ahead of its progression until removed entirely. At no time will the excavator be below any section of roof overhang.

- 1.3.25 Once on the holder footprint, the excavator will continue to make vertical cuts in each of the inner skins, folding each layer toward the centre of the holder. The excavator will work either side of the original opening as appropriate to maintain progress. Following inspection for residual contamination, the phased (approx. 20m lengths) hot cutting around the base at ground level will enable the excavator to progressively remove the exposed sections of outer skin using the same vertical shearing and “folding/rolling” as described.
- 1.3.26 Following complete removal of all above ground wall and cups the excavator will pause to allow second stage/final clean by specialist sub-contractor (covered under separate method statement) before working its way out of the base, removing any fill material and remaining steel base using its shear to make all necessary cuts.
- 1.3.27 *PHASE 5 - Boiler house demolition*
- 1.3.28 Following receipt of isolation certificates for the services running into and out of the structure, the area will be fenced using “Heras” type panels to segregate the work area.
- 1.3.29 A demolition excavator, equipped with an appropriate attachment will be used to remove the boiler flue followed by the roof sheets and load to skips.
- 1.3.30 Working from outside the footprint of the structure, the excavator will continue to work the walls down to ground level. Starting at eaves level, on the corner closest to the excavator, processing the concrete panels and reducing the wall height evenly on both elevations.
- 1.3.31 Once the two elevations are reduced in height at an angle of approx. 45° to the remaining corners, the excavator will re-position on one side to repeat the operation on a third elevation while also reducing the previously angled face to slab level.
- 1.3.32 This process will be repeated on the forth corner and elevation, with the excavator finally reducing all walls to slab level.
- 1.3.33 Throughout the operation the excavator will be sorting the arising’s by waste stream (wood, concrete, none recyclable, etc...) and loading materials as appropriate to prevent excessive stockpiling.

1.3.34 *PHASE 6 - Reinstatement of area*

1.3.35 Any excavation left after the demolition will be reinstated using a suitable, inert backfill and compacted in layers until ground level is reached.

1.3.36 *Timescale*

1.3.37 Works are scheduled to take place during summer months May – September 2015.

1.4 **Scope of the Project**

1.4.1 There is no pre-defined guidance that dictates the physical scope of an HRA for a project such as the Emsworth Gas Holder Demolition project. Therefore, in considering the physical scope of the assessment, we were guided primarily by the identified impact pathways rather than by arbitrary 'zones'. Current guidance suggests that the following European sites be included in the scope of assessment:

- All works within the designated site boundary; and
- Other sites shown to be linked to development within designated site boundary through a known 'pathway' (discussed below).

1.4.2 Briefly, defined pathways are routes by which a change in activity within the project scope can lead to an effect upon a European site. Due to the scale and nature of this project it is considered that the only European sites which require consideration are the Solent Maritime Special Area of Conservation (SAC), Special Protection Area (SPA) and Chichester and Langstone Harbours SPA and Ramsar site. However, The River Ems runs directly adjacent to this site and flows directly into the internationally designated sites. Therefore potential effects of the works on this water course and subsequent indirect effect on qualifying species and or habitats within internationally designated sites will be investigated.

1.5 **Site description**

1.5.1 The site is fenced with high metal fencing and locked entrance. A gravel path encircles the gas storage tank with an extended area (enough to park two cars) to the south west near the entrance.

1.5.2 The remainder of the land within the site was short grassland comprising; perennial ryegrass, Yorkshire fog, yarrow, greater plantain, ribwort plantain, common nettle, poppy, cat's ear, prickly sow thistle, creeping cinquefoil, dandelion, self-heal, white clover, red clover, black medick, autumn hawkbit, creeping buttercup, colt's foot, daisy, common chickweed, scentless mayweed, pineappleweed, broad-leaved

willowherb, lesser trefoil, smooth hawk's beard, common mouse-ear, broad-leaved dock, creeping thistle, hogweed, great willowherb, Canadian fleabane.

- 1.5.3 At the east of the site, near to the River Ems within Brook Meadow LNR, the fenced boundary contained bramble, elder, crack willow and hazel.

2 CURRENT LEGISLATION

- 2.1.1 The need for an assessment of impacts on Natura 2000 sites is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats and Species Regulations 2010. The ultimate aim of the Directive is to “maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest” (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status.
- 2.1.2 The Habitats Directive applies the precautionary principle to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. Plans and projects with predicted adverse impacts on European sites may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.
- 2.1.3 In order to ascertain whether or not site integrity will be affected, an assessment should be undertaken of the plan or project in question. While the competent authority (e.g. Natural England) makes the formal decision as to whether adverse effects will result, they are entitled to request the applicant to produce necessary information to assist them. That is the purpose of this report.

Box 1. The legislative basis for Appropriate Assessment

Habitats Directive 1992

Article 6 (3) states that:

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.”

Conservation of Habitats and Species Regulations 2010

The Regulations state that:

“A competent authority, before deciding to ... give any consent for a plan or project which is likely to have a significant effect on a European site ... shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives... The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site”.

- 2.1.4 Over the years the phrase ‘Habitats Regulations Assessment’ (HRA) has come into wide currency to describe the overall process set out in the Conservation of Habitats and Species Regulations from screening through to Imperative Reasons of Overriding Public Interest (IROPI). This has arisen in order to distinguish the process from the individual stage described in the law as an ‘appropriate assessment’. Throughout this report we use the term Habitat Regulations Assessment for the overall process and restrict the use of Appropriate Assessment to the specific stage of that name.

3 METHODOLOGY

3.1 Introduction

3.1.1 In practice, Habitats Regulations Assessment of projects can be broken down into three discrete stages, each of which effectively culminates in a test. The stages are sequential, and it is only necessary to progress to the following stage if a test is failed. The stages are:

3.1.2 *Stage 1 – Likely Significant Effect Test*

3.1.3 This is essentially a risk assessment, typically utilising existing data, records and specialist knowledge. The purpose of the test is to decide whether ‘full’ Appropriate Assessment is required. The essential question is:

3.1.4 *“Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant [adverse] effect upon European sites?”*

3.1.5 If it can be demonstrated that significant effects are unlikely, no further assessment is required.

3.1.6 *Stage 2 – Appropriate Assessment*

3.1.7 If it cannot be satisfactorily demonstrated that significant effects are unlikely, a full “Appropriate Assessment” will be required. In many ways this is analogous to an Ecological Impact Assessment, but is focussed entirely upon the designated interest features of the European sites in question. Bespoke survey work and original modelling and data collation are usually required. The essential question here is:

3.1.8 *“Will the project, either alone or in combination with other relevant projects and plans, actually result in an adverse effect upon the integrity of any European sites, without mitigation?”*

3.1.9 If it is concluded that adverse effects will occur, measures will be required to either avoid the impact in the first place, or to mitigate the ecological effect to such an extent that it is no longer significant. Note that, unlike standard Ecological Impact Assessment, compensation for adverse effects (i.e. creation of alternative habitat) is not permitted at the Appropriate Assessment stage.

