Historic England

PLANNING ACT 2008 (AS AMENDED) – SECTION 88 AND THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010 (AS AMENDED) - RULE 6

APPLICATION BY PORT OF TILBURY LONDON LIMITED FOR AN ORDER GRANTING DEVELOPMENT CONSENT FOR A PROPOSED PORT TERMINAL AT THE FORMER TILBURY POWER STATION ('TILBURY2') TRO30003

WRITTEN REPRESENTATIONS OF THE HISTORIC BUILDINGS AND MONUMENTS COMMISION FOR ENGLAND (HISTORIC ENGLAND)

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Summary

Historic England's written representations consider that the proposed further port facilities to the east of Tilbury Fort would not be sustainable development in the language of the National Policy Statement for Ports as, while potentially bringing substantial public benefits, they would cause severe harm to the significance of the scheduled monument. We recommend that in determining the application the Examining Panel should weigh the exceptional significance of the Fort and the severity of the harm which would be caused to its significance against the public benefits of the proposed development. They should also consider whether the applicant has taken all possible steps to avoid, or if this is not possible, to minimise the harm the development would cause to the monument's significance.

In making these representations, we have also:

- considered the applicants' response to our Relevant Representations, including their Minimisation Statement (Appendix 2)
- given detailed comments on the coverage of marine archaeology in the ES (Appendix 1)
- commented on how the programmes of archaeological mitigation should be secured through the DCO and DML (Appendix 2).

1. Introduction

1.1 The Historic Buildings and Monuments Commission for England (HBMCE), known as Historic England, are the Government's adviser on all aspects of the historic environment in England - including historic buildings and areas, archaeology and historic landscape – and have a duty to promote public understanding and enjoyment. HBMCE are an executive Non-Departmental Public body sponsored by the Department for Digital Culture, Media and Sport (DCMS) and we answer to Parliament through the Secretary of State for Digital Culture, Media and Sport. Our remit in conservation matters intersects with the policy responsibilities of a number of other government departments – particularly the Ministry of Housing, Communities and Local Government, with their responsibilities for land use planning matters. The National Heritage Act (2002) gave HBMCE responsibility for maritime archaeology in the English area of the UK Territorial Sea.

1.2 Historic England are a statutory consultee on these proposals by the Port of Tilbury to extend their facilities. The proposed development would affect the setting of Tilbury Fort, a scheduled monument in the guardianship of the English Heritage Trust on behalf of the Secretary of State (Figure 1).

1.3 The proposals would also affect a number of other designated heritage assets in both Essex and Kent which have been assessed by the applicants in the ES Chapter 12 and ES Appendix 12.B. Chapter 12 also sets out the likely impacts on undesignated terrestrial and marine archaeological remains, and the mitigation

strategies which would be adopted. We have concentrated our written representations on Tilbury Fort (and those designated heritage assets which contribute to its setting), in view of its exceptional significance, and in view of the much greater degree of harm which would be caused to its significance.

1.4 We are working with the applicants towards a Statement of Common Ground. This will set out on which matters relating to Tilbury Fort there are agreement, and will also cover other heritage assets. The document is to be submitted unsigned at deadline 1 and we anticipate further discussions with the applicants after the deadline in order to conclude the Statement.

1.5 Our detailed comments on the ES in respect of Marine archaeology is included as part of these written representations as Appendix 1.

2.0 Relevant Legislation, Policy and Guidance

2.1 Ancient Monuments and Archaeological Areas Act (1979)

2.1.1 Under the terms of the 1979 Act the Secretary of State has a duty to compile and maintain a schedule of ancient monuments of national importance, the purpose being to help to preserve them, so far as possible, in the state in which they have come down to us today. The DCMS statement (October 2013) on Scheduled Monuments and nationally important but non-scheduled monuments sets out Government policy on the identification, protection, conservation and investigation of nationally important ancient monuments… including Scheduled Monuments. (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/249695/SM_policy_statement_10-2013__2_.pdf)

2.2 The Planning Act (2008)

2.2.1 This Act makes provides a system for approving major infrastructure of national importance, such as harbours and waste facilities, and replaced previous regimes under several pieces of legislation. It provides for decisions would be taken by an Infrastructure Planning Commission, with decisions based on new national policy statements, with a hearing and decision-making process by the Commission which would be timetabled.

2.3 The National Policy Statement on Ports (NPS):

2.3.1The NPS sets out the Government's policy on ports. Its objectives in relation to encouraging sustainable port development are set out in para 3.3, and in respect of the historic environment, this should "ensure that access to and condition of heritage assets are maintained and improved where necessary (3.3.3).

2.3.2. It also stresses the importance of good design in port development which 'is fundamental to mitigating the adverse effects of development, as well as a means to deliver positive aesthetic qualities in an industrial setting (3.3.8). Criteria for good design is expanded in para 4.10, which requires that proposals should produce sustainable infrastructure, sensitive to place…. matched by an appearance that demonstrates good aesthetic as far as possible. However, it acknowledges that the nature of much port infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area (4.10.1) and that the applicant may have no or limited choice in the physical appearance of some port infrastructure. In view of this, opportunities should be sought to demonstrate good design relative to the existing landscape character, landform and vegetation.

2.3.3 It is acknowledged in para 4.6.2 and 5.11.2, which deal with landscape and visual impacts, that port development can sometimes have a negative impact on tourism and the characteristics and visual amenity of the landscape, respectively, particularly where the local area is dependent on an acknowledged tourist activity destination.

2.3.4 In considering the impact of a proposed development on any heritage assets, the decision-maker should take into account the particular nature of the significance of the heritage assets and the value that they hold for this as well as future generations. This understanding should be used to avoid or minimise conflict between conservation of the significance and proposals for development (5.12.11)

2.3.5 The decision-maker should take into account the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution of their settings and the positive contribution they can make to sustainable communities and economic vitality [see footnote 72 below]. The decision-maker should take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design should include scale, height, massing, alignment, materials and use. The decision-maker should have regard to any relevant local authority development plans or local impact report on the proposed development (5.12.12).

Footnote 72 states that the contribution of heritage assets can be by virtue of:

- heritage assets having an influence on the character of the environment and an area's sense of place;
- heritage assets having the potential to be a catalyst for regeneration in an area, particularly through leisure, tourism and economic development;
- heritage assets being a stimulus to inspire new development of imaginative and high quality design;
- the re-use of existing fabric, minimising waste; and
- the mixed and flexible patterns of land use in historic areas that are likley to be, and remain, sustainable.

2.3.6 There should be a presumption in favour of the conservation of designated heritage assets and, the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Once lost, heritage assets cannot be replaced, and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a grade II listed building park or garden should be exceptional. Substantial harm to or loss of designated assets of the highest significance, including Scheduled Monuments; registered battlefields; grade I and II* listed buildings; grade I and II* registered parks and gardens; and World Heritage Sites should be wholly exceptional (5.12.13).

2.3.7 Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that, and the greater the harm to the significance of the heritage asset, the greater the justification will be needed for any loss. Where the application will lead to substantial harm to or total loss of significance of a designated heritage asset, the decision-maker should refuse consent unless it can be demonstrated that the substantial harm to or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm (5.12.14).

2.3.8 When considering applications for development affecting the setting of a heritage asset, the decision-maker should treat favourably applications that preserve those elements of the setting that make a positive contribution to, or that better reveal the significance of, the asset. When considering applications that do not do

this, the decision-maker should weigh any negative effects against the wider benefits of the application. The greater the negative impact on the significance of the asset, the greater the benefits that will be needed to justify approval (5.12.16).

2.3.9 A documentary record of our past is not as valuable as retaining the heritage asset, and therefore the ability to record evidence of the asset should not be a factor in deciding whether consent should be given (5.1.17).

2.3.10 Where loss of the whole or a material part of a heritage asset's significance is justified, the decision-maker should require the developer to record and advance understanding of the asset's significance before this is lost. The extent of the requirement should be proportionate to the nature and level of the asset's significance. Developers should be required to publish this evidence and deposit copies of the reports with the relevant Historic Environment Record. They should also be required to deposit the archive generated to a local museum or other public depository willing to receive it (5.12.18).

2.3.11 Where appropriate, the decision-maker should impose requirements on a consent to ensure that such work is carried out in a timely manner in accordance with a written scheme of investigation that meets the requirements of this section and has been agreed in writing with the relevant local authority (and, where the development is in English waters, the Marine Management Organisation and Historic England), and that the completion of the exercise is properly secured (5.12.19).

2.3.12 Where the decision-maker considers there to be a high probability that a development site may include as yet undiscovered heritage assets with archaeological interest, the decision-maker should consider requirements to ensure

that appropriate procedures (for example, a written scheme of investigation) are in place for the survey, identification, analysis and treatment of such assets discovered before and during construction (5.12.20).

2.4 The National Planning Policy Framework

2.4.1 The setting of heritage assets is defined in Annex 2, p.56. It states that the setting of a heritage asset is the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to ability to appreciate that significance or may be neutral.

2.5 Planning Practice Guidance: Conserving and Enhancing the Historic Environment, (HCLG 2018)

2.5.1 The Planning Practice Guidance states that the terms ‘special architectural or historic interest’ of a listed building and the ‘national importance’ of a scheduled monument is used to describe all or part of the identified heritage asset’s significance. Some Heritage assets may be affected by direct physical change or by change in their setting. Being able to properly assess the nature, extent and importance of the significance of a heritage asset, and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals

2.5.2 A thorough assessment of the impact on setting needs to take into account, and be proportionate to, the significance of the heritage asset under consideration

and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it.

2.5.3 Setting is the surroundings in which an asset is experienced, and may therefore be more extensive than its curtilage. All heritage assets have a setting, irrespective of the form in which they survive and whether they are designated or not.

2.5.4 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.5.5 When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may need to consider the implications of cumulative change. They may also need to consider the fact that developments which materially detract from the asset's significance may also damage its economic viability now, or in the future, thereby threatening its ongoing conservation.

2.5.6 What matters in assessing if a proposal causes substantial harm is the impact on the significance of the heritage asset. As the National Planning Policy Framework makes clear, significance derives not only from a heritage asset's physical presence, but also from its setting.

2.5.7 Whether a proposal causes substantial harm will be a judgment for the decision taker, having regard to the circumstances of the case and the policy in the National Planning Policy Framework. In general terms, substantial harm is a high

test, so it may not arise in many cases…..It is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed. The harm may arise from works to the asset or from development within its setting.

2.6 Historic Environment Good Practice Advice in Planning 3: The Setting of Heritage Assets (Historic England, 2015)

2.6.1 The Good Practice Note provides advice in support of the Government's policy and guidance. It states that the importance of setting lies in what it contributes to the significance of the heritage assets. This depends on a wide range of physical elements within, as well as perceptual and associational attributes pertaining to the heritage asset's surroundings. The Note sets out methodologies for assessing the contribution which setting can make to significance and the effects of proposed development on setting.

2.6.2 It goes on to say that where the significance of a heritage asset has been compromised in the past by unsympathetic development affecting its setting, to accord with NPPF policies, consideration still needs to be given to whether additional change will further detract from, or can enhance, the significance of the asset. Negative change could include severing the last link between an asset and its original setting.

2.6.3 Although the Note states that setting does not depend on public rights, or the ability to access it, there is particularly high potential for it to be appreciated at Tilbury Fort which is managed, opened and interpreted as a visitor and educational attraction by the English Heritage Trust.

2. 7 Conservation Principles – Policies and Guidance (Historic England, 2008)

2.7.1 This guidance concerns, amongst other matters, the assessment of significance using Heritage Values to strengthen the decisions taken and advice given by Historic England. It is also widely used by the sector and we have used these values in assessing the significance of Tilbury Fort, including the contribution made by its setting.

2.8 Thurrock Borough Council Core Strategy:

2.8.1This includes a policy (CSTP24) which is intended to ensure that the setting of Tilbury Fort, including views of it from the river, are appropriately protected and enhanced, and that encroachment on the open land around it is not permitted.

3.0 The Significance of Tilbury Fort

3.1 Tilbury Fort is the most impressive and important late seventeenth century fortifications in England, and as such is among the most important post-medieval fortifications in Britain. Rich in historical associations, it was built for the defence of the capital. The Fort's setting, commanding the river and the estuarine marshes to the north, was essential to its purpose and, notwithstanding the changes in the nineteenth and twentieth centuries, remains essential to understanding its significance and appreciating its character today.

