The Planning Inspectorate
The Square Temple Quay
Bristol
Avon
BS1 6PN

Our ref: AE/2018/122594/01-L01
Your ref: *

Date: 20 March 2018

Dear Sir/Madam

APPLICATION BY PORT OF TILBURY LONDON LIMITED FOR AN ORDER GRANTING DEVELOPMENT CONSENT FOR A PROPOSED PORT TERMINAL AT THE FORMER TILBURY POWER STATION (TILBURY 2) - WRITTEN QUESTIONS. FORT ROAD, TILBURY, ESSEX, RM18 7NR

This response relates to the Examining Authority's first set of written questions in relation to the Tilbury 2 development issued on 27 February 2018. The letter contains comments on questions related to the Environment Agency only.

Biodiversity, Ecology and Natural Environment

1.2.2 ES paragraph 6.38 considers that, "…some areas of some ecological value, particularly those reliant on open mosaic habitat, are likely to deteriorate in value if left in an undeveloped condition in the future, as natural succession leads to the intrusion of more substantial vegetation; and that any loss in biodiversity will be compensated, it is considered that development of the northern part of the site is appropriate."
Is the statement that some areas of ecological value, particularly those reliant on open mosaic habitat, are likely to deteriorate in value if left in an undeveloped condition in the future, correct?

Yes if left unmanaged, the process of succession will lead to a deterioration in the ecological value of the open mosaic habitats on site.

1.2.3 Do you consider that the Applicant has addressed the need (within the NPS for Ports, paragraph 5.1.8) to aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives?

The Applicant has only partially considered the impacts of the development on biodiversity, with an absence of information on eels or how impacts on open mosaic habitats are to be successfully compensated for. The applicant needs to provide us with detailed mitigation and compensation plans in order to meet the requirement under 5.1.8 NPS for ports.

We have recently received some further information from the applicant in regards to compensation for saltmarsh loss and feel these do not address the loss of this habitat caused by the proposed development. We are in the process of arranging further meetings with the applicant in order that this issue can be progressed. We have also been sent some further information regarding the impact the development will have on eels, we are currently assessing this and will respond to the applicant in due course.

1.2.6 Open Mosaic Habitat on Previously Developed Land

a) Have there ever been any habitat translocation trials for Lytag habitat substrates (or similar)?
b) If so, were they successful? Please provide summary details.
c) Is the Applicant proposing to undertake habitat translocation trials, for the open mosaic habitat types that would be lost, prior to the commencement of the Proposed Development? If so please provide details?
d) In your view, would a large scale habitat translocation project be likely to succeed for the Lytag habitat (and other artificial habitat substrate here), in terms of it being suited to the diverse assemblages of insects, plants, lichens and other biodiversity interests that would be directly impacted by the development?
e) How would this large scale habitat translocation project be funded and managed?

(a) There have been few studies of Lytag substrate translocation and its effectiveness. We draw the inspector's attention to a recently published report:

Brownfield-inspired green infrastructure: a new approach to urban biodiversity conservation. Caroline Nash. May 2017. Unpublished thesis for University of East London (UEL).

(b) The UEL report does show that invertebrate numbers can be higher on green roofs with Lytag substrate with several species of national importance recorded. The results should be viewed with some caution due to the study's short-term nature (2 years) and limited classification of groups. Long-term data on the effectiveness of Lytag translocation is needed.

(c) For applicant only

(d) It is hard to be certain that a large-scale translocation of Lytag substrates would be successful in the long-term due to a lack of evidence showing that it works in other areas of similar national importance for invertebrates

(e) We are unaware of how the project will be funded but assume this would be the responsibility of the applicant. We would expect to see a management plan for the

translocation project which we would comment upon, we are willing to work with the applicant to produce this.

Dredging and Navigation

1.9.3 The EA's RR [RR-017] explains that the construction of the development and the dredging would need to demonstrate compliance with the Water Framework Directive (WFD). There exists uncertainty over the risks to water quality whilst undertaking dispersive dredge techniques and the EA requests additional water sampling for WFD pollutants, to provide confidence of 'no deterioration'. The methodology for the capital dredge programme also needs to be specified, as this may affect the level of risk to compliance with WFD.
The MMO [RR-023] also suggest alternative wording for a condition for pre-construction plans and a need for a maintenance dredging method statement. The EA also suggest that in the event of potential cumulative impacts with Tilbury Energy Centre, more pro-active maintenance dredging methods such as WID should be considered. The EA also state that a WFD assessment for the maintenance dredging will be a separate requirement.
Please can the EA and the MMO and Applicant work together to provide suitable draft wording for further requirement(s) and/or for additional/modified conditions in the Deemed Marine Licence (DML) to address these matters?

