

CL-2202-WFD-01

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CL-2202 – HOLBEACH TARGET REPLACEMENTS

WATER FRAMEWORK DIRECTIVE ASSESSMENT

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1.0 Introduction

1.1 Context & Project

Torbond PLC has engaged Marmus Ltd to undertake a Water Framework Directive Assessment to support the application for the installation of new marine infrastructure to act as replacement targets for the Holbeach Air weapons Range barges currently in position. This report will accompany all consents for the target replacement Project.

The existing targets at position 6N at Holbeach AWR have been in position for approximately 50 years and have reached the end of their design life and are no longer functioning fit for purpose.

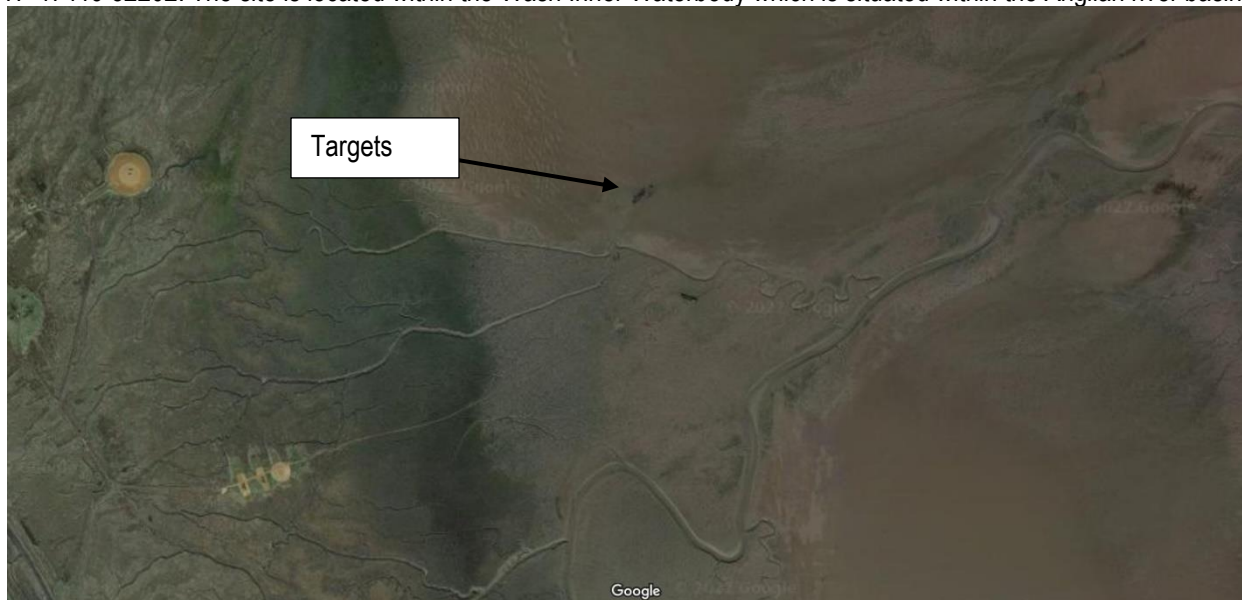
The proposed development is for the positioning of two new barges within the air range at target 6N. The new targets will be formed of two barges that will be 30m in length by 6m in width and 5m in height orientated alongside the existing targets. These new barges will form a 60m long target at 5m high. The targets will be painted with a high visibility orange paint to aid the range operations. The new target barges will be constructed off-site with flooding ports which can be sealed for transport and opened once in position.

They will be towed to site at high water and positioned alongside the old targets. They will be held in position whilst the tide falls, and they ground. Once grounded the tug crews will open the flooding valves on each target barge and await the next flood tide. As the tide rises the barges will flood and remain in position. The targets will be observed for another tide period to make sure they remain in place and secure to the seabed. On the next flood tide, the tugs will demobilise and the target will be monitored for movement by the range over the next 6 months. There are limited impacting works taking place during the positioning of the new targets, and no construction work is required on site.

This report aims to highlight, assess and where possible mitigate risks to the Wash Inner Waterbody caused by undertaking the proposed development.

1.2 Location

The location for the works for the development is North of the entrance to Kings Lynn in the Wash, Grid Reference TF 47419 32202. The site is located within the Wash Inner Waterbody which is situated within the Anglian river basin.