3.2 History and Architectural Development of the Fortifications

3.2.1 The mouth of the River Thames has always been of the greatest strategic importance to the defence of England, and the fort at Tilbury has its origins in the sixteenth century. In 1539 Henry VIII instigated work for a chain of D-shaped, two-storey brick and stone blockhouses in response to invasion threats from France and the Holy Roman Empire. Designed for artillery, that at Tilbury was probably flanked by firing platforms, with ancillary buildings to the rear. It was protected by a rampart and ditch, and utilised the extensive marshlands and creeks, where landing was difficult, for additional protection. Downstream on the Essex side, it was augmented by the blockhouse at East Tilbury (site of the later Coalhouse Fort), and the Essex fortifications were paired by others at Gravesend, Milton and Higham on Gravesend Reach. Together they guarded the approach to London, at the point where the Thames estuary narrows.

3.2.2 Tilbury's defences were subsequently augmented during the 1580s, in the run up to, and following the defeat of the Armada, when they included a boom across the river. Tilbury is famously associated with Queen Elizabeth I's celebrated address to her troops, whilst in temporary camp at West Tilbury. The blockhouse was maintained until 1667 when it was incorporated into new defences. In an altered form, it served as a powder magazine for the shoreline battery of the seventeenth century fort and was standing until 1867. Its buried archaeological remains are considered to survive beneath later structures.

3.2.3 After the Restoration, Charles II ordered a major review of coastal defences and plans for a new fort at Tilbury, based on principles pioneered in the Low Countries, were drawn up in 1661-2 by the king's chief engineer, Sir Bernard de Gomme. At the time of the successful Dutch raids up the Thames and the Medway in 1667 the Tilbury and Gravesend forts remained poorly prepared to resist potential attacks, and construction of the new fort at Tilbury only began in 1670, with the King visiting the works in 1671, and continued until 1683.

3.2.4 The resulting fortifications remain substantially unaltered to this day (Figure 2). Tilbury is the best preserved and, in many ways the finest surviving example of late seventeenth century military engineering in England. Its only rival is the Royal Citadel at Plymouth which preserves much of its original character internally. However, Tilbury alone preserves the extensive landward outworks: the moats, ramparts, ravelin (fortified island) and covered way. It is England's most spectacular surviving later seventeenth century coastal fort, and comparable in scale and complexity with contemporary continental fortifications.

3.2.5 As a rare and important survival of coastal fortifications from the sixteenth-eighteenth centuries, Tilbury Fort has both evidential and associative historical value.

3.2.6 Designed for artillery, the defences are characterised by massive, low earthworks, resilient to the shock of bombardment, and a layout and construction geared to cannon at the forward batteries. Its offensive strength was based on the riverside batteries or gun lines on either side of the wharf and quay opposite the Water Gate, where heavy guns could command the river, acting with the battery at Gravesend, to create a crossfire which would prevent hostile shipping from approaching London or attacking shipping lying up river (Figure 3).

3.2.7 The brick-revetted earthwork bastions at the angles of the Fort, the intermediate curtain walls and the double moats, separated by an earthen covered-way provided the fort's defences from flank or landward attack. Landward entry to the fort was via a triangular two-story redoubt, crossing the outer moat to the covered way, then by bridge to the ravelin in the inner moat and finally crossing a bridge with two drawbridges to entry via the Landport Gate. The complex system of outworks ensured that each part was covered by the guns of another, and were designed to keep the enemy's batteries as far away from the fort as possible, and to provide hazardous obstacles for would-be attackers.

3.2.8 This system of bastions and complicated outworks defending the batteries from the rear is principally of Dutch design. Tilbury is the most complete and best preserved example in England. Water management formed a significant part of the

defences; the ability to drain the moats for maintenance, and to prevent attack over frozen surfaces in winter, was amplified by wider areas of embanked marsh, which could be flooded to hinder an approaching force and prevent the construction of siege works.

3.2.9 The major architectural components of the Fort are:

- The Watergate of c. 1682 is the main entrance to the Fort, located in the centre of the southern defences, facing the river. It is a two-storied brick structure, providing accommodation for the master gunner. It has a particularly rich outer façade, faced in ashlar and including a frieze with a dedication to Charles II, with supporting motifs of gun carriages and military regalia is an exceptional instance of the Baroque style of the period and may be compared with de Gomme's similar entry to the citadel at Plymouth. The Watergate is the most important focal point in the southern curtain wall, in views to the Fort from the south and obliquely from the east and west.
- The near contemporary Guard House and Chapel adjoin the west wall of the Watergate and comprises a two-storey brick block with ground floor guard house and chapel above. The chapel is one of the oldest surviving chapels built as part of a British artillery fortress. Since it was not consecrated, services for births, marriages and deaths were conducted in the nearby parish churches of West Tilbury and Chadwell St Mary.

- The Landport Gate gave access via the landward defences. It is centrally located within the northern ramparts and comprises a brick vaulted entrance

hall, supporting an upper storey with a single chamber containing some original plasterwork and fragments of eighteenth-century wall paintings. The northern façade of the gate, set within the brick curtain wall, is a simple elliptical arch with plain keystone and imposts in Portland stone. The Landport Gate is the visually predominant feature in the northern curtain wall in views from the landward defences, Fort Road and beyond.

- The Powder Magazines of 1716 (altered in 1746 and the late 1860s) are the only early eighteenth-century powder magazines surviving in Britain, and were built to supply the army at large, rather than just the fort. Architecturally and technologically innovative, they are listed in their own right at grade II*. They are prominent elements in internal views within the parade ground, looking north and east.
- The only surviving barrack block is the Officers' Quarters, situated on the east side of the parade ground. It is a fine terrace of brick houses, dating in its present form to c. 1772, and was originally arranged in suites of varying sizes, depending on rank. It is listed in its own right at grade II*. Its current use is divided between site interpretation and private tenanted residential use. The barracks are an important visual component in both internal views across the parade ground and in external views to and across the fort.

3.2.10 The structural remains of the Fort and its buildings have exceptional evidential value, clear illustrative historical value and unique aesthetic value.

3.2.11 Tilbury Fort and the batteries at Gravesend formed the first line of defence, and Tilbury remained at the forefront of the defence of the Thames and London

throughout the eighteenth century. In addition to its defensive role, it was used as a gunpowder depot, garrison, and prison following the Jacobite rebellion of 1745. An additional battery was constructed in the south-east corner, matched by a new battery on the south bank at New Tavern Fort. However, by 1859 there were concerns that the existing defences were insufficient. In addition to the city itself, the merchant fleet in the Port of London, the arsenal at Woolwich and the Great Powder magazine at Purfleet, were considered to be at risk. As a result of the Royal Commission on the defence of the United Kingdom in 1859, new, larger forts were constructed at Coalhouse, Shornmead and Cliffe, with Tilbury downgraded to the second line of defence. It was this move which resulted in the survival of De Gomme's landward defences, since the works required to overhaul it for this lesser role were not radical, and did not necessitate their destruction.

3.2.12 By 1905 the forts downstream were considered to provide sufficient protection for London, the artillery was removed and the fort served as a mobilisation store. During WWI it served as a transit camp and supply base, but thereafter was not deemed to be of military use, although housing an anti-aircraft operations room 1939-40. It was passed to the Ministry of Works in 1950 and following a programme of works, was opened to the public in1982.The longevity of the fortifications at Tilbury contribute to the Fort's historical value.

3.3 The Contribution of the Fort's Setting to its Significance

3.3.1 The Planning Practice Guide and Historic England's *The Setting of Historic Assets* give guidance on setting and its assessment. The importance of setting lies

in what it contributes to the significance of the heritage assets and that this depends on a wide range of physical elements within, as well as perceptual and associational attributes pertaining to the heritage asset's surroundings. The PPG notes that the extent and importance of setting is often expressed by reference to visual considerations, and although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

3.3.2 Tilbury Fort was, in consequence of its function, sited with great thought for the surrounding topography. Its setting, both historic and contemporary, makes a powerful contribution to the Fort’s significance. It was located on the river front, historically within a landscape of coastal grazing marsh, with areas of saltmarsh to the east of the fort. By the sixteenth century Tilbury was also the site of a ferry, with jetties on both banks, and a market on the north bank developed. A map of 1773 shows two areas of enclosed marsh to the east of the fort, and an admiralty chart of 1850 shows a series of north-south linear drove ways, giving access from the river terrace onto the grazing marsh, one of which (Fort Road) linked the fort to the village of West Tilbury. East-west access was by means of a riverside track. The only early documented industry is the late seventeenth century brick and tile works owned by Daniel Defoe, thought to have been located in the vicinity of the Port.

3.3.2 Its landscape setting is derived from its strategic shoreline location on Gravesend Reach, on the north bank of the River Thames, some 22 nautical miles

from the City of London and 15 nautical miles from the mouth of the estuary at Westcliff on Sea. Its location was chosen to take advantage of:

- good, clear long views down-stream to the estuary, giving a commanding view of approaching shipping;
- clear sight lines with the fortifications at Gravesend with which it was paired, so as to provide an overlapping field of fire;
- wide ranging landward views across the coastal marshes, taking in the elevated land of the river terrace (Chadwell Escarpment), over which the landward defences provided additional protection from landward attack.

3.3.3 Views to and from the fort, and the fortifications to which it is related, make a particular contribution to its significance fort, since they demonstrate:

- the relationship between the fortifications and its landscape setting which is a fundamental aspect of its design and function;
- the relationship between the Fort (as a key strategic component the chain of fortifications guarding the River) with those other fortifications guarding the Thames Estuary;
- views with historical associations, such as those towards West Tilbury, whose church served the fort and was where the Armada forces were addressed by Elizabeth I.

3.3.4 The setting of Tilbury Fort is mediated and interpreted by the existence of many historic artistic images. The majority of surviving representations of the Fort at

Tilbury are engravings and paintings taken from the river, between Gravesend and Tilbury, looking north. Early versions show the Tudor blockhouse still standing, rising above the forward defences and the seventeenth century ramparts. These artistic representations make an important contribution to the interpretation of the fort, their evidential value complementing the physical experience of its setting and contributing to the Fort's significance.

3.3.5 For modern visitors, key outward views, which enable them to understand the strategic location and the operation of the defences, are from the forward defences on the riverside, the ramparts and bastions and the landward water and earthwork defences. Other views would have been from the upper floors of the Officers' Barracks. Key views to the Fort are from Gravesend, the riverside wall, Fort Road, together with glimpsed distant views from the higher ground of the Chadwell escarpment, together with views to and from the other Thames fortifications on both sides of the river.

3.3.6 The ramparts and bastions, together with the forward batteries, provided the principal elevated artillery positions, encompassing long views and firing positions over 360 degrees. The ramparts and bastions are complete, albeit with historical modifications. These command the longest and most elevated views from the fort, compared to similar, less elevated views from the earthworks and moats of the water defences. In describing views, we have concentrated on those seen from the ramparts (and towards the defences), beginning with the river views to the south, followed by clockwise perambulation and views from the parade ground.

3.3.7 The importance of river views between Tilbury Fort and the Gravesend fortifications is central to an understanding of their strategic relationship. In views across the river, both to and from the Fort, the twentieth century riverside flood defence wall is a harmful visual intrusion. Its height masks the stature of the fortifications ranged behind it. Nevertheless, the Fort is still clearly visible from the river and from New Tavern Fort, with which it retains its lines of sight, and the retention of this inter-visibility between the defences at Tilbury and Gravesend has illustrative historical value and makes an important contribution to the significance of Tilbury fort.

3.3.8 The immediate setting of the landward defences to the west of the fort includes the former site of Tilbury market place, which was sited adjacent to the ferry crossing, to the north-east of the World's End Inn, against the outer moat of the fort. The Inn is a late seventeenth/early eighteenth century, timber-framed and weather boarded building (listed grade II), located immediately to west of the outer moat of the fort. It is the only survival of domestic architecture of the period within the Fort's immediate setting and serviced the Tilbury to Gravesend Ferry. As such it contributes to the Fort's significance both historically and aesthetically.

3.3.9 Views from the Fort to the west and north-west have been radically changed since the opening of Tilbury docks in 1886, as a result of the development of the Port of Tilbury, allied development and the expansion of settlement. Both views up-stream and across the wider western landward setting now bear little relation to its historical landscape setting. Strategic river views, open land and topography are blocked by buildings and structures, to the extent that they are no longer discernible.

3.3.10 Views west along the shore are obscured by the bridge for the Gravesend-Tilbury ferry and the cruise terminal beyond, behind which parts of port buildings and the container storage yard block the skyline, interspersed with four 80m hub height wind turbines and cluster lighting standards. Behind these, a series of large port and allied distribution and storage buildings dominate, with the Riverside business units, and lorry/car storage areas in the middle ground, beyond which can be glimpsed the port side cranes. The predominating bulk of these buildings and structures diminishes to some degree in views towards the north-west, replaced by a combination of further, more distant industrial buildings and blocks of flats.