a) Compliance with Water Framework Directive

The water quality uncertainties associated with dispersive dredge techniques stem from the fact that chemicals present [for which Environmental Quality Standards exist ,specified within European directives WFD and/or EQSD, for their concentration in the overlying water], in the sediment to be dredged will be disturbed by the act of dredging. The amounts transferring from sediment to the overlying water column are hard to determine, because transfer is determined by solubility, and solubility can be affected by a variety of factors (temperature, pre-existing background concentrations, and, in the case of organic molecules, partitioning behaviour for example). Therefore, the potential uplift in concentrations in water locally, and in the waterbody as a whole (for classification purposes) can be difficult to predict in relation to meeting or exceeding the Environmental Quality Standards for each chemical. As there are both short-term (maximum allowable concentration) and long term (annual average concentration) standards to comply with, the impact upon a waterbody of a discreet, temporary duration activity such as a dispersive dredge is difficult to assess objectively and requires in-depth understanding of the behaviour and fate of each chemical within the waterbody under study. Even variables such as the tidal state(s) at which the activity occurs can influence the volume of receiving waters available to "dilute" any chemical transferred from the sediment to the water, and it is also necessary to consider whether any chemical transferred will remain in solution in the longer term or rebind to particulates in suspension and drop out of the water column again as deposited silts.

Sediment chemical analysis has been carried out at a number of locations, and with the exception of one or two hotspots for particular chemicals, the levels of WFD chemicals detected were not unusually high for this part of the Thames estuary (which is located in the Thames Middle WFD waterbody). With the exception of

perylene (a polycyclic aromatic hydrocarbon with no WFD defined Environmental Quality Standard limits- so its presence even in high concentrations technically could not cause a WFD chemical classification failure). The levels of most chemicals at the majority of sampling locations do not indicate strong likelihood of a WFD deterioration under a dispersive dredge scenario. Hotspots could be dredged by removal dredge techniques to further mitigate risks by limiting the mixing of this material with the water column and transporting the more contaminated material to a suitable disposal site, leaving the remaining areas to be dredged by dispersive dredge methods, whose impacts can be further mitigated by the adoption of the conditions of :

Not conducting the dredge between the period June-August - inclusive.

Reason for condition on deemed Marine Licence

This would avoid periods when freshwater flows tend to be lower (and lower potential dilution is available), and when water temperatures are usually higher (leading to lower oxygen carrying capacity), the combination of these two factors makes the area upriver of Tilbury more sensitive to the adverse effects of storm sewage releases in the upper river which can potentially further depress oxygen levels in water to levels below those critical for fish survival. Freshwater flows are also lower in summer so there is somewhat less “dilution” of any mobilised chemicals, though the freshwater influence becomes a rather minor consideration more seaward of Tilbury, as the proportion of freshwater to seawater is quite low.

Dredging on the ebb tide only.

Reason for condition deemed Marine Licence

This condition limits upstream penetration of any mobilised sediments disturbed by the dredge, and avoids sediment deposit in the berths of upstream neighbours. It limits the area of seabed smothered by the fluidised mud layer generated by water injection dredge techniques, which will tend to move in a seaward direction under gravity and the ebb tide current, and will follow the natural gradient contours in the channel, depositing as a finer layer over a wider area than that originally dredged.

The spatial footprint of this depositional layer would be determined by the strength of the currents and the distance over which the material flows before it reaches the lowest point and either stops or continues seawards under the ebb current alone. Apart from the water jet used to introduce water down into the mud initially to fluidise it, transfer of chemicals from sediment to water is probably limited to the sediment - water interface above the fluidised layer. The area of this layer will be a small proportion of the waterbody area, and it may take the form of a plume, wider and shallower at the seaward end and narrower and deeper closer to the source of the sediment.

b) Additional sampling

Environment Agency routine monitoring for WFD chemicals at representative points in the waterbody should be sufficient to detect a deterioration in water quality within the water body as a whole, should it occur. Although sampling locations are spread widely over the area, the placement of monitoring locations is not specifically designed to identify the effects from individual activities, so this monitoring may be ineffective at identifying whether localised exceedences of EQS maximum allowable concentration limits are occurring in proximity to the dredge activity.

The request for additional water column sampling is therefore made to provide greater certainty of compliance with the EQS maximum allowable concentrations (EQS MAC) for water column substances under WFD.

We would wish to develop, in conjunction with the MMO and the applicant, an agreed sampling program design to provide information on water column WFD compliance local to the dredged area.