Aerial photo of site taken from Google Maps highlighting the area for Target 6N.

1.3 Existing Targets

The image below shows the current condition of the existing targets, highlighting the need for the replacements. The structure has almost completely rotted away and is no longer providing an adequate target for training purposes.



Aerial photo of existing targets taken from drone survey 27.06.22

2.0 The Water Framework Directive

2.1 Introduction

This assessment report has been prepared to adhere to the objectives of the Water Framework Directive (WFD) which requires all countries throughout the European Union to manage the water environment to consistent standards.

Each country is required to:

- Prevent deterioration in the status of the aquatic ecosystems, protect them and improve the ecological conditions of waters
- Aim to achieve at least 'good' status for all water bodies by 2015. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027
- Meet the requirements of Water Framework Directive Protected Areas
- Promote sustainable use of water as a natural resource

- Conserve habitats and species that depend directly on water
- Reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment
- Progressively reduce the pollution of ground water and prevent or limit the entry of pollutants
- Contribute to mitigating the effects of floods and droughts

2.2 The Anglian River Basin Management Plan (RBMP)

The Anglian River Basin Management Plan (2015) describes the river basin district and the pressures that the water environment faces. It shows what this means for the current state of the water environment, and what actions will be taken to address the pressures. The plan sets out what improvements are possible by 2021 and how the actions will make a difference to the local environment, considering the river catchments, the estuaries and coastal fringes, and underlying groundwater resources.

The development site is situated in the Wash, which is situated in the Anglian River Basin Management Plan, identified within the RBMP as Waterbody ID GB530503311300. It should be noted that GB530503311300 is approximately 12100 hectares and the area occupied by the development, and therefore the work site is a fraction of the size of the water body.

The objective for GB530503311300, a transitional water, is to reach 'Good Ecological potential' by 2027 and Good Chemical status was achieved by 2015. The RBMP currently assess GB530503311300 as being of Moderate Ecological status.

2.3 Environmental Objectives under the Water Framework Directive

In accordance with Article 4.7 of the WFD, the following generic environmental objectives have been used as the basis for this assessment report, against which the project proposals have been assessed.

- The project will not cause a deterioration in any element of waterbody classification
- The project will not prevent Good Ecological Potential Status from being reached by 2027

3.0 Screening

According to the guidance provided by the EA, a scoping will not be required if the project meets any of the following criteria;

- A. a fast-track or accelerated marine licence activity that meets specific conditions
- B. maintaining pumps at pumping stations – if you do it regularly, avoid low dissolved oxygen levels during maintenance and minimise silt movement when restarting the pumps
- C. removing blockages or obstacles like litter or debris within 10m of an existing structure to maintain flow
- D. replacing or removing existing pipes, cables or services crossing over a water body – but not including any new structure or supports, or new bed or bank reinforcement
- E. 'over water' replacement or repairs to, for example, bridge, pier and jetty surfaces – if you minimise bank or bed disturbance

Or if the activity was carried out during 2009 to 2014 and a WFD assessment was prepared, do not repeat unless;

- F. You've since changed how you carry out that activity, including method, size or scale, volume, depth, location or timings
- G. there's been a pollution incident since your activity was last carried out

3.1 Project Screening to Determine Scoping Requirements

Using the requirements above:

- A. The project is more complex and does not fall under a fast track or accelerated marine licence activity.
- B. The project is more complex and does not involve maintaining pumps at a pumping station.
- C. The project is more complex and does not involve removing blockages or obstacles.
- D. The project is more complex and does not involve removing existing pipes, cables or services crossing over a water body.
- E. The project is more complex and does not involve 'over water' replacement or repairs to, for example, bridge, pier and jetty surfaces.
- F. The project activity was not carried out between 2009 and 2014.
- G. Not applicable.

3.2 Screening Outcome

The screening process indicated scoping is required.

4.0 Scoping

The Scoping process is designed to identify the activities and potential risks to receptors. The receptors are:

- hydromorphology
- biology – habitats
- biology – fish
- water quality
- protected areas

These receptors are based on the water body's quality elements.