3.3.11 The immediate setting of the landward defences to the north-west and north comprises three areas of improved historic grazing marsh, in part currently grazed. To the north, the marsh includes part of Tilbury Fort common and an adjacent piece of land subdivided into small fields by traces of straight water-filled ditches. The marsh also contains ditches linked to the Fort's water-filled moat and is bisected by Fort Road. This grazing marsh abuts the water defences and those areas, within the scheduled monument, where controlled flooding formed an additional line of defence. As such these views have considerable illustrative historical value which contributes to the significance of the Fort.

3.3.12 As views move through north towards the north-east, the wider topography and landscape setting of the Fort becomes discernible, with occasional glimpses of the high ground of the Chadwell escarpment. The railway (opened in 1854) skirts the northern boundary of the remaining parcels of grazing marsh, which are traversed by Fort Road. Passing trains and traffic on Fort Road are visible. In the middle ground

housing is visible, with blocks of flats on the higher ground, interspersed with larger areas of open ground and screening by evergreen planting.

3.3.14 Beyond this point, turning east, the further views are predominantly of open land rising up to the Chadwell escarpment, and a full sense of the Fort's historic landward setting can be grasped. Although there are a number of buildings, the railway, road, vegetation and a pylon line in the middle ground, these do not dominate the view or seriously detract from the legibility of the landscape setting of the Fort, which here makes an important contribution to understanding how the Fort operated in its landscape setting. The river terrace provides an important reference point, and views of it extend to take in glimpses of West Tilbury village (conservation area) and its listed parish church (which served the fort), the tower of which is a landmark on the edge of the escarpment. There is an important relationship between the Fort and the village, which was the site of the temporary camp from which Elizabeth I addressed the Armada troops. These views therefore have associative historical value with makes an important contribution to the significance of the Fort.

3.3.14 As the view moves further east, the open views of the middle ground, south of Fort Road, have recently been eroded by the raising of ground levels for Stobart's obtrusive waste wood processing facility (for which planning consent was granted retrospectively in 2018). This abuts the Water Treatment Works (WTW), the structures of which rise above a belt of screen planting. The latter, together with naturally generated vegetation, extends a considerable way south towards the Tilbury B turbine hall; lighting standards and pylons are evident above this.

3.3.14 Longer, distant views to the east are currently glimpsed from the south east bastion and from the eastern most parts of the defences, including views of open land and the river terraces downstream on both banks, where the site of Shornmead fort is can be located on the Kent side. Even before the demolition of the turbine hall, the topography which contributes to the setting of the fort is discernible. After its demolition, as noted in the ES (12.114) 'the removal of the Tilbury B will fundamentally alter the appearance of the north bank of the river.' The WTW structures will be the only substantial built form in this view and, even allowing for the modified levels of the ash fields, there will be a marked increase in the open views to the east from the Fort. Remaining views east, towards the estuary, contribute to an understanding of the Fort's strategic location and therefore have illustrative historical value which contributes to the significance of the Fort.

3.3.16 On the Essex bank, there is a strong historical relationship between Tilbury and Coalhouse as Tudor blockhouses and in the subsequent ascendancy of Coalhouse over Tilbury when the latter was demoted to second line of defence. While Tilbury and Coalhouse Forts are not directly inter-visible, they are glimpsed together in views from the Two Forts Way, in the same way that the forts of Shornmead and Cliffe are discernible. Though distant in views, these fortifications also form a part of the setting of the Fort and have an illustrative historical value which contributes to the significance of the fort.

3.3.17 Views towards the Fort from the east and west allow a clear appreciation of the way in which the landward defences sit in their landscape, with the curtain walls gatehouses, and other structures rising above the ramparts. Those from the north, along Fort Road, give a clear visual sense of the way in which the fort and its defences benefit from its low marshland setting and have illustrative historical value which contributes to the significance of the fort.

3.3.18 In views from the Parade Ground, since the removal of the Tilbury B chimneys, the principal external developments which are visible is highly obtrusive Port of Tilbury Wind farm, and, depending on location the turbine hall, rising above the curtain wall. They provide a vivid example of how modern industrial development can detract from the character of the Fort and harm the viewer's appreciation of its significance.

3.3.19 While the historic openness of the Fort's setting has been gravely compromised to the west by the development of the Port of Tilbury and Tilbury B, as well as that of the WTW and, most recently, the Stobbart waste wood facility to the east, it remains possible to appreciate the essential character of topography in which the Fort stands, both looking across the river, to or from the Fort, and looking from the high ground of the river terrace, or, more importantly, looking to that high ground from the Fort's landward ramparts. Compromised as they are, these views remain essential to the viewer's understanding and appreciation of the Fort's character now, and of its historic significance when its carefully chosen setting made it both a formidable and critical part of the defence of London and, possibly, impregnable against landward attack.

3.4 The Significance of Tilbury Fort: Conclusion

3.4.1 The Fort meets the criteria for national importance as a designated scheduled monument under the Ancient Monument and Archaeological Areas Act 1979, and its significance should be understood in the with reference to the weight which is given in NPS 5.12.11 regarding the particular nature of the significance of the heritage assets and the value that they hold for this as well as future generations.

3.4.2 Our assessment demonstrates that Tilbury Fort is an outstanding example of English coastal fortifications. It was a key component of a chain of fortifications which protected the River Thames and the City of London from the sixteenth century to the nineteenth centuries. The extent of its survival in its seventeenth century form is unique in England and, belonging to a well-developed European type, it has international significance. Its landscape setting contributes to its heritage values and its significance.

3.4.3 The Fort has considerable evidential value, exceptional historical values, both illustrative and associative, as well as strong aesthetic value derived from its design. It has considerable time-depth and outstanding preservation; and stands as a national exemplar, in the forefront of the design and technological development, for coastal fortifications. Its epitome is the seventeenth century work, including unique water defences by a named royal engineer, drawing on European models. Even more powerful than de Gomme's association, is its association with the momentous national threats of the Armada and the Anglo-Dutch war, and the visits of the reigning monarch during these events. The contribution made by the

landscape setting is an important component of its heritage values and makes an essential contribution to its significance.

4.0 The Impact of the Proposed Development on the Significance of Tilbury Fort

4.1 The existing Port of Tilbury has been developed on land to the west and north-west of Tilbury Fort. The proposed development would introduce a large, new industrial development into the immediate landward setting east of the Fort. The two areas of the Port would be linked by a new access corridor comprising a new rail spur, road and road bridge, forming an arc of development to the north of the landward of the Fort. It would result in the loss of some 80 m of the historic grazing marsh, which contributes to the setting of the landward defences on land immediately to the north of the scheduled monument.

4.1.2 The proposed development includes structures which comprise the Construction Materials and Aggregates Terminal (CMAT) and Roll-on Roll-off (Ro-Ro) facilities, located immediately to the east of Bill Meroy Creek, opposite the eastern boundary of the scheduled monument. Both developments require the construction of new loading infrastructure, including a link-span bridge, and berths to take large vessels, including Ro-Ro ferries. The development would result in a very considerable increase of industrial development surrounding the Fort, including the severance in topographical views to the north and east of the Fort, and reduce the ability to appreciate how its landscape contributes to the significance of the scheduled monument. It would result in the physical and visual isolation of the fort from its landscape setting.

4.2 Key Views to and from Tilbury Fort

4.2.1 The proposed development would be visible in views north across the river from several designated heritage assets in Kent, including the fortifications on the south bank. The most visible elements of the proposal will be large vessels in the new berths and the CMAT silo. In the long views from the south bank, the presence of the silo, in particular, would draw the eye. While vessels on the river are part of the established use, the scale of the vessels which would moor at the proposed berths would be far greater that of any historic vessel, and their presence moored would dominate the fort, whether experienced from within the monument or in views towards it. The scale of these elements would detract from views between Tilbury Fort and the Gravesend blockhouse, although an appreciation of their strategic relationship, in terms of their overlapping fields of fire, would remain.

4.2.2 Although the proposed development would not extend into outward views to the west of the fort, the visitor's approach to the fort is from the west, and from first impressions the proposed development would be obtrusive, and it would go on to become increasingly prominent, as they approached the fort, either from the track or the more elevated riverside flood wall (viewpoint 20).

4.2.3 From the north-west, the access corridor will be seen bounding the marshland, and rising to the new bridge behind the landward defences, the CMAT processing building rising up behind the curtain walls, above the WTW, together with container storage extending across the view to towards the riverside, where the view will be

drawn to the silo rising behind the south east bastion, the Roll-on Roll-off Ferry (RoRo) bridge, berths and vessels.

4.2.4 From the south-west bastion (viewpoint 62) the proposed development would appear to form an unbroken presence in the view. While the river terrace and the wider landscape would be visible beyond the surface access corridor when looking north, the combination of the CMAT process building, WTW, and container storage would block the current horizon to the north-east, with containers and the Ro-Ro warehouse extending in views behind the Officers' Quarters' chimneys, with the silo protruding between the chapel and the Water Gate.

4.2.4 The proposed development would be obtrusive and dominant in views from Fort Road towards the fort, due to its relative height and mass, set against the low lying form of the water defences and the curtain walls (viewpoints 26, 56,13). In these, and outward views from the Fort, the experience of views during the 22-month construction period would be particularly damaged by noise and movement resulting from Fort Road serving as the access road to the construction site, with a very considerable increase on car (300 two-way movements) and HGV traffic (178 two way movements). During construction the erection of 3m high noise barriers would also add to the visual intrusion from the development and we are concerned that any construction compound for the surface access corridor should not be situated on land where it would be clearly visible from the Fort. Embedded mitigation for the operation of the access corridor would be through the use of landscaping bunds and planting. However, the visual intrusion would persist in views for some considerable time until the planting has matured, and the higher elements including lighting and

other infrastructure, as well as noise, would be residual impacts which would further erode these views from the Fort and cause harm to its significance.

4.2.5 Views from the north-east bastion (viewpoint 59) and south-east from the outer moat (viewpoint 17) are among the closest to the proposed development. The CMAT process building would be dominant behind the Stobbart waste wood processing centre, blocking views of the river terrace, while south of the WTW container storage would be visible above retained vegetation, blocking the skyline, and the 100m silo would draw the eye close to the river frontage. . The new berths and vessels would also block some of the longer, distant views which are currently glimpsed from the south east bastion and from the easternmost parts of the defences, including those of open land and the river terrace downstream on both banks, among them that of Shornmead fort, discernible on the Kent side.

4.2.6 Depending on location within the parade ground, the taller elements of the scheme, The CMAT processing building and silo will intrude on views to a greater or lesser degree (viewpoint 27).

4.3 The PPG stresses that although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places. In this case, the overall change to the built surroundings, skyline and the spatial quality of views to the north and east Tilbury Fort would be dramatic. This would not only be due to the form, massing and height of the development, but its industrial

character, which would be underlined by other associated infrastructure such as lighting standards (and light levels), together with increased levels of noise from both these facilities and the surface access corridor during construction and operation, but especially during the construction period, when the risk of damage to historic fabric from vibration cannot be ruled out. While some of these effects would be temporary, the construction period would be considerable and these impacts would all adversely affect the experience of Tilbury Fort in its landscape setting, and would be harmful to its significance.

4.4 Tilbury Fort is managed on behalf of The English Heritage Trust for its historical, architectural and archaeological interest, as a visitor attraction. Although the Historic England Setting Guidance states that setting does not depend on public rights or the ability to access it, there is a particularly high potential for it to be appreciated at Tilbury Fort which is managed, opened and interpreted for the public. The physical conservation of the scheduled monument, and the ability to make the site accessible, understandable and enjoyable, depends on its being financially sustainable and the proposed development would have consequential impacts. It is acknowledged in the NPS (4.6.2 and 5.11.2) which deal with landscape and visual impacts, that port development can sometimes have a negative impact on tourism and the characteristics and visual amenity of the landscape, respectively, particularly where the local area is dependent on an acknowledged tourist activity destination. We understand The English Heritage Trust will to set out in full the impacts which the proposed development would have on operational matters.

4.5 Cumulative impacts:

4.5.1 Historic England's Setting Guidance states that where the significance of a heritage asset has been compromised in the past by unsympathetic development affecting its setting, to accord with the NPPF (here the NPS), consideration still needs to be given to whether additional change will further detract from, or can enhance, the significance of the asset. In particular, that 'negative change could include severing the last link between an asset and its original setting'.

4.5.2 While the historic openness of the Fort's setting has been gravely compromised to the west by the development of the Port of Tilbury and Tilbury B, as well as that of the WTW and, most recently, the Stobbart waste wood facility to the east, it remains possible to appreciate the essential character of topography in which the Fort stands, both looking across the river, to or from the Fort, and looking from the high ground of the river terrace, or, more importantly, looking to that high ground from the Fort's landward ramparts. Although compromised, these views remain essential to the viewer's understanding and appreciation of the Fort's purpose and its historic significance and should be considered cumulatively together with the impacts which we have identified above.