This should identify:

a) Pre-dredge baseline: The prevailing local water column concentrations of determinands currently within our own routine monitoring suite for WFD EQSD compliance classification should be identified at a number of fixed locations at differing distances from the dredge operation (perhaps as a grid pattern, but this can be decided based on expert judgement)- this to provide a pre-dredge baseline.

b) In-dredge compliance :Once dredging commences the same series of locations will be resampled during the dredge (at a similar state of tide) and the results, once received, will be compared with the pre-dredge state to judge whether there are any local exceedences on any of the chemical EQS MAC limits. The data provided will inform us, in a more general sense, whether the dredge technique used has remained WFD compliant. If some samples show exceedences we will not take enforcement action in this case, but will use the information to inform the risks for the future maintenance dredges and this could potentially lead to further conditions on how future dredge operations should be conducted at the port.

Assessments provided to date suggest the activity should be WFD compliant, so this sampling program would serve to confirm this is the case, once the specific dredge method statement is agreed with the applicant.

c) In combination effects

On the matter of the in-combination effect with the proposed power station, we are aware that the power station applicant is considering the matter, and will include this in their WFD assessments Progress on modelling of impacts in relation to thermal plumes has been made so far which is beginning to suggest that the effect may be insignificant, though further work is required to evaluate this with more confidence.

We are prepared to undertake further work with the applicant and the MMO to determine what additional conditions need to be included in the Deemed Marine Licence within the Development Consent Order.

We would suggest that these should include:

1) The design and execution of a local WFD water quality monitoring program for the capital dredge by the applicant, with technical consultation provided by the EA on the analysis suites required and input to the survey design. This should be of a form agreeable to the MMO and we are prepared to take on expert advice from CEFAS.

2) The conditions regarding ebb tide only dredging and seasonal timing of capital dredge (previously described above) are applied.

3) The matter of maintenance dredge WFD compliance is deferred until the influence (or not) of thermal plumes from the proposed power station is investigated further, and that the port will provide a method statement and accompanying WFD assessment to us. We will agree if it is a WFD compliant activity, prior to the port engaging in any maintenance dredge activity. We would prefer the maintenance activity to require a MMO licence each year until such times as it can be established that there will be no deterioration of WFD status when the port carries out its maintenance dredges, whether or not the power station is operational

In the event of there being a significant predicted increase in impacts as a result of the operation of the proposed power station whilst the port's planned maintenance dredge was being undertaken, the two organisations would need to decide how this impact could be mitigated to acceptable levels, such that the waterbody remains compliant under the Water Framework Directive. We anticipated the port will need to provide the WFD rationale showing why their maintenance dredge would be considered WFD compliant. The port may have their own powers to maintain the depths on their berths without further dredge licenses from the PLA/MMO, but, should that be the case, it is also the case that they are still not released from their responsibilities to ensure there is no deterioration of the WFD waterbody.

Mitigation would be provided to ensure the businesses of both port and power station could continue without one affecting the other's operation and without causing a WFD deterioration of status. One possible mitigation might be to, instead permitting dispersive WID dredges for maintenance purposes, condition the dredge methods to be removal dredges only. This would have serious financial consequences for the costs of dredging which would appear to be borne by the port alone, unless there were some pre-existing agreement by the power station operator to subsidise the additional costs.
As the port capital works will be decided before the power station is operational, acceptance of the presence of the port implies that either the port alone, or the port and the subsequent power station need to have considered their strategy for maintaining WFD compliance when the port need to maintenance dredges. Not

maintaining the berths is not an option for the port. Similarly, shutting down thermal discharges whilst the port conducts its maintenance dredge program (possibly several times a year) is probably not going to be a viable option for a power company.

Water quality, flood risk and water framework directive

1.19.1 Please supply a copy of the Thames Estuary 2100 (TE2100) Plan to the Examination, as a web-link or as a PDF.

The Thames Estuary plan can be found at:
https://www.gov.uk/government/publications/thames-estuary-2100-te2100

1.19.2 Please provide an explanation regarding the condition or grade of the flood defences bordering the River Thames in the Tilbury2 site, together with an explanation of your expectation on how the Applicant should be addressing any existing defects in the flood defences, in the application.