3.1.10 *Stage 3 – Imperative Reasons of Overriding Public Interest (IROPI) Test*

3.1.11 If a project will have a significant adverse effect upon a European site, and this effect cannot be either avoided or mitigated, the project cannot proceed unless it passes the IROPI test. In order to pass the test it must be objectively concluded that no alternative

solutions exist. The project must be referred to Secretary of State on the grounds that there are Imperative Reasons of Overriding Public Interest as to why the plan should nonetheless proceed.

3.1.12 This report deals with the first stage of Habitat Regulations Assessment – the Likely Significant Effect Test.

3.1.13 *Confirming Other Plans and Projects That May Act In Combination*

3.1.14 It is a requirement of the Regulations that the impacts of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the European site(s) in question.

3.1.15 The principal other plans and projects have been chosen for consideration in combination with this project due to their location in relation to the works area and their potential effect upon the designated site, these are:

3.1.16 *Projects and activities*

- Wildfowling
- Operation of Chichester and Langstone Harbour

3.1.17 *Plans*

- Havant Borough Core Strategy 2011
- North Solent Shoreline Management Policy units 5A15, 5A16 & 5A17.

4 PATHWAYS OF IMPACT

4.1.1 In carrying out an HRA it is important to determine the various ways in which the project in question can impact on European sites by following the pathways along which development can be connected with those sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a development can lead to an effect upon a European site.

4.2 Disturbance - Mechanical/abrasive damage

4.2.1 Most types of terrestrial European sites can be affected by trampling, which in turn causes soil compaction and erosion. Walkers with dogs contribute to pressure on sites through nutrient enrichment via dog fouling and also have potential to cause greater disturbance to fauna as dogs are less likely to keep to marked footpaths and move more erratically. Off-road vehicle use can cause serious erosion, as well as disturbance to sensitive species.

4.2.2 There have been several papers published that empirically demonstrate that damage to vegetation in woodlands and other habitats can be caused by vehicles, walkers, horses and cyclists:

- Wilson & Seney (1994)¹ examined the degree of track erosion caused by hikers, motorcycles, horses and cyclists from 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, It was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.
- Cole et al (1995a, b)² conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow and grassland communities (each tramped between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphological characteristics were found to explain more variation in response between different

¹ Wilson, J.P. & J.P. Seney. 1994. Erosional impact of hikers, horses, motorcycles and off road bicycles on mountain trails in Montana. *Mountain Research and Development* 14:77-88

² Cole, D.N. 1995a. Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology* 32: 203-214

Cole, D.N. 1995b. Experimental trampling of vegetation. II. Predictors of resistance and resilience. *Journal of Applied Ecology* 32: 215-224

vegetation types than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. Cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks, but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.

- Cole (1995c)³ conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trampler weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier trampers caused a greater reduction in vegetation height than lighter trampers, but there was no difference in effect on cover.

4.2.3 While the above studies focus on the effects of trampling and vehicle use in woodland habitats, and therefore do not directly relate to this tidal habitats present within the designated site, the principals of erosion through public pressure are similar and therefore can be applied to this project.

4.3 Disturbance of birds

4.3.1 Human activity can affect birds either directly (e.g. through causing them to flee) or indirectly (e.g. through damaging their habitat). The most obvious direct effect is that of immediate mortality such as death by shooting, but human activity can also lead to behavioural changes (e.g. alterations in feeding behaviour, avoidance of certain areas etc.) and physiological changes (e.g. an increase in heart rate) that, although less noticeable, may ultimately result in major population-level effects by altering the balance between immigration/birth and emigration/death⁴.

4.3.2 The degree of impact that varying levels of noise will have on different species of bird is poorly understood except that a number of studies have found that an increase in traffic levels on roads does lead to a reduction in the bird abundance within adjacent hedgerows - Reijnen et al (1995) examined the distribution of 43 passerine species

³ Cole, D.N. (1995c) Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.

⁴ Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

(i.e. 'songbirds'), of which 60% had a lower density closer to the roadside than further away. By controlling vehicle usage they also found that the density generally was lower along busier roads than quieter roads⁵.

- 4.3.3 Activities other than recreation may also lead to disturbance of wildlife. Disturbance and displacement from feeding areas has been demonstrated with regard to wintering geese⁶, curlew and hen harriers⁷.
- 4.3.4 The sensitivity of wildlife to the noise of roads and aircraft varies greatly from species to species. However road and airport/aircraft noise can cause some wildlife – notably a range of grassland and woodland birds - to avoid areas near them, reducing the density of those animal populations⁸. Elsewhere, reduced breeding success has been recorded.
- 4.3.5 Disturbing activities are on a continuum. The most disturbing activities are likely to be those that involve irregular, infrequent, unpredictable loud noise events, movement or vibration of long duration. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable, quiet patterns of sound or movement or minimal vibration. The further any activity is from the birds, the less likely it is to result in disturbance.
- 4.3.6 The factors that influence a species response to a disturbance are numerous, but the three key factors are species sensitivity, proximity of disturbance sources and timing/duration of the potentially disturbing activity.

4.4 **Effects of disturbance on wintering/migratory birds**

- 4.4.1 The potential for disturbance may be less in late summer/early autumn and winter than in summer, in that there are often a smaller number of recreational users. In addition, the consequences of disturbance at a population level may be reduced because birds are not breeding. However, late summer/early autumn and winter activity can still cause important disturbance, especially as birds are particularly vulnerable at this time of year due to food shortages, such that disturbance which results in abandonment of suitable feeding areas through disturbance can have severe consequences. Several empirical studies have, through correlative analysis,

⁵ Reijnen, R. et al. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32: 187-202

⁶ Langston, R.H.W & Pullan, J.D. (2003). Effects of Wind Farms on Birds: Nature and Environment No. 139. Council of Europe.

⁷ Madders, M. & Whitfield, D.P. 2006. Upland raptors and the assessment of wind farm impacts. *Ibis* 148 (Suppl. 1), 43-56.

⁸ Kaseloo, P. A. and K. O. Tyson. 2004. Synthesis of Noise Effects on Wildlife Populations. FHWA Report.

demonstrated that out-of-season (October-March) recreational activity can result in quantifiable disturbance:

- Underhill et al⁹ counted waterfowl and all disturbance events on 54 water bodies within the South West London Water bodies Special Protection Area and clearly correlated disturbance with a decrease in bird numbers at weekends in smaller sites and with the movement of birds within larger sites from disturbed to less disturbed areas.
- Evans & Warrington¹⁰ found that on Sundays total water bird numbers (including shoveler and gadwall) were 19% higher on Stocker's Lake LNR in Hertfordshire, and attributed this to displacement of birds resulting from greater recreational activity on surrounding water bodies at weekends relative to week days.
- Tuite et al¹¹ used a large (379 site), long-term (10-year) dataset (September – March species counts) to correlate seasonal changes in wildfowl abundance with the presence of various recreational activities. They found that on inland water bodies shoveler was one of the most sensitive species to disturbance. The greatest impact on winter wildfowl numbers was associated with sailing/windsurfing and rowing.
- In a three-year study of wetland birds at the Stour and Orwell SPA, Ravenscroft¹² found that walkers, boats and dogs were the most regular source of disturbance. Despite this, the greatest responses came from relatively infrequent events, such as gun shots and aircraft noise. Birds seemed to habituate to frequent 'benign' events such as vehicles, sailing and horses, but there was evidence that apparent habituation to more disruptive events related to reduced bird numbers – i.e. birds were avoiding the most frequently disturbed areas. Disturbance was greatest at high tide and on the Orwell, but birds on the Stour showed greatest sensitivity.