4.5.3 We are aware that a number of other developments affecting the setting of the fort are due to come forward which have the potential to further damage the setting of the fort, in particular the Lower Thames Crossing. We consider that the cumulative impacts of these proposals should be appropriately assessed, particularly as considered cumulatively, there is the potential to increase the degree of harm to the setting of the fort within the vicinity of the Tilbury2 infrastructure corridor, to the north of the landward defences.

4.6 Comments on Applicants' Minimisation Strategy, Embedded Mitigation and Scope for Further Mitigation

4.6.1. In our view the scope for successfully reconciling the policy requirements in the NPS regarding the presumption in favour of the conservation of designated heritage assets with the provision of sustainable port facilities is very constrained. We note the minimisation strategy in which the overriding operational requirements of the development limit the scope for mitigation by design. While aspects of the embedded mitigation measures, such as attention to external materials and tree planting (the latter is, itself, alien in a marshland setting) would to a small degree soften visual impacts, they would be unable to materially reduce the level of harm which would be caused to the significance of the scheduled monument, given the scale and height of the structural elements and the effects of the operations.

4.6.2 We have set out in full in our views on mitigation for the Proposed Development as part of our response to First Written Questions (Appendix 2). We have suggested that there is scope to extend the contribution Historic England could make in consultation with the relevant planning authority, in agreeing external materials for those elements of the development which visually impinge on the setting of the Fort, as secured through the DCO (as well as offering wording to better secure the programmes of archaeological mitigation). In view of the Panel's written questions regarding the justification for the CMAT facility, we have stated that the omission of this element of the development would reduce the impact on the setting of the fort by removing two of the most prominent structural components. We have also asked the Panel to consider whether the Permitted Development Rights based on the extent of the Rochdale envelope, particularly for that part of the Ro-Ro facility

covering container storage, should be withdrawn. This would ensure proper considerations of development proposals, and the scope for mitigation, which might exacerbate the level of harm which future development might cause to the significance of the Fort.

4.6.3 The Heads of Terms for the S106 Agreement proposes that a financial payment be made to the Council (the Fund) for a feasibility study into enhancements that could be implemented at Tilbury Fort to bring forward tourism and heritage benefits including, but not limited to, car parking, access and interpretative signage; and the implementation of any of the measures that are identified in the above feasibility study as reasonably able to be implemented and realise tourism and heritage benefits at Tilbury Fort.

4.6.4 The proposals outlined in the S106 have the potential to bring heritage benefits to Tilbury Fort. While they would not reduce the harm that the development would cause to the setting of the Fort, they have the potential to enhance other elements of its significance in line with NPS 3.3.3 and 5.12.12. Historic England expects The English Heritage Trust to deal fully with these matters in their written representations.

4.7 Assessment of Harm

4.7.1 Historic England conclude that the impact of the proposed development would result in severe harm to the significance of Tilbury Fort That is, the level of harm would be very high, even if “less than substantial” in the terminology of the NPS. In assessing the contribution which the setting of Tilbury Fort currently makes to its significance we have noted that it has been compromised by past development. Considered cumulatively, the extent and nature of the proposed development would

result in the fortifications being divorced from their landscape setting by almost completely encircling the Fort with large industrial buildings and structures, blocking and eroding key views, and reducing the experience and enjoyment of the designated heritage asset. The setting of the Fort makes so important a contribution to its significance that the extensive and dramatic damage that the proposed development would do, particularly when considered with that caused by past development, leads us to the conclusion that the Fort's significance itself would be severely harmed.

5. 0 Historic England's Position

5.1 We have set out our assessment of significance in 3.0 that Tilbury Fort is an exceptionally important designated heritage asset; whose setting makes an important contribution to its significance. As such the decision-maker should take into account the particular nature of the significance of the heritage assets and the value they hold for this as well as future generations (NPS 5.12.11).

5.2 The applicants' assessment of the setting of heritage assets and the impact of the proposed development on them, as set out in the ES, uses two different baselines (ES 12.67-69; 111-120). That for the sensitivity and value of heritage assets and their settings was undertaken prior to the demolition of the Tilbury B chimneys, and describes the detailed settings of the heritage assets, and the way in which these contribute to their significance, in the context of a baseline in which the power station is a dominant feature in views to and from the fort. This is combined in each case with a 'high level assessment' following the complete removal of the Tilbury B station, based on views in Appendix 9.F of the LVIA where the proposals are shown within the context of a 'future baseline' – i.e. without Tilbury B.

5.3 We draw the Panel's attention to this, since elements of the Fort's setting 'as experienced' differ from a future baseline without Tilbury B, against which the future setting of heritage assets, either with or without the construction of Tilbury 2, should be assessed.

5.4 Historic England consider that the impact of the proposed development must properly be judged with reference to the maximum extent of development for which the applicants seek approval.

5.5 We draw attention to the applicants' statements regarding the Rochdale envelope and its use to assess worst case impacts. The applicants have used the 'Rochdale Envelope'. However, in the assessment of impacts on heritage assets and need for mitigation. In the case of the container storage area, (ES 12.196) it is suggested that the worst case scenario will not pertain and impacts will be lessened and mitigation more effective. Given that the DCO would allow for containers to be stored at the maximum height over the maximum area, and that working practices may change, we consider no weight should be given to these statements.

5.6 In our view the statements in the Planning Policy Compliance Document that "the development would be more an increase in established urban industrial influence rather than the introduction of new ones" (4.131), or that the increase of the industrial character and activity within the Fort's setting will be experienced as an extension of the existing industrial activity…. and therefore will not fundamentally alter the existing wider context in which the heritage asset is experienced (4.139) do not take adequately reflect the future baseline.

5.7 While we agree that the applicants have assessed the heritage assets and their settings as set out in Appendix 12.B, we consider the assessment in ES Chapter 12 underplays the degree to which current views contribute to its landscape setting and the impacts on the setting of the Fort which would be caused by the proposed development (12.190-199).

5.8 From our assessment in 4.0 above, we judge that the proposed development would be extremely damaging to the setting of Tilbury Fort and would cause severe harm to its significance, as the proposed development would result in an overwhelming degree of damage to its current landscape setting and the way in

which it is experienced. The NPS (5.12.13) stresses that there should be a presumption in favour of the conservation of designated heritage assets and, the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Once lost, heritage assets cannot be replaced, and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Loss affecting any designated heritage asset should require clear and convincing justification.

5.7 We have commented on the embedded mitigation, the minimisation strategy and scope for further mitigation above (4.6) and conclude that there is relatively little scope to reduce the level of harm which would be caused to the significance scheduled monument by these means.

5.8 While the level of harm would be less than substantial, the severity of the impact on this aspect of the significance of the designated heritage asset is such that we consider that using the applicants' classification for "Likely Significance of Effect" in the Environmental Statement, this should be considered as "Major Adverse", rather than "Moderate to Major Adverse", as concluded by the applicants in the ES (Table 12.16). We consider that the applicants' assessment understates the contribution which the current and future baseline setting of the Fort makes to its significance, and the severity of the harm to its significance that the proposed development would bring, when considered cumulatively.

5.9. Conclusions:

5.9 Tilbury Fort has been judged to be of national importance against non-statutory criteria and designated as a scheduled monument by the Secretary of State under the Ancient Monuments and Archaeological Areas Act 1979. Our assessment expounds and amplifies that importance. The Fort is of European significance, by reference to the exceptional rarity and survival of its fortifications. Its innovative design reflects the development of contemporary war fare and it has been associated with key events in the defence of England and had a long and crucial role within a wider chain of fortifications defending the Thames Estuary and the City of London. In considering the impact of a proposed development on any heritage assets, the decision-maker should take into account the particular nature of the significance of the heritage assets and the value that they hold for this and well as for future generations. This understanding should be used to avoid or minimise conflict between the conservation of its significance and the proposals for development (NPS 5.12.11).

5.11 Legislation and policy place great weight on the conservation of designated heritage assets. There should be a presumption in favour of the conservation of designated heritage assets and, the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Once lost, heritage assets cannot be replaced and their loss has cultural environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of a heritage asset or development in its setting. Loss affecting any designated heritage asset should require clear and convincing justification

(NPS5.12.13). Given the exceptional significance of Tilbury Fort, the presumption in favour of its conservation must be of exceptional weight.

5.12 The proposed development would seriously damage the setting of the fort and gravely damage an essential component of fort's significance. The NPS states that significance can be harmed or lost by development in its setting. When considering applications for development affecting the setting of a heritage asset, the decision-maker should treat favourably applications that preserve those elements of the setting that make a positive contribution to, or that better reveal the significance of, the asset. When considering applications that do not do this, the decision-maker should weigh any negative effects against the wider benefits of the application. The greater the negative impact on the significance of the asset, the greater the benefits that will be needed to justify approval (5.12.16).

5.13 The NPS notes the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution their of their settings and the positive contribution they can make to sustainable communities and economic viability – for example the heritage asset's having an influence on the character of the environment and an area's sense of place, and having the potential to be a catalyst for regeneration in an area, particularly through leisure, tourism and economic development (5.1.2.12). The harm which would be caused to the significance of the Fort, might be compounded by damage to the viable conservation of the monument by The English Heritage Trust, who may wish to make representations on this.

5.14 Policy states that harm should be avoided (NPS 5.12.11) and can only be considered if there is clear and convincing justification (NPS 5.12.13). It is not for us

to judge justification, but the Panel should consider whether national interest requires this port here and whether the CMAT need form part of it.

5.15 The Panel should not be distracted by either the abuse of Rochdale envelope or mitigation. The Rochdale envelope serves a purpose and should be applied rigorously in this case. Mitigation cannot materially reduce impact of scheme (unless removal of CMAT were considered to be mitigation – and even then level of harm would remain very high). The Panel should determine the application, weighing the severity of harm against the public benefit of the development, recognising that, the greater the harm to the significance of the heritage asset, the greater the justification will be needed for any loss (NPS 5.12.14). If minded to approve, then mitigation should be as good as possible and we would wish to be involved as appropriate.

5.16 In conclusion, Historic England advise the Panel that the proposed development would cause severe harm to the significance of Tilbury Fort, a place of exceptional significance. In characterising the level of harm as “severe” we place it at the uppermost end of the spectrum of “less than substantial harm” Such harm is something which runs counter to the objectives of relevant legislation and policy. The NPS states that in considering applications which do not preserve those elements of the setting that make a contribution to, or better reveal the of the asset, the greater the negative impact on the significance of the asset, the greater the benefits that will be needed to justify approval (NPS 5.12.16). In this case, however, the Panel should approve such harm to the significance of Tilbury Fort only if the public benefit of a very high order.

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Inspector of Ancient Monuments

APPENDIX 1

Comment on Marine Archaeological Remains:

Our detailed comments on the ES Chapter 12 Marine Sections are as follows:

- The text used in these sections does not follow use of terminology as explained and defined elsewhere in published government policy, for example, paragraph 12.62 states "…importance of heritage/archaeological assets…" this is a confusing use of terms when only "heritage assets" should be used.

- Tables 12.8; and 12.11a include a receptor described as "Modern Debris – Marine." Such a category should not be considered as there is no archaeological interest.

- Table 12.8c (Potential Non-designated Archaeological Assets – Marine) does not reflect the text of paragraph 12.90 and possible international importance of prehistoric human remains given other previous discoveries nearby. Therefore "prehistoric in situ artefacts" could be "Late Mesolithic human remains" which should be considered of "National/International Importance" although the potential for discovery might be "low".

- Paragraph 12.166 states that "Consequently if a worst case is considered where each pile is a displacement pile, the area of new impact including the zone of disturbance will be 0.76% of the Marine zone" is not particularly meaningful in terms of trying to equate the impact as a proportion of the

"marine zone" (spatially undefined), as the significant factor is where the impact occurs given that the archaeological materials of primary interest might be spatially very restricted.

- In paragraphs 12.168-169 the potential impact of dredging operations is acknowledged given the possible likelihood of encountering buried archaeological materials. However, it is also not entirely clear why water injection dredging (dispersal dredging) rather than backhoe dredging, in reference to the "Rochdale Envelope", is considered to have the greater potential impact, which seems more preoccupied by effects of sedimentation in an area estimated to be 15km either side of the proposed capital dredging zones. This position is further reflected in the detail of Technical Appendix 12.A (e.g. Archaeological Desk-Based Assessment, paragraph 1.4.3). The assumption is made that dispersal dredging could be more damaging to archaeological receptors because it is considered that this methodology limits opportunities "…to identify and recover unexpected or previously unknown archaeological receptors buried within the silt." However, dispersal dredging might expose larger anomalies that require investigation and removal by hydraulic grab resulting in the same degree of harm, damage and loss. It seems that the only "loss" of material that might occur specifically through dispersal dredging might be smaller more fragile materials, not in situ, and of limited archaeological interest.