The flood defences bordering the River Thames in the Tilbury 2 site are currently considered to be in very poor condition, and are graded as condition grade 5. This means that part or all of the defence has ceased to function effectively as a tidal defence. Our Thames Estuary Asset Management (TEAM) 2100 programme, delivering the first 10 years of capital works to the defences in the Thames Estuary as recommended by the Thames Estuary 2100 Plan, has assessed these defences as requiring significant remedial works or replacement within 3 years. The government is contributing funding towards the first 10 years of investigating, refurbishing and repairing assets in the estuary. As part of Defra's Flood and Coastal Resilience Partnership funding policy, we need to find the remaining 15% of funding from those who benefit from these assets. We are looking to work in partnership with beneficiaries throughout the Thames Estuary, to explore potential contribution options. Therefore, we will be seeking to work in partnership with the applicant to determine the most cost-effective means of delivering the required repairs to these assets as part of our TEAM2100 programme. Contributing to this programme of works means investing in flood defences which will protect the people and properties at risk in the Thames Estuary for the coming 40 years and beyond.

1.19.3 Who is the owner of the flood defences within the Order Limits?

We do not have a land interest for the land upon which the defences currently sit.

1.19.4 Who would be responsible for the maintenance and repair of the flood defences within the Order Limits, should the DCO be made?

Should the DCO be made, the landowner would have ultimate responsibility for maintenance and repair of the flood defences within the order limits though they are not under statutory duty to maintain and repair.

The Environment Agency as part of the TE2100 plan has chosen to carry out maintenance in co-ordination with the landowner.

We have permissive powers available to us via the section 165 of the Water Resources Act 1991 as amended by the Flood and Water Management Act 2010 which allow us to maintain and improve existing works as well as to construct new works on a designated main river watercourse or tidal flood defence. Our powers are permissive thus there is no legal requirement on us to exercise these permissive powers to any given standard, or at all. We have discretion whether or not to exercise them in any particular circumstance. Given that the 350km of tidal defences in the Thames Estuary act as a single system to benefit 1.3 million people and £275 billion worth of property we are choosing to exercise our permissive powers to work in partnership with landowners and beneficiaries to deliver the first 10 years of capital works to the defences in the Thames Estuary as recommended by the Thames Estuary 2100 Plan via our TEAM2100 programme.

1.19.6 Please provide an update on discussions and agreements regarding the proposed Memorandum of Understanding (MoU) between the Applicant and the EA, in respect of the proposed Tilbury barrier.

Members of the our Sustainable Places team and Thames Estuary 2100 team, met with the applicants in October 2017 to discuss the possibility of a future Thames flood barrier at Tilbury. We have detailed these plans in our relevant representations (paragraph - 3.4) and written representations (paragraph – 3.5). Following on from this meeting a draft memorandum of understanding was produced by Port of Tilbury London. We hope that a final version of the MoU will be agreed in the near future.

1.19.15 Please provide an update regarding whether agreement has been reached on the wording of a new requirement within Schedule 2 of the dDCO regarding the submission and approval of detailed plans relating to work in relation to flood defences and watercourses.

We are now content that the necessary obligations regarding the submission of detailed plans can be imposed through either a flood risk permit under the Environmental Permitting (England and Wales) Regulations 2016 or alternatively by way of protective permissions if the relevant part of the EPR is dis-applied.

1.19.19 Please provide an update regarding the Applicant's wish to dis-apply the Environmental Permitting (England and Wales) Regulations 2016 (EPR), and the EA's statement that this could only be agreed if protective provisions are provided in lieu of the EPR relating to flood risk activity permits.

The Environment Agency is content in principle to agree to disapplication of the EPR provisions requiring a flood risk activity permit if satisfactory protective provisions can be agreed with the applicant. We have now provided the applicant with the preferred version of our protective provisions. We hope to be able to agree these with the applicant in which case we will be able to give consent under s150 Planning Act 2008 to disapplication subject to the inclusion of protective provisions in this form in the DCO.

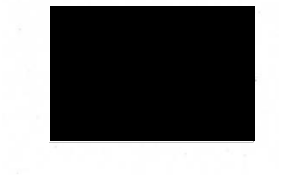
1.19.23 Do the EA, MMO and NE agree with the Applicant's statements in ES [APP-031] paragraphs 16.87, 16.88 and 16.91, in relation to WFD matters, that the Proposed Development would be unlikely to cause any deterioration in water body

status in the Thames Lower and Middle water body, nor would it cause a deterioration in critical habitats?

The assessments provided suggest that the development would suggest the development would be WFD compliant. Whilst we accept it is unlikely that extensive maintenance dredging will take place across the Thames at the same time, as mentioned in our previous response to question 1.9.3, dredging between June and August should be avoided, to maintain both water quality and safeguard fish.

We are yet to see detailed plans in relation to the linkspan and would expect any scheme to show that there is no net loss of habitat or appropriate mitigation. Further information is provided in our written representations (section 8)

We agree that with the use of appropriate requirements and mitigation the development at Tilbury should not cause a deterioration to water body status or critical habitats.



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