4.1 Hydromorphology

Table 1. Hydromorphology scoping assessment

Consider if your activity:	Yes	No	Response
Could impact the Hydromorphology (for example morphology or tidal patterns) of a water body at high status	Requires impact assessment	Impact assessment not required	The Wash Inner Water Body morphology has been classified as "supports good", the proposed targets will not impact a water body at high status. - An impact assessment is not required.
Could significantly impact the Hydromorphology of any water body	Requires impact assessment	Impact assessment not required	The new target situated alongside the existing has the potential to impact the hydromorphology of the waterbody. – An impact assessment is required.
Is in a water body that is heavily modified for the same use as your activity	Requires impact assessment	Impact assessment not required	The EA water body summary table provided in the government guidance states the Wash Inner Water Body is not heavily modified. - An impact assessment is not required.

4.2 Biology – Habitats

There are two types of sensitivity categorised in the EA guidance:

Higher sensitivity habitats ²	Lower sensitivity habitats ³
chalk reef	cobbles, gravel and shingle
clam, cockle and oyster beds	intertidal soft sediments like sand and mud
intertidal seagrass	rocky shore
maerl	subtidal boulder fields
mussel beds, including blue and horse mussel	subtidal rocky reef
polychaete reef	subtidal soft sediments like sand and mud
saltmarsh	
subtidal kelp beds	
subtidal seagrass	

The following items need to be considered whilst undertaking the scoping section.

Consider if the footprint ⁴ of your activity is:	Yes	No	Response
0.5km ² or larger	Yes to one or more – requires impact assessment	No to all – impact assessment not required	The new works will occupy a footprint of 360m ² . overall the footprint of the new proposed works is far less than 0.5km ² – An impact assessment is not required.
1% or more of the water body's area			The footprint of the project is negligible in relevant to the water body area. – An impact assessment is not required.
Within 500m of any higher sensitivity habitat			The project is located 125 metres from an area of Salt Marsh which is situated South-West of the targets. – An impact assessment is required.
1% or more of any lower sensitivity habitat			The project does not cover more than 1% of lower sensitivity habitat – An impact assessment is not required.

4.3 Biology – Fish

Fish are to be considered within estuaries or if the works could affect fish entering an estuary.

Consider if your activity:	Yes	No	Response
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	Continue with questions	Go to next section	The project is within the Wash Inner Water Body which is considered an estuarine Water Body. <i>Continue with questions.</i>
Could impact normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	Requires impact assessment	Impact assessment not required	The new targets do not have the potential to impact normal fish behaviour through the production of noise. <i>An impact assessment is not required.</i>
Could cause entrainment or impingement of fish	Requires impact assessment	Impact assessment not required	The flooding ports could lead to fish entrainment or impingement. <i>An impact assessment is required.</i>

4.4 Water Quality

Scoping to assess the project's impacts on water quality is outlined in the EA scoping template as follows.

Consider if your activity:	Yes	No	Response
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	Requires impact assessment	Impact assessment not required	The new targets will not affect water clarity. <i>An impact assessment is not required.</i>
Is in a water body with a phytoplankton status of moderate, poor or bad	Requires impact assessment	Impact assessment not required	The Phytoplankton status of the Wash Inner Water Body is good. <i>An impact assessment is not required.</i>
Is in a water body with a history of harmful algae	Requires impact assessment	Impact assessment not required	The EA Water Body summary table notes that there is a history of Harmful Algae in the Wash Inner Waterbody. <i>An impact assessment is required.</i>

Consider if water quality is at risk from your activity through the use, release or disturbance of chemicals.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Response
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	Requires impact assessment	Impact assessment not required	The new targets have no opportunity to affect the chemicals listed within the EQSD list. – An impact assessment is not required.
It disturbs sediment with contaminants above Cefas Action Level 1	Requires impact assessment	Impact assessment not required	The new targets have no opportunity to affect the chemicals listed within the EQSD list. – An impact assessment is not required.

If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
The chemicals released are on the Environmental Quality Standards Directive (EQSD) list	Requires impact assessment ⁵	Impact assessment not required	The project has no discharge or mixing zone. An impact assessment is not required.

4.5 WFD Protected Areas

Consider if WFD protected areas are at risk from your activity. These include:

- special areas of conservation (SAC)
- special protection areas (SPA)
- shellfish waters
- bathing waters
- nutrient sensitive areas

Magic Maps application was used to assess the location of the site in comparison to the protected areas.

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2km of any WFD protected area ⁶	Requires impact assessment	Impact assessment not required	The project is situated within three protected areas: - The Wash Special Protection Area - The Wash & North Norfolk Coast Special Area of conservation - South East Wash Shellfish Waters 2014 Of note, the area also falls under two further statutory designations, a RAMSAR site and SSSI. An impact assessment is required.

