

Denton Radar Enhancement proposal

Flood Risk Assessment

July 2024

Project background:

The Port of London Authority (PLA) has a facility at the following site that is used for the maintenance and repair of vessels and floating plant. The full site address is:

Port of London Authority

Marine House

Denton Wharf

Mark Lane

Gravesend, Kent

DA12 2PL

The PLA is a Statutory Harbour Authority for the Tidal Thames, acting as custodians for the river across 95 miles from Teddington in West London into the Thames Estuary. The PLA works to keep commercial and leisure users safe, protect and enhance the environment and promote the use of the river for trade and travel. The Port of London oversees 230 000 vessel movements handling over 53 m tonnes of cargo each year and is currently the largest Port in the UK.

Denton Wharf forms the marine base of operations for the PLA. It is a purpose-built facility used to undertake a wide range of critical marine and land-based operation and serves as the base for the PLA's Marine Services Team, who maintain more than 60 aids to navigation, including buoys, and inspect/maintain more than 230 PLA moorings along the river.

Marine house at Denton is a purpose-built operational support facility serves as the base for the PLA's Marine Services team and serves as the maintenance base for the PLA's fleet of nearly 40 vessels. The wharf also comprises a 70-tonne capacity boat lift which is available for hire along with other cranage for 3rd party operators and owners. The wharf is also used as the London base for the global towage operator Svitzer performing essential tug operations on the Tidal Thames.

Over the last 10 years the PLA has invested more than £10 million in Denton Wharf, including the jetty development, construction of Marine House and progressive strengthening of the quay to allow larger boat lifts to be handled, as well as sustainability improvements including provision of solar panels on site and enhancements to the office facilities at Marine House.

The facility at Denton Wharf has been in efficient operation for many years and continues to act as the primary support site for PLA's operational activities on the Tidal Thames.



Figure 1 – Denton Wharf/Marine House - Site location plan (N.T.S.)

Proposed Development:

The PLA's Vessel Traffic Services (VTS) team are responsible for ensuring safety of life at sea, safe and efficient navigation, and protecting the marine (and adjacent) environment. Following the planned closure of the PLA's Thames Barrier Navigation Centre in the Royal Borough of Greenwich and the associated loss of primary backup location for VTS, Marine House Denton has been selected as an alternative site to ensure the ongoing resilience of VTS operations along the Tidal Thames. This is due to the fact that there is already an existing tower on site within an area of land owned by the PLA which serves as the PLA's principle operational base.



Figure 2: Existing tower at Denton Wharf

The existing tower at Marine House was originally designed for cellular communications and is not fully compatible with the strict requirements of equipment used by the PLA to communicate between PLA shore-based radar sites and between VTS and river users. In terms of existing infrastructure on the tower the PLA has one microwave dish and CCTV cameras which will be retained. However, for the existing tower to be utilised for effective communications for VTS operations, it requires an upgrade to provide the high availability of services necessary. This will allow the PLA to ensure continuing safe navigation on the Tidal Thames as part of its role as the Statutory Harbour Authority for the Tidal Thames.

The existing Denton Tower is an 18m steel lattice tower. It is constructed using tubular legs and angular bracings. The base width of the tower is 4.09m, tapering to 2.5m at a height of 12m, and then remaining parallel up to the top.

The tower is supported by a foundation cap measuring 5.40m x 5.16m with a thickness of 2m, which is situated over eight piles. This foundation system provides stability and support to the tower structure. Since its erection in 1990, there have been no indications of structural distress associated with the foundation. Recent observations made on site have shown no signs of tilting, earth movement, excessive settlement, or other visible evidence suggesting overloading of the foundation which suggests that the foundation has maintained its stability and performance.

As part of the proposed development, the existing headframe will be entirely removed, and equipment will be relocated to the tower body at the same heights. For extending the ladder, a minimum tower width of 1.75m at the top of the extension must be maintained. Additionally, a small platform will be installed 2m below the top of the tower to enhance functionality. This platform will serve as a strategic access point for the numerous equipment installations at the top the tower, ensuring convenient and safe servicing and maintenance procedures.

The proposed tower extension will connect to existing tower flanges and starts with width of 2.5m and is tapering over 4m to 1.75m width. It is then parallel to the top. The construction of the extension is of tubular sections with leg flange connections and single bolted shear connections for bracing. The new tower section will be fabricated off site and transported to site in short sections via truck. These sections will be assembled into a single section in the car park of Marine House and will then be lifted in a single section onto the existing tower and bolted in place. It is expected that the site work will take 3-4 days to complete.

The total height of the extended tower is 31m, an increase of 13 metres. No works are required to the base of the tower as part of the proposed development.

Policy Context

National Planning Policy Framework

The National Planning Policy Framework (NPPF) was introduced on 27 March 2012. This document was revised in December 2023; where paragraphs 165 to 175 inclusive establish the Planning Policy relating to flood risk management. The Technical Guide to the NPPF was superseded by the Planning Practice Guidance (PPG) in March 2014.

It states all plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – to avoid where possible, flood risk to people and property. They should do this and manage residual risk, by:

- a) applying the sequential test, and if necessary, the exception test as set out below;
- b) safeguarding land from development that is required for current and future flood management;
- c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and
- d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development including housing, to more sustainable locations.