9 Underhill, M.C. *et al.* 1993. Use of Waterbodies in South West London by Waterfowl. An Investigation of the Factors Affecting Distribution, Abundance and Community Structure. Report to Thames Water Utilities Ltd. and English Nature. Wetlands Advisory Service, Slimbridge

10 Evans, D.M. & Warrington, S. 1997. The effects of recreational disturbance on wintering waterbirds on a mature gravel pit lake near London. *International Journal of Environmental Studies* 53: 167-182

¹¹ Tuite, C.H., Hanson, P.R. & Owen, M. 1984. Some ecological factors affecting winter wildfowl distribution on inland waters in England and Wales and the influence of water-based recreation. *Journal of Applied Ecology* 21: 41-62

¹² Ravenscroft, N. (2005) Pilot study into disturbance of waders and wildfowl on the Stour-Orwell SPA: analysis of 2004/05 data. Era report 44, Report to Suffolk Coast & Heaths Unit.

4.5 Direct Landtake

- 4.5.1 Land take from European sites can result in adverse effects if it is sufficiently extensive to affect the structure and function (i.e. the integrity) of that site. In some cases any landtake at all may affect the functionality of the site, in other cases the scale of landtake may be sufficiently small that it will not do so, and/or may affect an area of the site which is less important for the functioning of the site. Moreover, 'landtake' may have a positive effect if it concerns replacing a habitat of lesser value for the integrity of the site with one of a higher value. The removal of any habitats to facilitate this project is considered within this HRA.

4.6 Water Quality and Sediment Processes

- 4.6.1 The quality of the water around European sites is an important determinant of the nature of their habitats and the species they support. At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour/health (e.g zinc is toxic to birds and can cause failure of the liver, pancreas and kidneys). While no demolition works are planned to occur within the designated site it is important to note that the River Ems flows adjacent to the eastern border of the proposed works area and may therefore act as a pathway for pollution to enter the designated site as a result of demolition/decommissioning works.

5 DESIGNATED SITES

5.1.1 Internationally designated sites associated with this project are discussed below.

5.2 Chichester and Langstone Harbour SPA and Ramsar

5.2.1 **Chichester and Langstone Harbours are located on the south coast of England in Hampshire and West Sussex.** They are large, sheltered estuarine basins comprising extensive sand- and mud-flats exposed at low tide. The two harbours are joined by a stretch of water that separates Hayling Island from the mainland. Tidal channels drain the basin and penetrate far inland. The mud-flats are rich in invertebrates and also support extensive beds of algae, especially *Enteromorpha* species, and eelgrasses *Zostera* spp. The basin contains a wide range of coastal habitats supporting important plant and animal communities. The site is of particular significance for waterbirds, especially in migration periods and in winter. It also supports important colonies of breeding terns.

5.3 Designation qualifying features

5.3.1 Special Protection Area

5.3.2 This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

5.3.3 During the breeding season;

5.3.4 Little Tern *Sterna albifrons*, 100 pairs representing up to 4.2% of the breeding population in Great Britain (5 year mean, 1992-1996)

5.3.5 Sandwich Tern *Sterna sandvicensis*, 158 pairs representing up to 1.1% of the breeding population in Great Britain (1998)

5.3.6 On passage;

5.3.7 Little Egret *Egretta garzetta*, 137 individuals representing up to 17.1% of the population in Great Britain (Count as at 1998)

5.3.8 Over winter;

5.3.9 Bar-tailed Godwit *Limosa lapponica*, 1,692 individuals representing up to 3.2% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

5.3.10 Little Egret *Egretta garzetta*, 100 individuals representing up to 20.0% of the wintering population in Great Britain (Count as at 1998)

5.3.11 This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

5.3.12 **On passage;**

5.3.13 Ringed Plover *Charadrius hiaticula*, 2,471 individuals representing up to 4.9% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)

5.3.14 **Over winter;**

5.3.15 Black-tailed Godwit *Limosa limosa islandica*, 1,003 individuals representing up to 1.4% of the wintering Iceland - breeding population (5 year peak mean 1991/2 - 1995/6)

5.3.16 Dark-bellied Brent Goose *Branta bernicla bernicla*, 17,119 individuals representing up to 5.7% of the wintering Western Siberia/Western Europe population (5 year peak mean 1991/2 - 1995/6)

5.3.17 Dunlin *Calidris alpina alpina*, 44,294 individuals representing up to 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6)

5.3.18 Grey Plover *Pluvialis squatarola*, 3,825 individuals representing up to 2.5% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)

5.3.19 Redshank *Tringa totanus*, 1,788 individuals representing up to 1.2% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)

5.3.20 Ringed Plover *Charadrius hiaticula*, 846 individuals representing up to 1.7% of the wintering Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)

5.3.21 The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.

5.3.22 Over winter, the area regularly supports 93,142 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Wigeon *Anas penelope*, Bar-tailed Godwit *Limosa lapponica*, Dark-bellied Brent Goose *Branta bernicla bernicla*, Ringed Plover *Charadrius hiaticula*, Grey Plover *Pluvialis squatarola*, Dunlin *Calidris alpina alpina*, Black-tailed Godwit *Limosa limosa islandica*, Redshank *Tringa totanus*, Little Grebe *Tachybaptus ruficollis*, Little Egret *Egretta garzetta*, Shelduck *Tadorna tadorna*, Curlew *Numenius arquata*, Teal *Anas crecca*, Pintail *Anas acuta*, Shoveler *Anas clypeata*, Red-breasted Merganser *Mergus serrator*, Oystercatcher *Haematopus ostralegus*, Lapwing

Vanellus vanellus, Knot *Calidris canutus*, Sanderling *Calidris alba*, Cormorant *Phalacrocorax carbo*, Whimbrel *Numenius phaeopus*.

5.3.23 Ramsar

5.3.24 Chichester and Langstone harbour qualify as a Ramsar site under three criteria, these are:

5.3.25 **Criterion1**

5.3.26 Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes.

5.3.27 **Criterion 5 Assemblages of international importance:**

5.3.28 Species with peak counts in winter:

5.3.29 76480 waterfowl (5 year peak mean 1998/99-2002/2003)

5.3.30 **Criterion 6 species/populations occurring at levels of international importance.**

5.3.31 Qualifying Species/populations (as identified at designation):

5.3.32 Species with peak counts in spring/autumn:

5.3.33 Ringed plover, *Charadrius hiaticula*, Europe/Northwest Africa 853 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9- 2002/3)

5.3.34 Black-tailed godwit *Limosa limosa islandica*, Iceland/W Europe 906 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9- 2002/3)

5.3.35 Common redshank , *Tringa totanus totanus*, 2577 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)

5.3.36 Species with peak counts in winter:

5.3.37 Dark-bellied brent goose, *Branta bernicla bernicla*, 12987 individuals, representing an average of 6% of the population (5 year peak mean 1998/9-2002/3)

5.3.38 Common shelduck , *Tadorna tadorna*, NW Europe 1468 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3)

5.3.39 Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa –wintering 3043 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9-2002/3)

5.3.40 Dunlin , *Calidris alpina alpina*, W Siberia/W Europe 33436 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9-2002/3).