4.6 Invasive non-native species (INNS)

Risks of introducing or spreading INNS include:

- materials or equipment that have come from, had use in or travelled through other water bodies
- activities that help spread existing INNS, either within the immediate water body or other water bodies

Consider if your activity could:	Yes	No	Response
Introduce or spread INNS	Requires impact assessment	Impact assessment not required	The new development works will not pose a risk to the introduction or spread of INNS. Vessels involved in the works will be coated with antifouling to prevent biofouling and the growth and spread of INNS. Vessels that require ballast water will adhere to the Ballast Water Management Convention. - <i>An impact assessment is not required.</i>

4.7 Scoping Summary

Receptor	Potential risk to receptor?
Hydromorphology	The works have the potential to impact the hydromorphology of the waterbody.
Biology: habitats	There is higher sensitivity habitat within 500m of the works site.
Biology: fish	The barge flooding ports could lead to fish entrainment or impingement.
Water quality	The works are situated within a water body with a history of harmful algae
Protected areas	The works are situated within Three protected areas.
Invasive non-native species	An impact assessment is not required.

5.0 Impact Assessments

Having completed the scoping process an impact assessment is required with regards to Hydromorphology, Biology: Habitats, Biology: Fish, Water Quality and Protected Areas.

The EA guidance document provides a link to a pressures – activities matrix from the JNCC which has been used to help identify ways the project could affect the above receptors.

The closest activity to the project to be undertaken was the – Coastal Infrastructure – Piling: Port and Harbours. The pressures highlighted by the pressures – activities matrix for Habitats are as follows:

- Above water noise
- Abrasion/disturbance of the substrate on the surface of the seabed
- Barrier to species movement
- Changes in suspended solids
- Collision above water with static or moving objects not naturally found in the marine environment
- Collision below water with static or moving objects not naturally found in the marine environment
- Deoxygenation
- Hydrocarbon & PAH contamination
- Introduction of light
- Introduction of Other Substances
- Litter
- Nutrient enrichment
- Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion.
- Physical change
- Physical Loss
- Removal of non-target species
- Smothering and siltation rate changes
- Synthetic compound contamination
- Transition elements & Organometal contamination
- Underwater noise changes
- Vibration
- Visual disturbance
- Water flow changes, including sediment transport considerations.
- Wave exposure changes.
- Impacts on Saltmarsh Habitat
- The Wash – Special Protection Area
- The Wash & North Norfolk Coast – Special Area of Conservation
- South East Wash Shellfish Waters

5.1 Impacts Mitigation

Sub Activity	Pressure Theme	Pressure	Mitigation
Piling: Port & Harbours	Biology: Habitats	Above Water Noise	The installation of the two new target barges will have minimal opportunity for impact on the Waterbody through above water noise. The works will likely take place over a week installing each target individually. There will be localised impacts through tug activity that introduce noise. However, this will be for short periods and will only impact the direct vicinity of Target 6N. The impacts to the water body caused by above-water noise from the project will be low.

	Hydromorphology	Abrasion/disturbance of the substrate on the surface of the seabed	The two new barges will have a footprint of 360m² and will potentially contribute to scour until the bed level reaches a new equilibrium. On inspection, the existing infrastructure shows very little scour in the area. The soils are predominantly cohesive allowing for reduced scour opportunity. As the new targets will be placed adjacent to the existing it is expected that the flow rate and scour will remain similar to that experienced currently. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through abrasion/disturbance of the substrate on the surface of the seabed.
	Biology: Fish	Barrier to species movement	The installation of the two barges will have a negligible impact on species movement. The new barges will be positioned alongside the existing target. The area the barges will be installed in is a large open area with no barriers to species movement. Due to this characterstic installation of the two targets will have a negligible impact on species movement and will have a negligible impact on the Wash Waterbody.
	Biology: Habitats & Water Quality	Changes in suspended solids (water clarity)	The new target barge installation will have no material impact on changes in suspended solids in the Wash Waterbody. The installation of two targets has the potential to increase suspended solids locally for a short period through changes in scour. This could last for a short period whilst the bed reaches an equilibrium and scour settles. When taking this into account and the background levels of turbidity in the Wash the impacts from the development will be negligible Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through changes in suspended solids.
		Collision above water with static or moving objects not naturally found in the marine environment	The installation for the two new barges has limited potential to cause impact to the Wash Waterbody through collision above water. As the barges have a similar shape and size to the existing targets and will be positioned adjacent the risk of collision should be negligible. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through collision above the water.
		Collision below water with static or moving objects not naturally found in the marine environment	The installation for the two new barges has limited potential to cause impact to the Wash Waterbody through collision below water. As the barges have a similar shape and size to the existing targets and will be positioned adjacent the risk of collision should be negligible. Overall, the installation of the new targets will have no material impact on the Wash Waterbody through collision above the water.