- It is therefore our position that the determination of worst-case effect is unproven given acknowledged potential to encounter presently unknown and

buried archaeological material. Furthermore, it is our advice regarding the sixth bullet point in this paragraph that a formal programme of archaeological monitoring in the form of a watching brief on board should be conducted on all dredging works close to identified anomalies of possible or known archaeological interest.

- Table 12.11c (Significance of Effects during Construction on potential Non-designated Archaeological Assets – Marine): we do not agree with any potential given as “Nil-Low” as this “potential” is not defined anywhere in this chapter and given the very limited attention to assessment of buried archaeological materials within the capital dredge area, such an assumption, at this stage, is not accepted. Furthermore, Table 12.15a (Residual Significance of Effects on known Archaeological Assets) uses the term “modern marine debris” which does not provide sufficient attention to potential historic environment interest given that section 4 defines “modern” as “AD 1800 to present” it is therefore possible that “modern” artefacts encountered could also still be considered as cultural heritage and subject to designation (vis. Introduction to Heritage Assets 1840 to 1950, Historic England, 2016).

- Paragraph 12.223 requires clarification in that any Method Statement produced will be prepared in reference to an agreed archaeological Written Scheme of Investigation (WSI), which will be submitted to the MMO, as the competent authority for any deemed Marine Licence (should consent be obtained) and it is the role of Historic England to provide advice as to the acceptability of the any such documents produced by the Consent Holder. We

concur that progress is subject to securing such approval and no archaeological works will commence unless the WSI is first agreed and the requisite Method Statement produced and accepted.

- We do not agree with the assertion made in paragraph 12.227 (operation) that the WSI (and associated Method Statements) are relevant to maintenance activities once any defined construction phase of the proposed project is formally concluded. The term “adverse effect” is also used throughout this chapter without adequate interpretation of how this term is used in reference to the historic environment (known or unknown).

- Technical appendix 12.A (Archaeological Statement) was produced from several technical reports (e.g. archaeological Desk-Based Assessment s and interpretation of marine geophysics data) for terrestrial, inter-tidal and sub-tidal areas within the proposed project development area.

- In the Archaeological Desk-Based Assessment (DBA), paragraph 1.3.8 it mentions that anomalies of ‘possible’ archaeological interest were identified from marine geophysical data, but that no Archaeological Exclusion Zones (AEZs) are recommended as there is a possibility that such anomalies might comprise contemporary debris. We therefore concur that while there might be low to moderate potential (paragraph 1.3.9) for archaeological assets dating from prehistoric to Post Medieval, we maintain that while it is “considered unlikely that prehistoric or Roman wreck sites of national importance will be found at the Site due to their rarity within the archaeological record…” we

cannot agree with how this is phrased and add that any Roman sites/wrecks, if discovered, would be national importance although such discovery might be unlikely at this location. The main evidence that there are no wrecks present of possible archaeological interest is that no such sites were definitively identified during the geophysical survey. The perspective adopted is that if archaeological materials are in good condition then it is more likely to be considered of national importance. The assessment thinks it is “rare” that such materials might be encountered here and in doing so conflates two matters: rare as in unlikely that the material is present and rare that even if found it will be in good enough condition to merit consideration as being of national importance.

- When determining any possible negative impact associated with this proposed dredging we must consider the associated capital dredging programme which downstream of the CMAT jetty will necessitate lowering the riverbed by approximately 1m to 5.8m. The RoRo berthing pocket (next to the western end of the existing jetty and around its westward extension) will require dredging to lower the riverbed by approximately 0.10m to 2m and that the adjoining approaches to the berth pockets will also need dredging . A sheet pile wall will also be installed to run along the northern edge of the dredge pocket. We note the claim that this proposed sheet piling could protect the integrity of the sub-tidal and intertidal bank slopes around the dredging works although carefully design will be necessary although no further detail is provided. We therefore that this element of design is

important to the project and that such detail should be part of the EIA submission.

- In paragraph 1.5.9, the DBA recognises the potential impact to nationally significant materials if present and in good condition. This paragraph also states that "…if identified during future investigations appropriate mitigation measures will be undertaken to allow for preservation in situ as an archaeological exclusion zone or if not possible then full recovery and recording will be undertaken." Such measures can only be effectively addressed within an agreed archaeological WSI. It is therefore apparent from the available information that the proposed project has the potential to impact archaeological deposits inclusive of proposed piling with localised impact on the palaeo-environmental sequences of archaeological interest. We therefore agree that archaeological matters should form part of the DCO application for this proposed development. We accept that options are available for mitigation given that studies completed to date have not identified any known constraints on the foreshore or adjacent seabed within the proposed development area that would be substantially harmed by the proposed project.

- In summary, it appears that there is low to medium potential for previously unknown archaeological deposits to be encountered, such as prehistoric and Roman, but if encountered would be of significance. Medieval and post-medieval wrecks (and aircraft crash sites especially associated with the Second World War) have a medium potential due to their greater known

numbers within the Thames estuary. It is therefore apparent that potential archaeological receptors could be affected by direct impacts by piling (30-50m zone of influence) associated with Jetty A, CMAT Beth Jetty B, Ro-Ro pontoon and approach bridges and capital dredging (i.e. downstream (CMAT) jetty and Ro-Ro berthing pocket). A further matter that should be addressed by the Applicant are statements that the immediately adjoining approaches to the berth pockets will also need dredging and are included within the indicative Order limits. However, from the application the spatial extent or location of the adjoining approaches to the berth pockets are not clearly illustrated.

- The proposed mitigation strategy for this project is contained within the document “Tilbury 2 Development: Marine Archaeological Written Scheme of Investigation” (Document ref. 116220.04 V6: dated November 2017) and we hereby offer the following comments.

- Paragraph 1.1.3 states that “This WSI has been developed in agreement with Historic England and Essex County Council” We do not accept this assertion that it is “agreed”, only that we offered comment on a draft in July 2017. The WSI provided as part of this application should only be considered as outline or draft, to take account of design envelop principles and that the any Deemed Marine Licence secured for this proposed project is to include the necessary conditions to secure the preparation, agreement and implementation of a project specific WSI within stated timeframes.

- The proposed mitigation measures (see Table 4) state that the remaining medium and low potential geophysical anomalies will be investigated as part of the UXO clearance, either through diver or ROV investigation, with archaeological assessment of any footage or still image of each receptor. In the case of the latter minor or Intermediate archaeological finds will be subject to archaeological recording and recovery in accordance with a Method Statement provided in draft to Historic England for comment prior to agreement. A major archaeological find will be subject to an Archaeological Exclusion Zone (AEZ) or if not feasible to avoid, full recovery and recording in accordance with an agreed Method Statement with work conducted under the supervision of an appropriately trained/experienced archaeologist. The draft WSI differentiates mitigation measures based on two different capital dredging techniques, so if Dispersal Dredging is employed, an archaeological assessment will be completed prior to commencement of the capital dredge programme with a specific Method Statement produced to address direct video or diver investigation. It is also acknowledged that for any adopted AEZs will be avoided by all subsequent dredging activities and anchored Jack Up and Spud Leg barges. Archaeological recovery will be implemented on minor and intermediate archaeological finds and on major archaeological finds if AEZ mitigation proves unfeasible.

- Should Dispersal Dredging be used, it is suggested that a programme of grab sampling and ground truthing of potential archaeological receptors is undertaken across the dredging area prior to any dredging works being

completed. Furthermore, locations for anchoring of Jack Up and Spud Leg barges will be identified which contain no known archaeological receptors.

- A formal programme of archaeological monitoring in the form of a watching brief on board will be conducted during all dredging work close to identified receptors of archaeological potential attendance by a suitably qualified archaeologist and during all construction work in the inter-tidal zone for the construction of the Ro-Ro off-ramp. However, the practicalities of any watching brief for the Ro-Ro construction phase will require more attention as will a proposed programme of investigating “A2” anomalies through grab sampling if Dispersal Dredging is used, to allow potential archaeological receptors to be assessed. Such matters are to be addressed within a WSI subsequently produced, as a Development Consent Order (DCO) condition, should this application be successful.

- The draft WSI sets out that prior to the commencement of dredging, dredging vessel staff, UXO and diving contractors, and other key staff will receive information regarding any identified areas of archaeological interest. Details of these areas will be supplied to vessel staff via this task specific Method Statement. In addition, such areas will be identified during the awareness training. We concur with this approach, but also recommend that any provision made within the DCO to produce other relevant project documentation that steers delivery should also include spatial data for AEZ to be avoided or other anomalies of possible archaeological interest.

- The WSI mentions that a protocol similar to the established Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate 2014) and the Marine Aggregate Industry Protocol for the Reporting of Finds of Archaeological Interest (BMAPA and Historic England 2005) will be established for the project. However, it remains a separate matter how any use of such a protocol might be employed for operational maintenance dredging post any defined construction period.

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Head of Marine Planning

Planning Group

APPENDIX 2

FIRST WRITTEN QUESTIONS: RESPONSE OF HISTORIC ENGLAND

1.13.4 Historic England asserts in its relevant representation [RR-002] that Tilbury Fort is of exceptional significance and that the impact of the Proposed Development on its setting would cause severe harm to its significance:

a) Would Historic England state what in its view should be done by way of mitigation to minimise this harm?

The National Policy Statement states that in considering the impact of a proposed development on any heritage assets, the decision-maker should take into account the particular nature of the significance of the heritage assets and the value that they hold for this as well as future generations. This understanding should be used to avoid or minimise conflict between conservation of the significance and proposals for development (5.12.11).

Although policy advocates the avoidance of harm to the significance of heritage assets in formulating development proposals and resorting to mitigation only if harm is unavoidable, the proposed development is one where the ability to avoid harm to the significance of the scheduled monument is limited because the nature of the proposals is such that the effects of mitigation would be peripheral to what could be generally achieved.

We consider that the scope for mitigation includes the expansion of measures which are set out in the DCO including: securing programmes of terrestrial and marine archaeological investigation, Historic England‘s engagement in the process of

agreeing external building materials and finishes and lighting; enhancement measures to be secured by a S106 agreement and the consideration of additional mitigation measures, which we will deal with in turn.

1.0 Improvements to Proposed Mitigation

1.1 To secure the terrestrial archaeological mitigation strategy, we suggest that the wording in the DCO (Schedule 2, Part 1,6) should be amended as follows:

(1) No stage of pre-construction or construction ground works may commence until for that stage a written scheme of archaeological investigation (which accords with the outline scheme of investigation has, after consultation with the Historic Buildings and Monuments Commission for England and Thurrock Borough Council, been submitted to and approved in writing by the relevant planning authority.

(2) In the event that site investigation is required, the scheme must include details of the following-

(a) an assessment of significance and research questions; and

(b) the programme and methodology of site investigation and recording;

(c) the programme for post investigation assessment;

(d) provision to be made for the analysis of the site investigation and recording;

(e) provision to be made for publication and dissemination of the analysis and records of the site investigation;

(f) provision to be made for archive deposition of the analysis and records of the site investigation; and

(g) nomination of a competent person persons/organisation to undertake the works set out within the written scheme of investigation.

(3) Any archaeological works or watching brief must be carried out in accordance with the approved scheme.

(4) In the event that site investigation is required, the site investigation and post-investigation assessment must be completed for that stage in accordance with the programme set out in the written scheme of archaeological investigation and provision made for the analysis, publication and dissemination of results and archive deposition secured for that stage.

1.2 To secure the programme of marine archaeological investigations, we suggest that the draft deemed Marine Licence within the draft DCO (Ref: 3.1) be worded as follows:

1. Pre-construction plans and documentation

1.1 A written scheme of archaeological investigation in relation to the Order limits seaward of mean low water, which must be submitted at least six months prior to commencement of the licensed activities and should accord with the draft written scheme of investigation and industry good practice, in consultation with Historic England and the relevant planning authority to include—

(i) details of responsibilities of the undertaker, archaeological consultant and contractor;

(ii) a methodology for further site investigation including any specifications for geophysical, geotechnical and diver or remotely operated vehicle investigations;

(iii) archaeological analysis of survey data, and timetable for reporting, which is to be submitted to the MMO within three months of any survey being completed;

(iv) any archaeological reports produced in accordance with these conditions are to be agreed with the Historic Buildings and Monuments Commission for England and the relevant planning authority.