5.3.41 Solent Maritime SAC.

5.3.42 Annex I habitats that are a primary reason for selection of this site as described by JNCC:

5.3.43 Estuaries

5.3.44 The Solent encompasses a major estuarine system on the south coast of England with four coastal plain estuaries (Yar, Medina, King's Quay Shore, Hamble) and four bar-built estuaries (Newtown Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The site is the only one in the series to contain more than one physiographic sub-type of estuary and is the only cluster site. The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four tides each day, and for the complexity of the marine and estuarine habitats present within the area. Sediment habitats within the estuaries include extensive estuarine flats, often with intertidal areas supporting eelgrass *Zostera spp.* and green algae, sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches of the estuaries to very sheltered almost fully marine muds in Chichester and Langstone Harbours. Unusual features include the presence of very rare sponges in the Yar estuary and a sandy 'reef' of the *polychaete Sabellaria spinulosa* on the steep eastern side of the entrance to Chichester Harbour.

5.3.45 *Spartina* swards (*Spartinion maritimae*)

5.3.46 Solent Maritime is the only site for smooth cord-grass *Spartina alterniflora* in the UK and is one of only two sites where significant amounts of small cord-grass *S. maritima* are found. It is also one of the few remaining sites for Townsend's cord-grass *S. x townsendii* and holds extensive areas of common cord-grass *Spartina anglica*, all four taxa thus occurring here in close proximity. It has additional historical and scientific interest as the site where *S. alterniflora* was first recorded in the UK (1829) and where *S. x townsendii* and, later, *S. anglica* first occurred.

5.3.47 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

5.3.48 The Solent contains the second-largest aggregation of Atlantic salt meadows in south and south-west England. Solent Maritime is a composite site composed of a large number of separate areas of saltmarsh. In contrast to the Severn estuary, the salt

meadows at this site are notable as being representative of the ungrazed type and support a different range of communities dominated by sea-purslane *Atriplex portulacoides*, common sea-lavender *Limonium vulgare* and thrift *Armeria maritima*. As a whole the site is less truncated by man-made features than other parts of the south coast and shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland. Typical Atlantic salt meadow is still widespread in this site, despite a long history of colonisation by cord-grass *Spartina spp*

5.3.49 Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site (as described by JNCC) include:

- Sandbanks which are slightly covered by sea water all the time;
- Mudflats and sandflats not covered by seawater at low tide;
- Coastal lagoons * Priority feature;
- Annual vegetation of drift lines;
- Perennial vegetation of stony banks;
- Salicornia and other annuals colonizing mud and sand;
- "Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")".

5.4 Threats to qualifying features of the designated sites

5.4.1 Some of the main current (as opposed to future) environmental pressures relevant to the nature conservation objectives of the above designated sites are:

- Physical loss

5.4.2 Removal (e.g. harvesting, coastal development),

5.4.3 Smothering (e.g. artificial structures, disposal of dredge spoil),

5.4.4 Coastal erosion.

- Physical damage
 - 5.4.5 Siltation (e.g. run-off, channel dredging, outfalls),
 - 5.4.6 Abrasion (e.g. boating, anchoring, trampling),
 - 5.4.7 Selective extraction (e.g. aggregate dredging,).
- Non-physical disturbance
 - 5.4.8 Noise (e.g. boat activity),
 - 5.4.9 Visual presence (e.g. recreational activity).
- Toxic contamination
 - 5.4.10 Introduction of synthetic compounds (e.g. TBT, PCB's,),
 - 5.4.11 Introduction of non-synthetic compounds (e.g. heavy metals, hydrocarbons),
 - 5.4.12 Introduction of radionuclides.
- Non-toxic contamination
 - 5.4.13 Changes in nutrient loading (e.g. agricultural run-off, outfalls),
 - 5.4.14 Changes in organic loading (e.g. mariculture, outfalls),
 - 5.4.15 Changes in thermal regime (e.g. power station),
 - 5.4.16 Changes in turbidity (e.g. run-off, dredging),
 - 5.4.17 Changes in salinity.
- Biological disturbance
 - 5.4.18 Introduction of microbial pathogens,
 - 5.4.19 Introduction of non-native species and translocation,
 - 5.4.20 Selective extraction of species (e.g. bait digging, wildfowl, commercial and recreational fishing).

6 LIKELY SIGNIFICANT EFFECT TEST

6.1.1 Table 1 indicates the aspects of the proposed scheme that could in theory create adverse effects on the qualifying features of the designated site. Consideration of interactions with other projects and plans takes place in Section 7.

Table 1. Evaluation of likely Significant Effects of Emsworth Gas Holder Demolition/decommission

Aspect of Scheme Assessed	Potential Pathways of Impact	HRA Assessment regarding Likely Significant Effects
Undertaking demolition works. Timing as follows: May – September (inclusive) 2015.	Disturbance of species relevant to the designated site – breeding birds.	Qualifying features of the SPA include breeding colonies of little tern and sandwich tern. Little tern has specific nesting habitat requirements and only nest within open undisturbed shingle/sandy coastal habitat. Sandwich tern is also known to use shingle habitat for nesting purposes but will also use low lying island habitat and shingle spits. Whilst it is recognised that such habitats are present within the designated site no such habitats were recorded within the proposed works area or adjacent non statutory designated site. It is therefore considered highly unlikely that demolition works would result of disturbance to qualifying features of the designated site during the bird nesting season. In the highly unlikely event of nesting sandwich tern or little tern being recorded on site or in close proximity to the works area a suitably qualified ecologist would be contacted to assess nesting status of qualifying features of the designated site. Should nesting be recorded then all works would be postponed until chicks have fledged and left the nest site. Therefore the finding of the HRA is that disturbance to nesting birds which form qualifying features of the designated site can be screened out as being unlikely to have a significant effect on the integrity of the designated site.