	Water Quality	Deoxygenation	The target barge installation will have no material impact on deoxygenation in the Wash Waterbody. The installation of two targets has the potential to increase suspended solids locally for a short period through changes in scour. This could last for a short period whilst the bed reaches an equilibrium and scour settles. This scoured material has the potential to affect deoxygenation, however, the material released will be such a small volume that the impacts on the Wash Waterbody will be negligible. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through changes in Deoxygenation.
	Water Quality	Hydrocarbon & PAH Contamination	The target barge installation will have no material impact on Hydrocarbon & PAH contamination in the Wash Waterbody. The installation of two targets has the potential to increase suspended solids locally for a short period through changes in scour. This could last for a short period whilst the bed reaches an equilibrium and scour settles. This scoured material has the potential to affect Hydrocarbon & PAH contamination, however, the material released will be such a small volume that the impacts to the Wash Waterbody will be negligible. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through the introduction of Hydrocarbon & PAH contamination.
	Biology: Fish & Biology: Habitats	Introduction of light	The target barge installation will have no material impacts on the Wash Waterbody through the introduction of light. All positioning works will be undertaken during daylight hours. There will be no need for the introduction of light for these installations. As light will not be introduced through the project the impacts to the water body caused by the introduction of light will be nil.
	Water Quality	Introduction of other substances	The target barge installation will have no material impacts on the Wash Waterbody through the introduction of other substances. The new target barges will be coated with a protective coating suitable for the marine environment. No other substances are being introduced as a result of the works. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through the introduction of other substances
	Biology: Habitats Biology: Fish Water Quality &	Litter	The new target barge installation will have no material impact on the Wash Waterbody through the introduction of Litter. The contractors undertaking the work will be collecting all litter created through the installation of the works and dispose of it through licenced waste carriers. The target barges are not accessible infrastructure and will have no opportunity to generate litter once in situ. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through the introduction of litter.

	Water Quality	Nutrient Enrichment	The target barge installation will have no material impact on nutrient enrichment in the Wash Waterbody. The installation of two targets has the potential to increase suspended solids locally for a short period through changes in scour. This could last for a short period whilst the bed reaches an equilibrium and scour settles. This scoured material has the potential to affect nutrient enrichment through resuspending sediments, however, the material released will be such a small volume that the impacts to the Wash Waterbody will be negligible. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through changes in nutrient enrichment.
	Hydromorphology	Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	The target barge installation will have no material impact on the Wash Waterbody through penetration and/or disturbance of the substrate below the surface of the sea bed. The new targets have the potential to increase scour locally for a short period whilst the bed reaches equilibrium. However, the targets will be situated on the seabed surface and there are no installations that will penetrate below the surface. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through penetration and/or disturbance of substrate below the surface of the seabed.
	Biology: Habitats	Physical Change (to another seabed type)	The target barge installation will have no material impact on the Wash Waterbody through Physical Change to another seabed type. The works do not involve laying or depositing any new bed material on the seabed and do not have an opportunity to change the bed type in the water body. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through changes in physical change.
	Biology: Habitats	Physical loss (to land or freshwater habitat)	The installation of the new target barges will have no material impact on the physical loss of land or freshwater habitat in the Wash Waterbody. The two new target barges will have negligible impact on the Wash Waterbody, equally where the barges will be situated there is no fresh water or land habitat that would be impacted. The barges will have a combined footprint of 360m². The area impacted is comparatively small to the habitat available within the Wash Waterbody and the impacts will be negligible. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through physical loss.