(v) delivery of any mitigation including, where necessary, identification and modification of archaeological exclusion zones;

(vi) monitoring of archaeological exclusion zones during and post construction;

(vii) a requirement for the undertaker to ensure that a copy of any agreed archaeological report is deposited with the National Record of the Historic Environment, by submitting a Historic England OASIS (Online AccesS to the Index of archaeological investigationS') form with a digital copy of the report within six months of completion of construction of the authorised scheme, and to notify the MMO and the relevant planning authority that the OASIS form has been submitted to the National Record of the Historic Environment within two weeks of submission;

(viii) a reporting and recording protocol, including reporting of any wreck or wreck material during construction and operation of the authorised scheme;

(ix) a timetable for all further site investigations, which must allow sufficient opportunity to establish a full understanding of the historic environment within the Order Limits and the approval of any necessary mitigation required as a result of the

further site investigations prior to commencement of licensed activities. The Consent Holder shall not commence construction of a relevant work until the Consent Holder has appointed the Retained Archaeologist to ensure the delivery of the Scheme; and carried out the pre-construction archaeological work applicable to that relevant work. During construction of a relevant work, the Consent Holder will secure the implementation of the measures on its part set out in or from time to time agreed pursuant to the Scheme applicable to that relevant work (other than the pre-construction and the post-construction archaeological work).

(x) Following the completion of construction of a relevant work, the Consent Holder will secure the implementation of all the post-construction archaeological work applicable to that relevant work; and

(xi) Any work executed or undertaken by or on behalf of the Consent Holder in accordance with the Scheme approved or deemed to be approved by MMO shall not relieve the Consent Holder of any liability.

Plans and documentation

Pre-construction archaeological investigations and pre-commencement material operations which involve intrusive seabed works must only take place in accordance with a specific written scheme of investigation which has been submitted to and approved by the MMO.

Each programme, statement, plan, protocol or scheme required to be approved under Condition 2 must be submitted for approval at least four months prior to the intended commencement of licensed activities, except where otherwise stated or unless otherwise agreed in writing by the MMO.

1.3 Agreement of External Materials

1.3.1 As currently drafted, the DCO provides that details of the external materials to be used in the construction of the following works: No 8A (i), 8C (ii) and fencing in Work Nos. 9 or 12, which must be submitted to, and approved in writing by, the relevant planning authority in consultation with Historic England and Gravesham Borough Council. We would expect to this requirement to cover all elements of the of the development which visually impinge on the setting of Tilbury Fort in order to support the principles of good design and the careful consideration of materials and colours for structures where this may help to mitigate the impacts of the development. Even though such measures would only achieve a softening of the visual impact which the development would have, rather than leading to any material reduction in the level of harm which would be caused to the significance of the scheduled monument, it remains desirable that all measures which could help to moderate the visual impact of the development should be implemented.

1.4 We welcome the similar provision for Historic England to engage in agreeing the lighting strategy for the same reasons.

1. 5 The embedded mitigation provides for the retention of trees and vegetation (as far as is operationally possible) on the western boundary of the development site, as well as the landscape planting associated with the surface access corridor. We consider that such planting (which is, in any case, alien to marshland character) would have limited potential for screening the appearance of the proposed development. Ultimately this would be more effective in relation to the surface access corridor than the Tilbury 2 site, and would, at best, soften the appearance of

the lower elements of the development. It would not materially reduce the harm which would be caused to the significance setting of the Fort.

1.6 The proposed enhancements to be secured via S 106 Agreement have the potential to bring heritage benefits to Tilbury Fort. While they would not reduce the harm that the development would cause to the setting of the Fort, they would have the potential to enhance other elements of its significance in line with NPS 3.3.3 and 5.12.12. Historic England considers that proposals relating to the implications for tourism etc. on Tilbury Fort are matters that The English Heritage Trust may wish to comment on.

2.0 Scope for Additional Mitigation

2.1 Scope of Development: In First Written Questions the applicants have been asked whether the CMAT development is justified. This component of the development is particularly harmful to the significance of the scheduled monument and its exclusion from the scheme would remove two of visually most intrusive structures: the CMAT processing building and the silo. Since giving consideration to reducing the scope of a development is an important form of mitigation, we ask that this is considered, since it would reduce the adverse impacts of the development on the setting of Tilbury Fort and minimise the harm which would be caused to its significance in line with NPS para. 5.11.16.

2.2 North of Fort Road there is an area of marshland very close to the northern extent of the landward defences within the development boundary limit, where subsidiary compound uses are under consideration. In view of the proximity of this land parcel to the landward defences, we request consideration should be given to

siting these facilities elsewhere and retaining this land as grazing marsh. Though the use would be temporary, the construction period would be lengthy (15 months), its relocation would reduce proximity and visual prominence of works in views to and from the water defences.

2.3 Permitted Development Rights: The Panel should consider whether and how the permitted development rights which would subsequently arise, should be qualified and/or restricted. The applicants have used the 'Rochdale Envelope' as a means of assessing the worst case scenario in terms of impacts and this would form the baisis for PD rights. However, as an example, were the container storage area to be replaced by buildings, of the same height and area as consented in the DCO, the i impact of subsequent development on the significance of the Fort would not in our view, have been properly assessed. Future development proposals should be can be considered by the relevant planning authority.

1.13.8. The applicant has stated in the ES [APP-031} Chapter 12 Table 12.2 that tidal dynamic modelling was undertaken prior to the Scoping Opinion, and the results have now been discussed with Historic England:

a) Would Historic England provide comment on the tidal dynamics modelling presented in the baseline assessments?

We have checked our records and we confirm that we were supplied with a redacted copy of the "Scope of Work" for the HR Wallingford technical report, via email on 12/05/2017, which explained the computational modelling techniques that could be employed, but not which dredging methodologies were to be tested. This was a topic discussed at the meeting on 23/05/2017 and we expressed particular interest in how this work was done given the western extent of the proposed jetty lies within the scheduled monument boundary of Tilbury Fort. We add that the completed HR Wallingford technical report was not subsequently provided to us or specifically addressed at meetings held on 11/07/2017, 30/08/2017 or 24/01/2018.

To summarise the present outline detail provided by the Applicant regarding the proposed capital dredge programme in the vicinity of a bulk handling berth and a western RO-RO berth. We understand that the dredge pockets are to be dredged to -15 m Chart Datum (CD) at the bulk handling berth, and -7.9 mCD at the RO-RO berths. Presently, the minimum pre-dredge depths in these areas are approximately -8.0 mCD and -3.9 mCD respectively.

We offer the following comments on Appendix 16.D Hydrodynamic and Sediment Study (HR Wallingford, Ref: DDR5733-RT001-R05-00, dated October 2017) provided as part of the above referenced application:

1) We note that in Chapter 12 (Historic Environment) that the HR Wallingford report is referenced as August 2017, but the submitted copy in Appendix 16.D is dated October 2017. We are therefore uncertain if the assessment provided by the Applicant was based on a draft report produced by HR Wallingford rather than a final version (see Appendix 16.D Section: “Document history” which includes a version dated 17/08/2017).

2) The HR Wallingford report (as referenced above) states that it is anticipated that in terms of hydrodynamics there will be “…comparatively local impact upon the flow conditions and will not affect the overall hydrodynamic regime of the Thames Estuary.” In reference to influence on sedimentation the development “…will have minor and local effect on the sediment regime of the Thames Estuary.” The study considers it likely that dredged areas will infill with fine silt sediment and that “…dredging of the berth pocket to the proposed depth may challenge the integrity of adjacent side slopes (dredged or intertidal).”

3) The HR Wallingford report states that the dredging methodology has not been selected and that for the purposes of the report two modes of dredging are considered:

- Back-hoe; and
- Water Injection.

4) The report states that back hoe dredging has “…extremely low sediment release rate…compared to the ambient suspended sediment concentrations in the area any effect of the sediment released by the dredging is considered negligible.” However, the use of Water Injection Dredging (WID) would be limited to mobilisation of finer

silty material found in the upper stratum of the material to be dredged. The assessment determines through modelling that a sediment plume associated with WID could be occur 15 km either side of the dredging areas with a maximum increases of suspended sediment concentration of up to 200 mg/l within 2 km of the dredging areas. Furthermore, it is thought that any sediment plume will be mostly "…confined to the subtidal areas with limited increase in suspended sediment concentration or sediment accumulation on the intertidal areas."

5) It is apparent from the HR Wallingford report that it was an objective to determine any potential changes to erosion or accretion at the intertidal foreshore e.g. as might affect nature conservation designations, nearby vessel berths and other riparian activities. No specific and direct reference was made to any implications for Tilbury Fort e.g. status of any foreshore structures and how they might be affected – positively through sediment accumulation or negatively by foreshore lowering.

6) When determining any possible negative impact associated with this proposed dredging we must consider the associated capital dredging programme which downstream of the CMAT jetty will necessitate lowering the riverbed by approximately 1m to 5.8m. The RoRo berthing pocket (next to the western end of the existing jetty and around its westward extension) will require dredging to lower the riverbed by approximately 0.10m to 2m and that the adjoining approaches to the berth pockets will also be dredged. However, Section 2.8 (Layout of proposed works simulated) within the HR Wallingford report describes the basis for the computational modelling of "Up to 4 m of dredging is required to bring the western berth to the target depth; about 7 m of dredging is required to bring the eastern end of the berth area adjacent to the existing jetty to the target depth. Additionally up to 2 m of

dredging would be needed to provide the dredged approaches." Elsewhere in the report, see section 3.3.2 (result) it states that at the eastern end of the bulk berth "…dredging, up to 6m below the present bed level so notable infill would be expected here." These different descriptions of the proposed capital dredging programme do not appear to tally with other detail we have seen in the submitted Application and is a matter that should be clarified by the Applicant.

7) The report is clear that dredging the berth pocket "…to several metres below the natural regime depth in an area which is known to be sensitive to sedimentation is likely to lead to the dredged areas being subject to ingress of sediment." The issue therefore is whether this ingress of sediment might be from associated with drawdown of foreshore adjacent to Tilbury Fort. For example, Figure 3.5 seems to suggest that loss of sand infill will occur extending west to Tilbury Fort and Figure 3.11 seeming to show modelled scour at the extreme western end of the proposed development.

8) We appreciate that this technical report directs particular attention at how the dredged areas will infill and that to inform the computational modelling exercise two dredging techniques were considered. In particular, it seems that the technique of back hoe dredging was selected as the spatial area for the capital dredge was considered to be a relatively small area. Furthermore, the attention given to WID seems to be because it is frequently used for maintenance dredging requirements (see section 4), given the likelihood that on-going maintenance dredging will be required post capital dredge. In the Environmental Statement (ES), Chapter 5 (Description of the Proposals), section 5.11 (berth pockets and approach dredging) it states that "…proposals are currently progressing several dredging options including

Back Hoe Dredging and Water Injection Dredging (WID).” It therefore seems that the HR Wallingford report should have considered other dredging techniques in order to identify different worst case scenarios.

9) The report describes that if WID is employed sediment remains within the tidal river and modelling results are produced to show sedimentary dynamics on both ebb and flood tides. It therefore seems that such consideration should have considered the implications to heritage assets such as Tilbury Fort and whether capital dredging at a particular state of the tide might have measurable influence on sedimentary dynamics as may affect the adjacent foreshore.

10) Section 7.3 states that “Alternatively the overlying soft silts and finer sands found in the boreholes could be removed by water injection dredging (WID) with any stronger or coarser sediment found at depth removed by backhoe.” We therefore request that attention is directed at understand how a combination of dredging techniques might affect sedimentary dynamics and therefore what the worst case scenario might be in reference to identified sensitive receptors such as Tilbury Fort and seabed anomalies of possible archaeological interest. We note that the report does mention the use of cutter suction dredger (loading into barges) or trailer hopper dredger both of which would seem to merit more attention given the statement made in Chapter 5 (as referenced above).

11) From our review of the ES it seems that consideration of potential effects on coastal process within and adjacent to the proposed development area should have been included in Chapter 16 (Water Resources and Flood Risk) and that the assessment is based on the HR Wallingford Hydrodynamic and Sediment Study (Appendix 16.D). However, this report does not specifically and directly include

geomorphological evaluation of foreshore changes as might affect Tilbury Fort. Furthermore, in Chapter 16, Table 16.22 (Water Resources and Flood Risk – NPS Compliance), in response to NPS paragraph 5.3.5, it states that: “It is considered that there are minimal additional adverse impacts to coastal processes and geomorphology assuming the proposed mitigation measures of this chapter are implemented.” We cannot find these mitigation measures, other than reference to provision made within the Development Consent Order (deemed Marine Licence) (see section 16.99).