Undertaking demolition works. Timing as follows: March – September (inclusive) 2015.	Disturbance of species relevant to the designated site – passage waterfowl species.	Works are scheduled to take place outside of the autumn and spring passage season (September – November & March – mid May) Therefore the finding of the HRA is that disturbance of waterfowl can be screened out as being unlikely to have a significant effect on the integrity of the designated site.
Undertaking demolition works. Timing as follows: March – September (inclusive) 2015.	Disturbance of species relevant to the designated site – wintering waterfowl species.	Works are scheduled to take place outside of the winter season Therefore the finding of the HRA is that disturbance of waterfowl can be screened out as being unlikely to have a significant effect on the integrity of the designated site.
Demolition works	Direct loss and degradation of qualifying features (habitats) as a result of works	The works compound will not be within the boundary of the designated site. It will be located approximately 600m from the northern boundary of the site. The successful contractor will be required to undertake works in accordance with the phased demolition/decommission methods presented in section 1. The successful contractor will also be required to design and implement an Environmental Management Plan for works carried out. Such a plan will include (but not be limited to) plans for waste management, appropriate maintenance of all plant; use biodegradable oil; store fuel securely; re-fuel in designated areas; educate workers; and carry spill kits. Therefore the findings of the HRA are that the activity can be screened out.
Deposition of contaminated water and/or sludge.	Pollution of habitats with contaminated water and/or sludge.	All contaminated water and sludge contained within the existing gas holder facility will be disposed of as per the phased demolition/decommission methods presented within section 1. Disposal of contaminated water

		and sludge will ensure that works do not result in causing a pollution event within the River Ems therefore avoiding pollution of the designated site. Therefore significant effects are unlikely and this impact can be screened out.
Indirect pollution via surface water run-off.	Surface run off of dust, soil and contaminated ground materials into the Rive Ems and subsequently the designated sites during demolition works.	Measures required to minimise the risk of causing indirect pollution to the River Ems and subsequently the internationally designated sites are provided within the phased demolition/decommission methods presented in section 1. This provides adequate approaches to works to ensure no adverse effect occurs to the designated site as a result of surface water run-off. Therefore the findings of the HRA are that the activity can be screened out.
Management operations	Without sufficient management disturbance, habitat damage, atmospheric pollution, and water pollution could all occur.	The client has committed to the production of an Environmental Management Plan. This document will detail adequate approaches to works to ensure no adverse effect occurs to the designated site. Therefore the findings of the HRA are that the activity can be screened out.

7 'IN COMBINATION' CONSIDERATION OF OTHER PLANS AND PROJECTS

7.1.1 The possible impacts associated with this project will be small, short term and localised, only those plans or project types which impact directly on the designated site should be considered:

- Wildfowling
- Operation of Chichester and Langstone Harbour
- Havant Borough Core Strategy
- Shoreline Management Plans

7.1.2 The following sections discuss these in further detail along with taking into consideration effects of other plans/projects in the local area which may have an in combination effect upon the designated site.

7.2 Wildfowling

7.2.1 Chichester Wildfowlers and Emsworth and District Wildfowlers and Conservation Association were contacted in relation to their activities within the designated site and surrounding area. Neither organisation have responded to request for information from Wardell Armstrong, it is therefore not possible to consider wildfowling activities in combination with the proposed works.

7.3 Operation of Chichester and Langstone Harbour

7.3.1 Use of Chichester and Langstone Harbour dates back prior to the industrial age (cited as 1485 by Chichester Harbour Conservancy), with Modern use of the harbour (industrial and leisure usage) continuing to modern day. Given the historic use of the harbour in conjunction with its nature conservation interest it is considered highly unlikely that the temporary effects of the demolition/decommission of the site will have any significant adverse effect upon the conservation value of the designated sites when considered in combination with the operation of Chichester and Langstone Harbour.

7.4 Local Development Frameworks/Core Strategy Housing allocations for local boroughs

7.4.1 The core strategy identifies the objective of achieving a net total of 6,300 new houses between 2006 – 2026 (allocated within five areas of the borough including Emsworth, Havant & Bedhampton, Hayling Island, Leigh Park, and Waterlooville). Such increases in housing allocation over this 20 year period may lead to increased level of public

pressure via leisure activities (i.e. dog walking/leisure walking, bird watching, use of the harbour), to the designated site. However, such developments can be screened out as acting in combination with the demolition works within the site. This is due to the fact that the small timescale associated with this project in comparison to core strategies. It is therefore considered unlikely that increased public pressure through leisure activity would act in combination with the proposed demolition works to have a likely significant effect upon the designated site.

7.5 Shoreline Management Plans

7.5.1 The North Solent Shoreline Management Plan (NSSMP) covers a significant area of coastline incorporating all areas covered by the designated sites. As the proposed works will involve such a small area, the Shoreline Management Plan Units closest to this area have been selected for inclusion within this assessment. Shoreline Management Plan Units selected are:

- 5A15
- 5A16
- 5A17

7.5.2 Details regarding NSSMP policies are presented within Appendix 1. In summary, the aim of the above policies is to maintain the flood defence line and ensure no works are carried out in the long term (i.e. until 2105). Such works will only involve maintenance of existing flood defences and will not result in the loss or increase in habitat area of the designated site. Therefore there is no likelihood of any in combination effect.

8 CONCLUSIONS

- 8.1.1 Based on the above information it is considered appropriate that the proposed works be screened out as being unlikely to lead to likely significant adverse effects on the designated site either alone or in combination with other activities. It is therefore considered that no further assessment works are required in relation to this project.
- 8.1.2 In the event that the works schedule for this project alters and subsequently coincides with the wintering bird season or migratory/passage seasons prior to or after the wintering bird season then the effects of this project should be re-assessed in order to determine the likely significant effect on internationally designated sites.

APPENDIX 1:
NORTH SOLENT SHORELINE MANGEMENT PLAN POLICY UNITS

Policy Unit 5A15 Wickor Point to Emsworth Yacht Haven**Summary description of Policy Unit**

This frontage is within Chichester Harbour AONB. The extensive tidal floodplain covers Ministry of Defence (MOD) facilities and assets and residential properties, transitional freshwater habitats, and terrestrial, inter-tidal and maritime heritage features. The single access transport link serving the MOD facilities on Thorney Island would also be affected by tidal flooding. Analysis of shoreline erosion (see Appendix C5) indicates the rate and scale of coastal processes are less within the harbours than on the open coast. There are inter-tidal habitats of International, European and national nature conservation importance and important roost sites for waders and waterfowl that support nearby and adjacent SPA/Ramsar sites. There is also a Local Nature Reserve. The existing defences are currently maintained by the Environment Agency.

Final policy options

SMP1 Ref n/a

Epoch 1 From Present Day (up to 2025)	Epoch 2 Medium Term (2025 to 2055)	Epoch 3 Long Term (2055 to 2105)
Hold the Line	Hold the Line	Hold the Line