		Removal of non-target species	The target barge installation will have no material impact on the Wash Waterbody through the Removal of non-target species. The installation of the target barges does not require any removal of any materials from the marine environment, the old targets will be left in position and the new barges will act as hard substrate environment. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through the removal of non-target species.
	Biology: Habitats	Smothering and siltation rate changes (Light)	The target barge installation will have no material impact on changes in smothering and siltation rate in the Wash Waterbody. The installation of two targets has the potential to increase suspended solids locally for a short period through changes in scour which has the potential to increase smothering and siltation rates. This could last for a short period whilst the bed reaches an equilibrium and scour settles. When taking this into account and the background levels of turbidity in the Wash the impacts from the development will be negligible. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through changes in smothering and siltation rate.
	Water Quality	Synthetic compound contamination	The target barge installation will have no material impact on synthetic compound contamination in the Wash Waterbody. The installation of two targets has the potential to increase suspended solids locally for a short period through changes in scour. This could last for a short period whilst the bed reaches an equilibrium and scour settles. This scoured material has the potential to introduce synthetic compound contamination present in the sediments, however, the material released will be such a small volume that the impacts on the Wash Waterbody will be negligible. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through the introduction of synthetic compound contamination.
	Water Quality	Transition elements & Organometal contamination	The target barge installation will have no material impact on transition elements and organometal contamination in the Wash Waterbody. The installation of two targets has the potential to increase suspended solids locally for a short period through changes in scour. This could last for a short period whilst the bed reaches an equilibrium and scour settles. This scoured material has the potential to introduce transition elements & organometal contamination present in the sediments, however, the material released will be such a small volume that the impacts to the Wash Waterbody will be negligible. Overall, the installation of the new target barges will have no material impact on the Wash Waterbody through the introduction of transition elements and organometal contamination.

	Biology: Fish	Underwater Noise Change	The installation of the new target barges will have no material impact on underwater noise change in the Wash Waterbody. Towing the new barges into position will be for a very short period, once in position, the barges are static non operated infrastructure that does not produce noise. There is very limited opportunity for noise to be produced and the impacts to the Wash water body caused by underwater noise changes will be negligible.
	Biology: Fish	Vibration	The installation of the new target barges will have no material impact on the Wash Waterbody through the introduction of vibration. There is minimal opportunity for the target barge installation to produce vibrations, the vessels used to install the new barges into position will produce vibrations, but the installation is for a very short period. The barges themselves are static non operated infrastructure that does not produce vibrations. There is very limited opportunity for vibration to be produced and the impacts to the Wash water body caused by the introduction of vibration will be negligible.
	Biology: Habitats	Visual disturbance	The installation of the new target barges will have no material impact on the Wash Waterbody through the visual disturbance. The installation works have the potential to evoke a disturbance response in mobile species such as birds. However, due to the short-term nature of the work and the minimal potential for the introduction of noise and vibration, the impacts are considered negligible. The installed items themselves will have no impact on the water body through visual disturbance as they will be based on the existing target in place. Overall, the implementation of the development will have negligible impacts on the Wash Waterbody caused by visual disturbance.
	Hydromorphology	Water flow changes, including sediment transport considerations	The installation of the new target barges will have no material impact on the Wash Waterbody through water flow changes including sediment transport considerations. The new target barges are designed to mimic the targets currently at the site. They are orientated to have the lowest profile facing the most impacting weather. By positioning the barges alongside the existing target, the hard surface introduced will have limited impacts on the flow in the local area and negligible impacts on the flow of the Wash waterbody.
	Hydromorphology	Wave exposure changes	The impacts to wave exposure is likely to be insignificant, the new target barges should have negligible impacts to wave exposure of the shore at this location as the targets will be positioned alongside the existing target and the profile and size of the targets are relatively small in comparison to the waterbody. Installation in this location is unlikely to have any material impact on the waterbody as a result of wave exposure changes.