12) It is our advice that such matters are addressed by the Applicant, for example in reference to what is presently known about elements of the proposed design, such as detailed in paragraph 16.122 regarding the Ro-Ro berth comprising “…a sheet piled wall to be installed offshore, approximately 130 m from the bank to depths of c.30 m below the bed of the River Thames. The piles will form a wall c.330 m long.” We therefore, cannot support at this stage statements made elsewhere in Technical Appendix 12.A (Archaeological Statement) that there will be a negligible effect on sedimentary conditions as might be considered to be “…protecting archaeological receptors outside the Site boundary including that part of the Scheduled fort that extends into the Thames”. The only means to demonstrate anticipated negligible effects is to set out viable options for mitigation including an associated monitoring programme against an established foreshore elevation baseline adjacent to Tilbury Fort.

1.14.19. The NPS for Ports, paragraph 3.5.2 explains that consideration of applications for ports should start with a presumption in favour of granting consent to applications for port developments. That presumption applies unless any more specific and relevant policies set out in this or another NPS clearly indicate that consent should be refused. In section 5.12 it goes on to explain that the decision maker should "seek to identify and assess the significance of any heritage asset that may be affected by the proposed development, including by development affecting the setting of a heritage asset, taking account of …" and then lists various sources of information, including the Applicant's own assessment. In paragraph 5.12.12- 5.12-13 it explains that significance can be harmed or lost through development within its setting. Loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of designated assets of the highest significance (including scheduled monuments) should be wholly exceptional.

b) Please can Historic England confirm whether, in their view, the Proposed development would lead to "substantial harm" to the scheduled monument, giving reasons?

Historic England judge that the harm which the proposed development would cause to the significance of Tilbury Fort would be severe. The measurement of harm is on a spectrum, and the harm in this case would be at the upper end of "less than substantial".

In determining whether the proposed development would cause substantial harm, we have considered the impact on the significance of the heritage asset. As the NPS

makes clear, significance derives not only from a heritage asset's physical presence, but also from its setting.

The Planning Policy Guidance (Conserving and Enhancing the Historic Environment, HCLG 2018) states that the terms 'special architectural or historic interest' of a listed building and the 'national importance' of a scheduled monument are used to describe all or part of the identified heritage asset's significance. Some heritage assets may be affected by direct physical change or by change in their setting. Being able to properly assess the nature, extent and importance of the significance of a heritage asset, and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals

A thorough assessment of the impact on setting needs to take into account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it.

The setting of a historic asset is the surroundings in which it is experienced, and may therefore be extensive. All heritage assets have a setting, irrespective of the form in which they survive and whether they are designated or not. The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

When assessing any application for development which may affect the setting of a heritage asset, the decision maker may need to consider the implications of cumulative change. They may also need to consider the fact that developments which materially detract from the asset's significance may also damage its economic viability now, or in the future, thereby threatening its on-going conservation.

As we have explained in our written representations (3.3) its setting is an essential component of the significance of Tilbury Fort. Its open historic setting was fundamental to the fort's purpose; and even in its now impaired form, the Fort's setting is critical to the visitor's understanding of its significance.

What matters in assessing if proposal causes harm is the impact on the significance of the heritage asset. In this case, we judge that harm would be severe, that is the upper end of "less than substantial" to the significance of Tilbury Fort.

It remains essential to apply the policy in NPS 5.12.16, that in considering applications which do not preserve those elements of the setting that make a contribution to, or better reveal the of the asset, the greater the negative impact on the significance of the asset, the greater the benefits that will be needed to justify approval (NPS 5.12.16). The question for the decision maker should not be addressed as a simple balancing exercise, but whether there is justification for overriding the presumption in favour of conserving a designated heritage asset.

Deborah Priddy BA, Grad Dipl. Cons (AA), MCIfA, MIHBC, FSA
Inspector of Ancient Monuments

Figure 1 – List Description for Tilbury Fort

List Entry Summary (Published)

This monument is scheduled under the Ancient Monuments and Archaeological Areas Act 1979 as amended as it appears to the Secretary of State to be of national importance. This entry is a copy, the original is held by the Department for Culture, Media and Sport.

Name: Tilbury Fort

List Entry Number: 1021092

Location

The monument may lie within the boundary of more than one authority.

County	District	District Type	Parish
N/A	Thurrock	Unitary Authority	N/A

National Park: Not applicable to this List entry.

Grade: Not applicable to this List entry.

Date first scheduled: 18-Jan-1973

Date of most recent amendment: 08-Sep-2003

Asset Groupings

This list entry does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

List Entry Description

Summary of Monument

Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Tilbury Fort is England's most spectacular surviving example of a late 17th century coastal fort, designed at a time when artillery had become the dominant feature of warfare and therefore built with massive low earthworks, resilient to the shock of bombardment, instead of stone fortifications. The layout and construction was geared to the optimum siting of cannon at the forward batteries which, in conjunction with batteries on the opposing bank of the Thames, could create a field of fire spanning the estuary providing defence for the river itself and the capital. The systems of bastions and complicated outworks defending the batteries from the rear is principally a Dutch design, extremely rare in England, and Tilbury is the best preserved and most complete example of the type.

The fort still retains many of its original internal features with most of the main buildings surviving as standing structures. The magazines are especially notable, as they are rare survivals of a very unusual building type. The buried remains of further structures, associated both with the operation of the 17th century fort and the Tudor blockhouse, will also survive within the fort. The remains of the blockhouse, and of features related to its operation, are important as they represent one of the earliest types of structure built exclusively for the use of artillery in warfare. Only 27 examples are known to survive, in a variety of conditions ranging from buried foundations to incorporation in later military constructions. All such examples with substantial archaeological remains are considered nationally important. At Tilbury Fort, the remains of the blockhouse are particulary significant given that this structure was retained as a component of the 17th century defences.

The foreshore contains waterlogged deposits, including wooden piling which will provide technical information on the construction techniques of the fort and permit detailed dendrochronological dating. The large quantity of contemporary documentation provides a detailed picture of the occupation of the fort and its development, both as a position of foremost strategic importance in the defence of the approach to London, and as part of a larger system of associated forts in the Thames and Medway area. The alterations to the defences resulting from the recommendations of the 1859 Royal Commission place Tilbury within the largest martitime defence programme since the time of Henry VIII. This programme, prompted by fears of French naval expansion, ultimately involved some 70 new and upgraded coastal forts and batteries, colloquially known as `Palmerston's follies'. They formed the visible core of Britain's coastal defence systems well into the 20th century, many of which were still found to be of use by World War II. Features at Tilbury which represent this final military phase (principally the pillbox on the western perimeter of the site), are considered to be an integral part of the fort's history.

History

Legacy Record - This information may be included in the List Entry Details.

Details

Tilbury Fort is situated on low lying ground on the north bank of the River Thames, south east of the modern outskirts of Tilbury. The monument includes the buried remains of an Henrician blockhouse, the far larger and more complex fort and battery which succeeded the blockhouse in the late 17th century, the late 19th and early 20th century alterations to the fort and a World War II pillbox.

The blockhouse, the first permanent defensive structure in this location, was constructed in 1539 as part of Henry VIII's campaign to improve the coastal defences. Small fortified barracks were sited both here and at East Tilbury (about 5km distant), and on the opposite side of the estuary at Gravesend, Milton and Higham. None of these buildings now survive above ground, although contemporary illustrations provide details of their appearance. The Tilbury blockhouse, like the others, had two stories and was D-shaped in plan - the curved elevation, pierced by gun ports, provided a wide field of fire across the river. Alterations to the blockhouse were occasioned by the threat of Spanish invasion in the late 16th century and, following the defeat of the Armada in 1588, the building was encircled by a ditch and counterscarp bank with drawbridge and timber palisade. Within this enclosure (which was located roughly in the centre

of the southern side of the present fort) stood barracks and store buildings.

The Thames blockhouses were maintained through the period of the English Civil War, but played little part in the conflict. After the Restoration in 1660, Charles II began a complete reorganisation of the national defences which, following a highly successful Dutch raid up the Thames and Medway in 1667, came to include Tilbury. The new fort and battery, based on principles pioneered in the Low Countries, were designed by Charles' chief engineer Sir Bernard de Gomme. Work began in 1670 and the resulting fortifications remain substantially unaltered to this day. The fighting front of the new fort was a linear battery extending along the shoreline for approximately 250m to either side of the Henrician blockhouse, which was retained as a powder magazine. Of the 14 original gun positions (renewed with brick revetments towards the end of the 18th century) 12 survive along the West Gun Line, marked by triangular projections on the seaward side of an earthen rampart. The East Gun Line has been more severely eroded over the years leaving only a single gun platform. Behind each line are the remains of artillery store buildings dating from the 1840s and the buried foundations of earlier structures. The two gun lines were separated by a square quay (now largely overlain by modern flood defences) where stores and munitions were landed. These were then taken via a narrow causeway (the Powder Bridge) to the blockhouse and the new fort which guarded the landward side of the battery.

De Gomme's fort is pentagonal in plan, with arrowhead-shaped bastions projecting from four of the angles, allowing guns positioned behind the parapets to command wide areas and to be mutually supportive in close quarter defence. Pilings in the intertidal zone in front of the site of the blockhouse indicate an intention to add a fifth bastion to complete the regular appearance of the fort, but work is thought to have been abandoned at an early stage. The scheduling extends across the foreshore in front of the fort (approximately 50m below the modern flood wall) in order to protect these remains and those of various other jetties and piers associated with the frontage of the fort. Some of these are recorded on early maps, others have been identified by recent survey work. The original jetty for the Gravesend ferry, for example, stood here before it was relocated in 1681.

The brick built curtain wall which both encloses and links the bastions is largely original, with some later heightening of the parapet, and survives around all but the south eastern bastion and side of the fort. It supports massive internal earthen banks designed to absorb the impact of bombardment and to provide a firing platform for the defenders. The pentagonal area within the ramparts, known as `The Parade', covers about a hectare, and is raised above the level of the surrounding marsh by layers of chalk, clay and gravel surfaced with stone paving. The Soldiers' Barracks, a rectangular building some 50m in length with 20 rooms, was situated along the western edge of the parade parallel to the curtain wall. It was damaged by bombing in World War II, together with the kitchen, mess hall, hospital and other structures, and has since been demolished. Unlike these other structures, the footings of the barrack block remain marked out on the ground. On the opposite side of the Parade stands the 18th century terrace of the Officer's Barracks.

On the north side of the parade are two brick built powder magazines dating from 1716, the eastern of which is used as a visitors centre and display area. Each magazine has two entrances in the south wall with wooden doors reinforced with copper sheeting. The magazines are surrounded

by a brick blast wall constructed in 1746. This originally had entrances corresponding to those of the magazines themselves, although these were later blocked and new staggered entrances added for more effective blast containment. Though altered in the 19th century the magazines still contain many of their original features, including ventilation slits and (within the eastern magazine) raised wooden floors to prevent damp affecting the powder. The two magazines are separated by a passage giving access to the Parade from the Landport Gate directly to the north. The gateway consists of a brick vaulted entrance hall supporting an upper storey with a single room containing some original plaster work and fragments of 18th century wall paintings. The main entrance to the fort, known as the Water Gate, is situated in the middle of the south curtain. This is a two storied brick structure with an elaborate outer facade faced with ashlar and including a frieze with a dedication to Charles II with supporting motifs of gun carriages and other military regalia. A blocked doorway in the east wall would have originally given access to the house of the sutler (camp follower who sold drink and provisions to the troups) which now only survives as foundations. Adjacent to the west side of the Water Gate is a two storied building, the lower part of which served as a guard room and the upper floor as a chapel. There is no direct access between the two floors, the entrance to the chapel being provided from the curtain wall. Also within the parade are three mid-19th century hand pumps used to draw rainwater from underground cisterns.