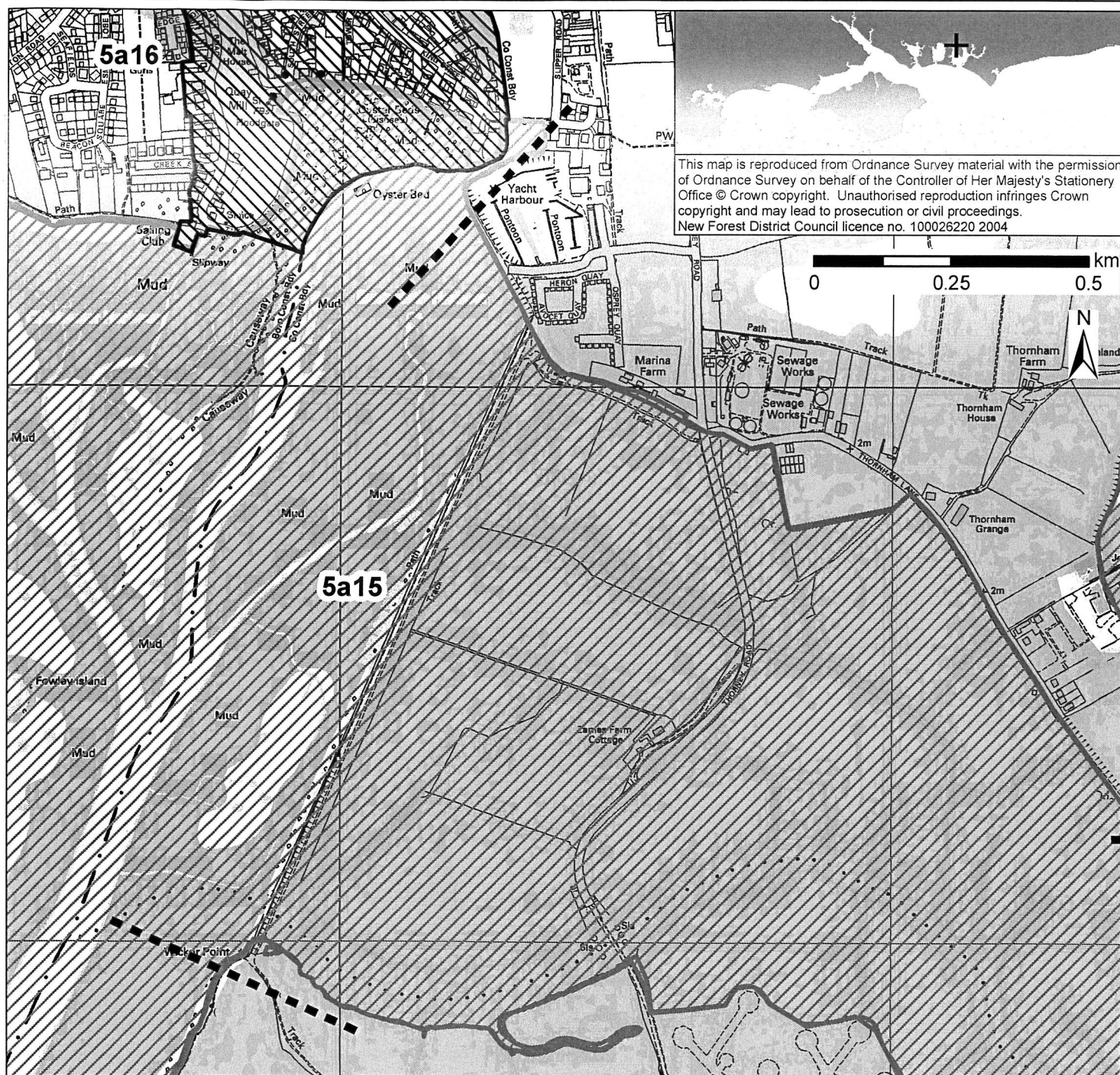
Summary of rationale behind final policy options

The final policy options to continue to maintain the defence line reflect the MOD's intentions for future management of their defences around Thorney Island (Policy Units 5A12 to 15). The flood defences will continue to provide protection to an extensive area of MOD land and assets, agricultural land and residential properties within the Chichester Harbour Area of Outstanding Natural Beauty. Access and transport links to the MOD facilities and residential properties on Thorney Island will be maintained and allow MOD to protect the operational capabilities of their facilities for as long as they occupy the site. Offshore, the saltmarsh and sandflat islands will continue to provide a reducing level of natural flood protection and function as high tide roost sites

If ownership of Thorney Island changed in the future, there may be opportunities to realign defences for inter-tidal habitat creation and environmental enhancement. Therefore, the long-term flood and erosion risk management approach for the defences on Thorney Island will be directly linked to the MOD's operations and management of their facilities and their flood defence funding budgets to undertake necessary maintenance and improvement works

Due to the environmental designations within Chichester Harbour maintenance of defence structures will result however, in the continued erosion and loss of European and national nature conservation designated habitats such as inter-tidal foreshore habitats, through coastal squeeze. These losses will need to be mitigated within the same designated area or compensated for elsewhere and delivered through the Regional Habitat Creation Programme. Opportunities for habitat mitigation and compensation have been detailed within the Appropriate Assessment of the final policies.

Policy changes through Public Consultation
None
Funding
As long as the MOD continue to own and occupy this site, funding the identified maintenance and improvement works would need to be secured through the MOD rather than central government flood and coast defence grant in aid.
Further Studies (identified in Action Plan)
Emsworth to East Head Flood and Coastal Erosion Risk Management Strategy Solent-wide network of high tide roost site study



POLICY

From Present Day (up to 2025):	Medium-Term (2025 to 2055):	Long-Term (2055 to 2105):
Hold the Line	Hold the Line	Hold the Line

■ Indicative erosion zone up to 2025

■ Indicative erosion zone up to 2055

■ Indicative erosion zone up to 2105

■ ■ ■ Policy Unit Boundary

■ International / National Designations

● Important Heritage Sites

■ 2115 Indicative Floodplain (1 in 200 year) provided from PUSH

Policy Unit 5A16 Emsworth Yacht Haven to Maisemore Gardens		
Summary description of Policy Unit This frontage is within Chichester Harbour AONB, and comprises the residential town of Emsworth, with associated community facilities and commercial properties. Heritage and recreational facilities include open spaces, Slipper Mill Pond, Emsworth Mill Pond and Mill House, and listed and historic buildings, along with Emsworth Conservation Area. A large proportion of existing defences and landholdings are privately owned and maintained. Analysis of shoreline erosion (see Appendix C5) indicates the rate and scale of coastal processes are less within the harbours than on the open coast. There are inter-tidal habitats of International, European and national nature conservation importance that support nearby and adjacent SPA/Ramsar sites; along with the Slipper Pond lagoon. This Policy Unit has been defined and assessed in the emerging draft Portchester to Emsworth Coastal Defence Strategy.		
Final policy options		SMP1 Ref n/a
Epoch 1 From Present Day (up to 2025)	Epoch 2 Medium Term (2025 to 2055)	Epoch 3 Long Term (2055 to 2105)
Hold the Line	Hold the Line	Hold the Line
Summary of rationale behind final policy options The final policy options are consistent with the emerging Portchester Castle to Emsworth Coastal Defence Strategy. The key policy drivers for maintaining the line of defence will provide flood protection to the residential centre of Emsworth and its associated community facilities and infrastructure, commercial properties and heritage and historically important sites and features, such as Slipper Mill and Emsworth Mill. Maintenance of defences may provide limited protection to the Slipper Pond lagoon fauna, although rising ground and sea water levels may influence the long-term survival of such ecological important sites. This frontage is within the Chichester Harbour Area of Outstanding Natural Beauty. Due to the environmental designations within Chichester Harbour maintenance of defence structures would continue to cause erosion and loss of European and national nature conservation designated habitats such as inter-tidal foreshore habitats, through coastal squeeze. These losses will need to be mitigated within the same designated area or compensated for elsewhere and delivered through the Regional Habitat Creation Programme. Opportunities for habitat mitigation and compensation have been detailed within the Appropriate Assessment of the final policies.		
Policy changes through Public Consultation None		

Funding

It is uncertain whether central government funding would be secured for the identified maintenance and improvement works, as determined through the emerging Portchester to Emsworth Coastal Defence Strategy. Alternative sources of public funding may be available to Local Authority. As is currently the case, no public funding would be available for continued maintenance of defences by private owners.