	Biology: Habitats	Impacts on Saltmarsh Habitat	The installation of the new target barges will have no material impacts on the Wash Waterbody through impacts to the Saltmarsh habitat. Saltmarsh habitat is susceptible to smothering through sediment deposition. When considering the impacts on the other pressures explored earlier it is apparent that the works will have a negligible impact on any activity which would increase the rate of siltation and deposition of sediments. Due to this, the works will have negligible impacts on Saltmarsh habitats in the Wash waterbody.
	Protected Areas	The Wash - Special Protection Area	The Wash Special Protection Area has 22 features as follows: <u>Non-Breeding</u> <i>Cygnus columbianus bewickii</i> <i>Anser brachyrhynchus</i> <i>Branta bernicla bernicla</i> <i>Tadorna tadorna</i> <i>Anas penelope</i> <i>Anas sterpera</i> <i>Anas acuta</i> <i>Melanitta nigra</i> <i>Bucephala clangula</i> <i>Haematopus ostralegus</i> <i>Pluvialis squatarola</i> <i>Calidris canutus</i> <i>Calidris alba</i> <i>Calidris alpina alpina</i> <i>Limosa limosa islandica</i> <i>Limosa lapponica</i> <i>Numenius arquata</i> <i>Tringa tetanus</i> <i>Arenaria interpres</i> <u>Breeding</u> <i>Sterna hirundo</i> <i>Sterna albifrons</i> Waterbird assemblage The installation of the new target barges will have no material impact on the Wash Special Protection Area through impacts to the above attributes. The proposed works are small scale and low impact with the only impacting activity being the positioning of the barges using small workboats. There is no impacting construction work taking place at the site, the barges will be constructed off-site and towed to position. As the works have limited opportunity to impact any of the features of the SPA noted above it is considered that the impacts will be negligible.

	Protected Areas	The Wash & Norfolk Coast - Special Area of Conservation	The Wash & North Norfolk Coast Special Area of Conservation has 7 habitats that are a primary reason for SAC selection and 1 qualifying feature. There is 1 Annex II species and 1 qualifying feature. The habitats are as follows: 1110 Sandbanks which are slightly covered by sea water all the time, 1140 Mudflats and sandflats not covered by seawater at low tide, 1160 Large shallow inlets and bays, 1170 Reefs, 1310 Salicornia and other annuals colonizing mud and sand 1330 Atlantic salt meadows. 1420 Mediterranean and thermo-Atlantic halophilous scrubs. The qualifying feature is 1150 Coastal lagoons. The annex 2 species are as follows: 1365 Harbour seal, The qualifying species is as follows: 1355 Otter The installation of the new target barges will have no material impact on the Wash & Norfolk Coast Special Area of Conservation through pressures to the above habitats. The proposed works are small scale and low impact with the only impacting activity being the positioning of the barges using small workboats. There is no impacting construction work taking place at site, the barges will be constructed off-site and towed to position. As the works have limited opportunity to impact any of the features of the SAC noted above it is considered that the impacts will be negligible.
		South East Wash Shellfish Waters	The installation of the new target barges will have no material impact on the South East Wash Shellfish Waters. Legislation found in The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 states that the objectives for shellfish waters are to improve or protect the shellfish water protected area to support shellfish life and growth and to contribute to the high-quality shellfish products suitable for human consumption. As demonstrated from the impacts assessed above, the installation of the target barges is unlikely to have any material impacts on the Wash Waterbody and in turn, the works are unlikely to have any impacts on the South East Wash Shellfish Waters.

6.0 Discussions & Conclusions

This report has followed the guidance issued by the Environment Agency in screening for impacts caused by the installation of the new targets at Holbeach Air Weapons Range. The screening process identified four receptors at risk that required further scoping; Hydromorphology, Biology: Habitats, Water Quality and Protected Areas.

Utilising the guidance provided by the EA, the scoping stage was undertaken to provide further detail on the potential impacts arising from the development.

With the Screening and Scoping stages completed the Impact Assessment for the new target barges was undertaken using the activities - pressures database, provided by the JNCC, to assess pressures to the receptors. The mitigation processes identified in this assessment are intended to contribute to the continued improvement of the Wash Waterbody.

In completing the Water Framework Directive Assessment for the installation of the new target barges we consider that the works will not cause deterioration to any element of waterbody classification and the project will not prevent Good Ecological Potential Status from being reached by 2027.

Overall, the implementation of the Holbeach Target Barge Replacement will not impose risk on existing mitigation measures set out in the objectives of the Anglian River Basin Management Plan.

7.0 References

The Anglian River Basin Management Plan (2015)
Environment Agency, How to assess the impact of your activity in estuarine (transitional) and coastal waters for the Water Framework Directive (WFD).
Environment Agency, Water Body Summary Table
JNCC, Pressures-activities Matrix.
Natural England, Designated Sites View, The Wash SPA
DEFRA, Magic Maps

8.0 Appendix

8.1 Environmental Quality Standards Directive (EQSD)