The elaborate outworks which surround the landward sides of the fort remain substantially unaltered. The curtain wall and bastions are flanked by a broad terrace, or berm, in turn surrounded by a 50m wide moat following the outline of the fort. A narrow strip of dry land separates this channel from a more sinuous outer moat and contains a complex of defensive structures, the main element of which is a rampart, or covered way, traceable as a low earthwork running along most of its length. The covered way, with internal firing step, or banquette, acted as a communications channel linking the outer gun positions with the main body of the fort. In the middle of its eastern and western arms are triangular projections known as `places of arms' which served as muster points for troops defending the covered way, and originally contained platforms for cannon. The covered way to the south of the eastern place of arms was modified in 1779 to provide an additional battery of six guns providing a field of fire down river. Access to the Landport Gate was by a wooden drawbridge across the inner moat. This has not survived but has been replaced by a modern replica. The northern end of this bridge stands on an arrowhead shaped island, or ravelin, within the inner moat. The ravelin would have contained gun emplacements to defend the Landport Gate from direct bombardment and provide covering fire for the northern bastions. A further wooden bridge, also a modern replacement, links the north western side of the ravelin to the covered way between the moats. The approach continues northward over causeways which cross a second triangular island, known as a redan, in the outer moat. The low earthworks of a redoubt (an enclosed area containing further gun emplacements) remain visible on the redan. The two moats are connected by a sluice to the east of the ravelin, and the water level is controlled by a second sluice between the south eastern corner of the outer moat and the adjacent tidal creek (Bill Meroy Creek). Water management formed a significant part of the fort's system of defences. The ability to drain the moats was vital both for periodic removal of silts and to prevent attack over the frozen surface in winter. Beyond the moats, wider areas of the marsh were enclosed by banks and could be partly flooded to hinder an approaching force and prevent the construction of adjacent siege works. This wider basin is defined to the west by Fort Road (which runs along the top of part of the containment bank), to the north by a bank linking Fort Road to the head of Bill Meroy Creek, and to the east by the creek itself - which effectively provided a third moat along this side. These earthworks, and the area which they

contain, are included in the scheduling along with the earthen dam across Bill Meroy Creek which regulated the water level.

Tilbury Fort remained at the forefront of the defence of the Thames and London through the 18th and early 19th centuries, although it never saw the action for which it was designed, and it was partly superseded by forward batteries established down river at Coalhouse Point, Hope Point and Shornmead in 1795. The Royal Commission on the Defence of the United Kingdom in 1859 found all these defences inadequate and shortly afterwards larger forts were constructed at Coalhouse, Shornmead and Cliffe Creek. It was recommended that Tilbury be made more efficient, but as it was now relegated to a secondary position the alterations were far from radical, allowing the 17th century layout to survive. Embrasures and platforms for new heavy guns were added to cover the river from the north east and west bastions in 1868, the pivots and racers for which remain in position. Each gun was supplied by a brick vaulted expense magazine containing lifts and ventilators from chambers below where the powder and shot were combined. These chambers were joined by passages and linked to main underground magazines situated beneath the centres of the bastions. Separate passages contained lamps which shone through plate glass windows into the magazines and passageways. Both bastions also have positions for 10 inch smooth bore howitzers mounted on the northern flanks to cover the landward approach. The mid-19th century 32 pound guns presently mounted on the west and north east bastions are not original armaments. Towards the end of the 19th century, a light narrow gauge railway was laid out across the Parade to aid the transport of ammunition and stores. A section of the rails can still be seen on the quay, near the powder magazines and in the modern gateway to the east of the Water Gate.

The 1868 gun positions on the east bastion and south eastern curtain wall are masked by later emplacements built shortly before World War I. The curtain wall was realigned to give a better field of fire and four positions with concrete emplacements were let into the earlier embrasures on the wall for breech loading guns. Two more massive emplacements were constructed on the bastion for heavier guns, probably naval 6 inch. The mechanical hoists which served the larger guns still survive. The new defences never saw action in World War I, although anti-aircraft guns mounted in the parade did provide a spectacular military success by bringing down a German airship. In the early stages of World War II the chapel housed the Operations Room which controlled the anti-aircraft defences of the Thames and Medway (North) Gun Zone, until it was relocated to a purpose built structure at Vange in 1940. A small rectangular pillbox, located slightly to the north of the western end of the West Gun Line, was added at this time to control the river front approach to the fort and provide enfilade fire across the rear of the old battery positions. This is included in the scheduling. In 1948 the Commissioner of Crown Lands placed Tilbury Fort in the guardianship of the Ministry of Works to ensure conservation and public display. It is in the care of the Secretary of State.

A number of features within the area are excluded from the scheduling; these are the replica bridges, the Officer's Barracks and attached stable, the 19th century workshop to the south east of the Parade, the public toilets, all fences, fenceposts and signposts, the modern surfaces of all roads and car parks, the replica sentry boxes flanking the passage between the powder magazines, all guns presently positioned on the batteries and within the fort and all modern fixtures such as light fittings and flagpoles; the ground beneath these features and the structures to which they are attached, are included in the scheduling.

The line of the modern flood wall, built along the front of the East and West Gun Lines in the mid-1980s, is totally excluded from the scheduling both above and below ground.

MAP EXTRACT
The site of the monument is shown on the attached map extract.

Selected Sources

Books and journals
Saunders, A D, Tilbury Fort, (1990), 30
Saunders, A D, Tilbury Fort, (1990)
Other
1st draft scheduling proposal (notes), Wykes, I, Tilbury Fort, (1995)
Moore, P, Tilbury Fort Defences, 1994, Unpublished survey (Essex County Co)

Map

National Grid Reference: TQ 65152 75504

The below map is for quick reference purposes only and may not be to scale. For a copy of the full scale map, please see the attached PDF - 24443.pdf

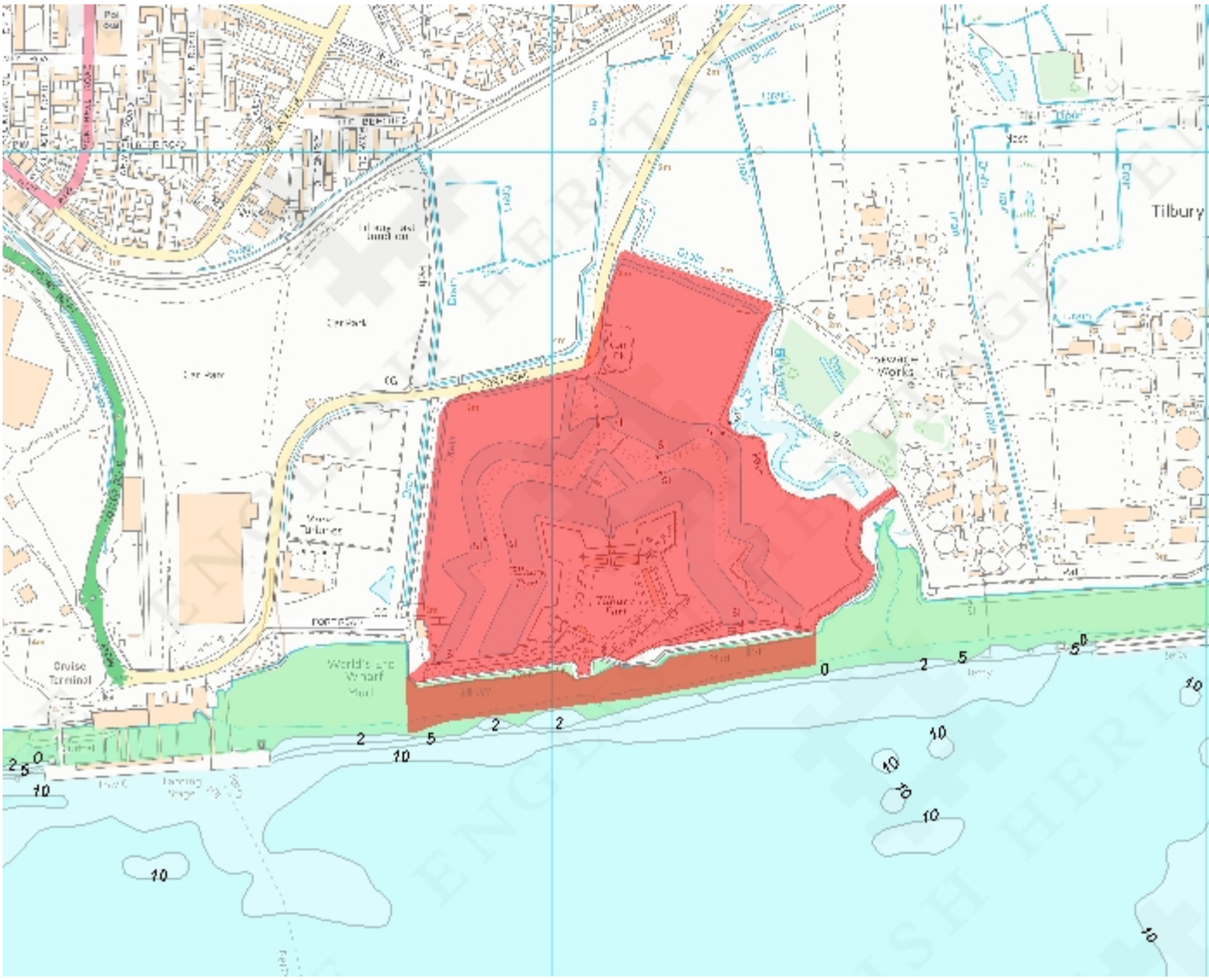

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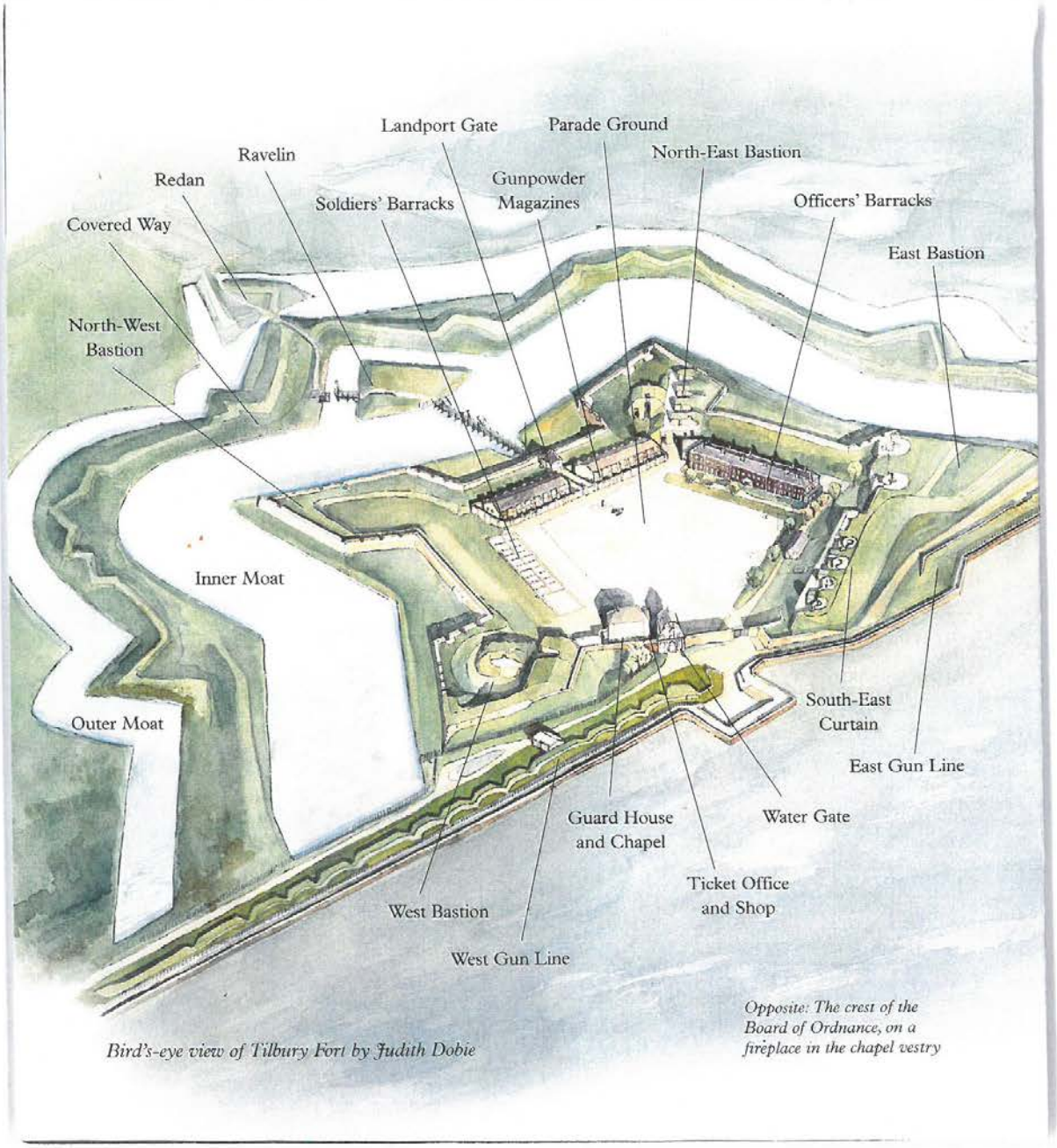
FIGURE 2 BIRD'S EYE VIEW OF TILBURY FORT



Bird's-eye view of Tilbury Fort by Judith Dobie

Opposite: The crest of the Board of Ordnance, on a fireplace in the chapel vestry

Figure 3 – Lines of fire between Tilbury and Gravesend Forts