Further Studies (identified in Action Plan)

Conclusion and approval of Portchester to Emsworth Coastal Defence Strategy
Solent-wide network of high tide roost site study



POLICY

From Present Day (up to 2025):	Medium-Term (2025 to 2055):	Long-Term (2055 to 2105):
Hold the Line	Hold the Line	Hold the Line

■ Indicative erosion zone up to 2025

■ Indicative erosion zone up to 2055

■ Indicative erosion zone up to 2105

■ ■ ■ Policy Unit Boundary

■ International / National Designations

● Important Heritage Sites

■ 2115 Indicative Floodplain (1 in 200 year) provided from PUSH

Policy Unit 5A17 Maisemore Gardens to Wade Lane**Summary description of Policy Unit**

This frontage is within Chichester Harbour AONB. There is a cemetery and agricultural grade 1 and 2 land and assets and Warblington Conservation Area within the relatively limited extent of the tidal floodplain. Existing defences and landholdings are owned and maintained by private individuals and the Local Authority. Analysis of shoreline erosion (see Appendix C5) indicates the rate and scale of coastal processes are less within the harbours than on the open coast. There are habitats of national nature conservation importance at Warblington; and along with Conigar Point may provide important high tide roost sites for waders and waterfowl, and support the adjacent and nearby SPA/Ramsar sites. This frontage has been assessed in the emerging Portchester to Emsworth Coastal Defence Strategy, which has initially proposed a HTL policy for the first 10-20 years whilst further detailed assessment is undertaken to determine feasibility of a MR opportunities in the medium to long term.

Final policy options

SMP1 Ref n/a

Epoch 1 From Present Day (up to 2025)	Epoch 2 Medium Term (2025 to 2055)	Epoch 3 Long Term (2055 to 2105)
Hold the Line	Hold the Line*	Hold the Line*
	(*Further detailed studies are required which consider whether MR may occur at Conigar & Warblington)	

Summary of rationale behind final policy options

The final policy options are consistent with the emerging Portchester Castle to Emsworth Coastal Defence Strategy and reflect a precautionary management approach by the landowner (Havant Borough Council) to maintain defences until further detailed studies have been concluded that determine the future management of the site.

Maintaining the line of defence in the short-term will provide flood protection to agricultural land, amenity open space and a cemetery that are located within the tidal floodplain. Localised realignment of defences has been considered at the low-lying areas at Conigar and the nationally designated area at Warblington, but these sites may function as components of the Solent-wide network of high tide roost sites. The shoreline, and land within the flood risk area is owned by the Local Authority but is leased to and maintained by a private tenant farmer. This frontage is within the Chichester Harbour Area of Outstanding Natural Beauty.

The * in epochs 2 and 3 indicate that the future defence management approach for the medium and long-term will be determined through more detailed studies that will consider feasibility and implications of localised managed realignment to create inter-tidal habitat at Conigar Point and at Warblington, which would allow the shoreline to adapt to sea level rise and enable inter-tidal habitats to migrate landwards.

Maintenance of defences is unlikely to prevent further loss or damage to woodland

adjacent or close to the shoreline, such as Nore Barn Wood due to rising ground and sea water levels.

Due to the environmental designations within Chichester Harbour maintenance of defence structures will continue the loss of European and national nature conservation designated habitats such as inter-tidal foreshore habitats, through coastal squeeze. These losses will need to be mitigated within the same designated area or compensated for elsewhere and delivered through the Regional Habitat Creation Programme. Opportunities for habitat mitigation and compensation have been detailed within the Appropriate Assessment of the final policies.

Policy changes through Public Consultation

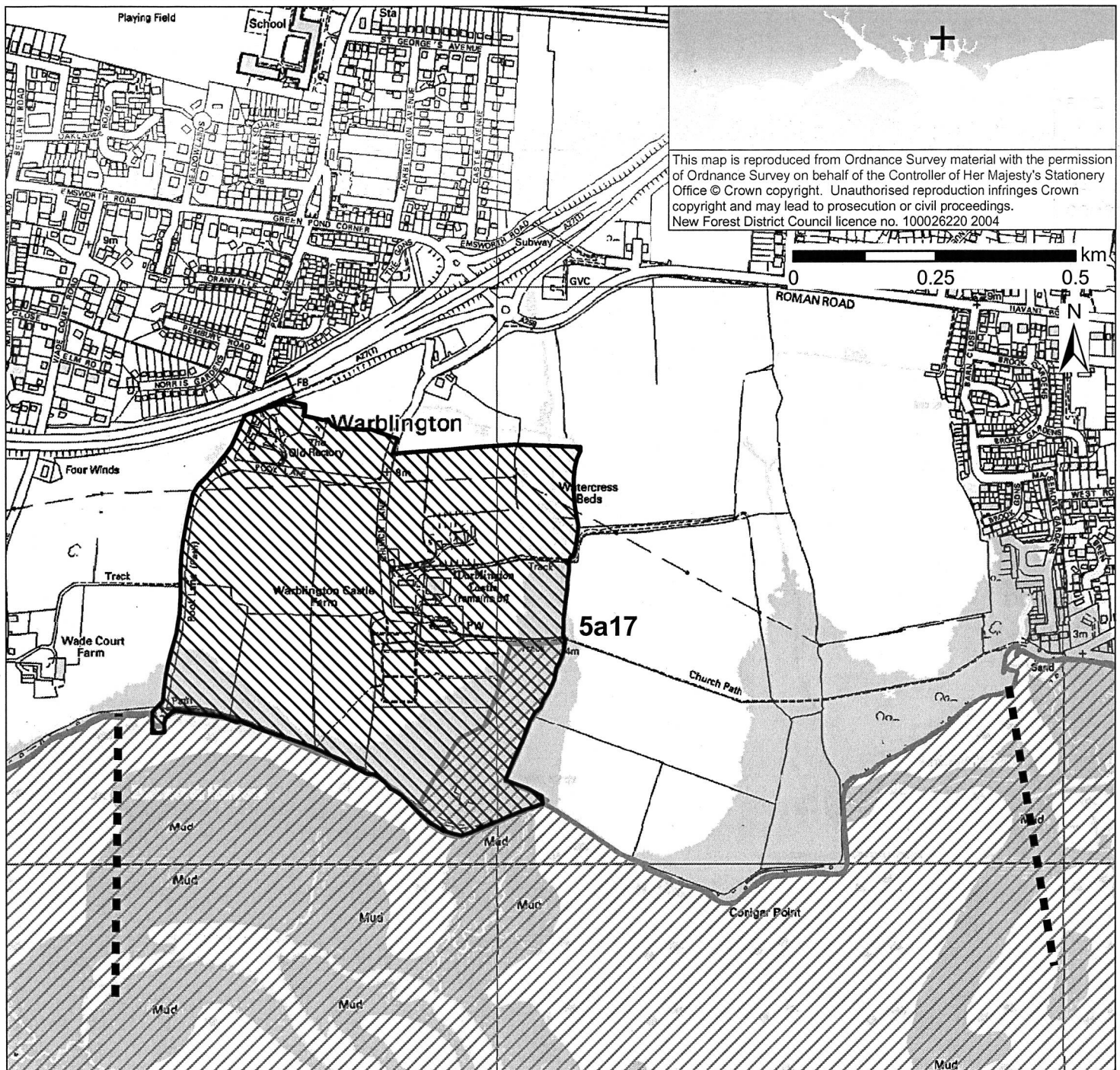
The policies proposed for consultation were HTL (localised MR at Conigar) / HTL / HTL (localised MR at Warblington). Following discussions and consultation with landowners (Havant Borough Council) the localised MR policy in epochs 1 and 3 were amended to reflect landowner's comments and to apply a precautionary management approach until further detailed studies have been concluded. The future management and potential localised realignment of defences and land use at Warblington and Conigar, as for all potential MR sites in the Solent region, will be determined subject to further detailed assessments as they are components of a Solent-wide network of high tide roost sites that support the designated SPA/Ramsar areas.