The Planning Practice Guidance (PPG) provides the methodology required to undertake the Sequential and Exception Tests.

Flood and Water Management Act (2010)

The Flood and Water Management Act places a duty on all flood risk management authorities to co-operate with each other. The act also provides lead local flood authorities and the Environment Agency with a power to request information required in connection with their flood risk management functions.

Gravesham Local Plan Core Strategy (2014)

The Gravesham Local Plan Core Strategy sets out the vision, strategic objectives, and policies for development in Gravesham for the period 2014 to 2028.

The main concern in the Gravesham is the risk of tidal flooding from North Sea storm surges which would affect the River Thames. Most of the areas alongside the river have a high standard of protection by defences. However, a risk of flooding still exists in these areas because of the possibility of defence failure or over-topping during extreme events. The Local Policy states, that The Thames Estuary 2100 (TE2100) project aims to develop a long term tidal flood risk management plan for London and the Thames Estuary. The TE2100 Flood Risk Management Plan shows that there are unlikely to be major changes to the existing system of defences over the plan period. However, it is likely that there will be changes in the longer term. All the options include a new flood defence to the northeast of Gravesend and some of the options include a new Thames flood barrier, either at Long Reach, Dartford, or between Gravesend and Tilbury. This needs to be taken into account in the Council's approach.

The strategic policy relevant to flooding and drainage is CS18: Climate change. Flood Risk. With the exception of the previously developed sites along the Thames Riverside (see Policies CS03, CS04 and CS05) and those other regeneration sites which have already been evaluated in accordance with the sequential and exception tests at the application stage, development will be directed sequentially to those areas at least risk of flooding. Proposals in areas at risk of flooding must be accompanied by a Flood Risk Assessment (in accordance with national policy and Environment Agency standing guidance as appropriate) and a Flood Risk Management Plan (if required) to demonstrate that they are adequately defended and safe over their lifetime. Planning permission will be refused for schemes which do not pass the sequential and exception tests.

The Council will prioritise the maintenance, improvement or replacement of flood defence infrastructure over other land uses where relevant. In addition to meeting their own flood defence and management needs, the Council will expect new development to take advantage of opportunities to reduce the causes and impacts of flooding from all sources where it is technically and financially feasible.

With regard to Sustainable Drainage and Surface Water Run-Off the Council will seek to minimise the impact of drainage from new development on waste water systems. In particular, the Council will:

- Require that surface water run-off from all new development has, as a minimum, no greater adverse impact than the existing use; and
- Require the use of Sustainable Drainage Systems on all developments where technically and financially feasible.

EA Flood Zone 3

Denton Wharf is within a Flood Risk Zone 3 area (Flood Risk Zone 3 Plan submitted separately), but also within an area that benefits from existing flood defences. The proposed tower extension is minor and will not increase the amount of hardstanding or floor space found at the site with no change to the tower at ground level. Nor will it increase the risk of flooding at the site, or surrounding area. It is therefore considered that proposed tower extension will not impact on the wellbeing and safety of users within the Denton Wharf site.

Sequential Test:

The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

The proposed development comprises the minor enhancement of an existing piece of infrastructure with no changes to the footprint or ground level. The proposed development involves works to an existing piece of infrastructure already located within a Flood Risk Area, within land owned by the applicant (The Port of London Authority). The likelihood of removing an existing, permitted tower in a location that is compatible for the essential nature of the PLA's Vessel Traffic Services is considered extremely unlikely. In addition, according to the NPPF Annex 3 (Flood risk vulnerability classification) the proposed development comes under the water – compatible development category as a navigational facility. Therefore in terms of flood risk vulnerability, the proposed development proposals are considered to be water compatible. As a result, the Sequential Test is not required.

Exception Test

In terms of flood risk vulnerability, the proposed development proposals are considered to be water compatible. In line with Table 2 of the Planning Practice the Exception Test is not required.

Other considerations:

- Surface water: The Environment Agency's Risk of Flooding from Surface Water map indicates that most of the site is categorized as having a low' risk of surface water flooding.
- Groundwater SFRA: According to Kent Thameside SFRA, the site falls outside of the groundwater risk zone and as such, the ground risk is considered low.
- Sewer flooding SFRA: The Kent Thameside SFRA, does not provide any sewer flooding data close to the site and as such, the sewer flooding is considered low.
- Reservoir: The site is shown to be outside of the extent of flooding from reservoirs and as such, the risk is considered low.

Conclusions

In summary it can be seen from the submitted documents and drawings that the impact of the proposed installation of this essential infrastructure to ensure continuing safe navigation on the Tidal Thames would be minimal in terms of its footprint and as such the proposal will not contribute to an increased flood risk elsewhere. Furthermore, based on the information provided and no increase in impermeable area, and it would be disproportionate to implement a sustainable drainage strategy for such a small area. In conclusion, this Flood Risk Assessment demonstrates that the proposals are consistent with the aims of NPPF, its planning practice guidance and the councils Core Strategy policies. The proposed development will not increase flood risk offsite.

Appendix A: Flood Risk map of proposed development location