Funding

It is unlikely that central government funding would be secured for identified works, as determined through the emerging Portchester to Emsworth Coastal Defence Strategy. Alternative sources of public funding may be available to Local Authority. Central government funding may be available for works associated with localised managed realignment and habitat creation.

Further Studies (identified in Action Plan)

Conclusion and approval of Portchester to Emsworth Coastal Defence Strategy
Solent-wide network of high tide roost site study



POLICY

From Present Day (up to 2025):	Medium-Term (2025 to 2055):	Long-Term (2055 to 2105):
Hold the Line	Hold the Line*	Hold the Line*
(*Further detailed studies are required which consider whether MR may occur at Conigar & Warblington)		

■ Indicative erosion zone up to 2025

■ Indicative erosion zone up to 2055

■ Indicative erosion zone up to 2105

■ ■ ■ Policy Unit Boundary

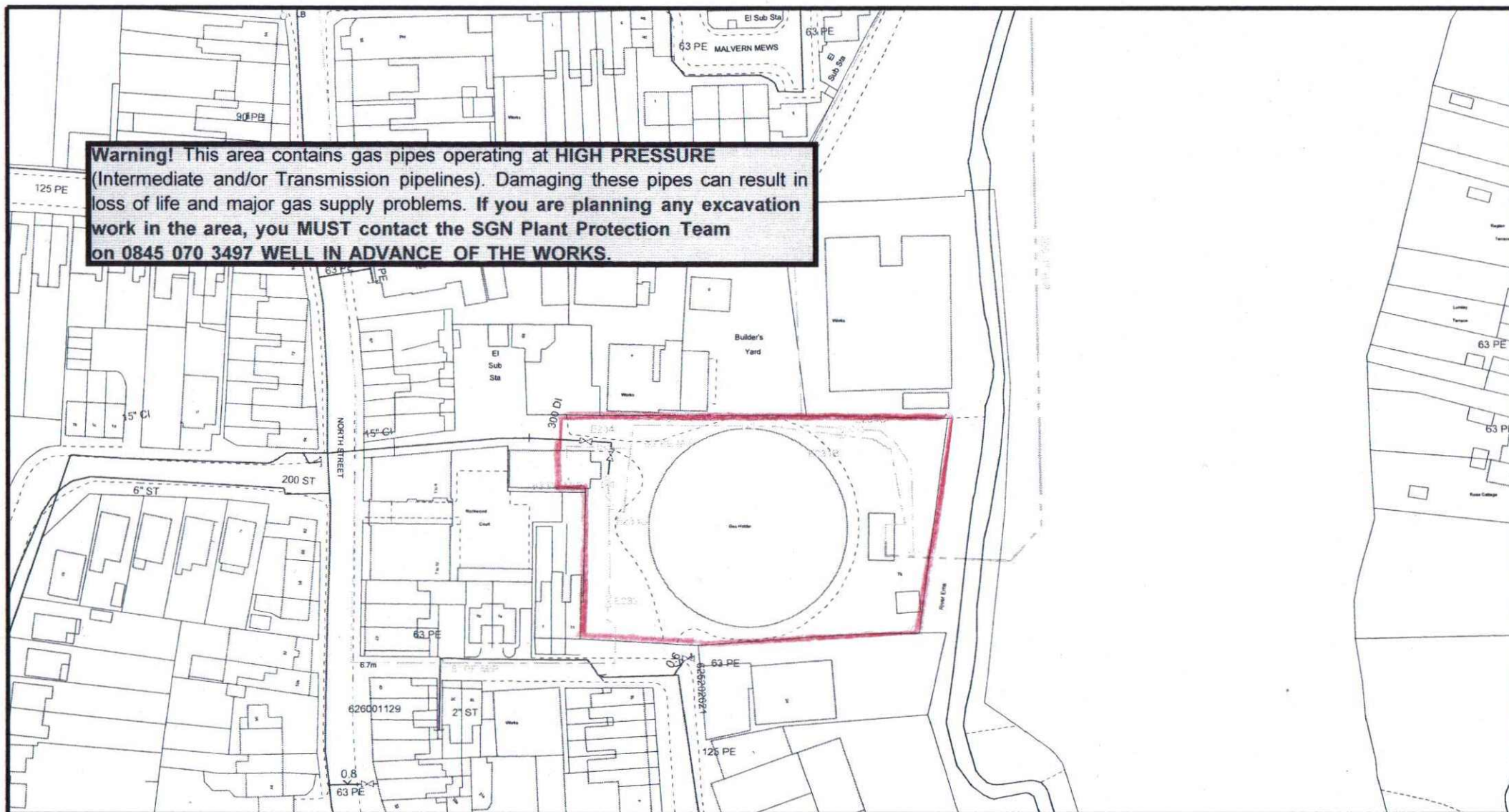
■ International / National Designations

● Important Heritage Sites

■ 2115 Indicative Floodplain (1 in 200 year) provided from PUSH

FIGURE 1
SITE LOCATION

Warning! This area contains gas pipes operating at HIGH PRESSURE (Intermediate and/or Transmission pipelines). Damaging these pipes can result in loss of life and major gas supply problems. If you are planning any excavation work in the area, you MUST contact the SGN Plant Protection Team on 0845 070 3497 WELL IN ADVANCE OF THE WORKS.



USER ID: AN56087

DATE: 28 Mar 2014

EXTRACT DATE: 19 Dec 2013

MAP REF: SU7406SE

CENTRE: 474971, 106161

SCALE: 1:1,250

LP Mains

MP Mains

IP Mains

LHP Mains

NHP Mains

This plan shows those pipes owned by Scotia Gas Networks plc in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Scotia Gas Networks plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Product: UtilityMaps

Version: 1.6.5.1

Template: 'Scotia Gas Networks (A4 Landscape)'

Valve  Depth of Cover  Syphon  Diameter Change  Material Change 



Scotia
Gas Networks

Delivering gas safely, reliably and efficiently



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