# 3 The OMSSD Project

3.1 This chapter of the PEIR summarises the various proposed components of the Oikos Marine & South Side Development (OMSSD) project. In outline, the project comprises the following:

(i) site preparation works;

(ii) the installation of additional marine infrastructure on jetties 1 and 2 to facilitate an increase in the amount of bulk liquid products to be imported and exported at the Oikos Facility;

(iii) a capital dredge of a deeper berth pocket alongside the existing deep water jetty of the facility (Jetty 2) to enable a broader range of large fully laden vessels to be accommodated;

(iv) the installation of new storage tanks and associated infrastructure on the landside part of the Oikos Facility to provide suitable storage capacity for the additional bulk liquid products to be imported and exported;

(v) the construction of and alterations to internal access roads within the site;

(vi) the installation of additional road tanker loading facilities to enable the increased amount of bulk liquid products to be exported from the Oikos Facility by road;

(vii) the installation of pipeline connections within the facility to enable the additional bulk liquid products to be exported from the Oikos Facility via the national fuel distribution pipelines to which the facility is already connected;

(viii) the erection of a new workshop building and an extension to the existing office building;

(ix) the provision of associated operational infrastructure, utilities, lighting, drainage infrastructure, parking areas and vehicle circulation space, and minor alterations to existing infrastructure within the facility;

(x) on-site landscaping; and

(xi) off-site ecological mitigation, enhancements and improvements.

3.2 A more detailed summary description of these elements is given as appropriate in the following paragraphs and they are shown on the general arrangement drawing provided at Figure 3.1.

3.3 The Oikos Facility will continue to operate 24 hours a day, seven days a week and 364 days a year – the facility does not operate on Christmas Day. All liquid bulk products will continue to be delivered by vessel, stored on site and then exported via the existing underground fuel distribution pipelines, via road tanker and - following the completion of the OMSSD project - via vessel using pipelines on Jetty 1 and 2.

3.4 The new infrastructure will have a design life of 30 years, which means that up to that point, it is expected that any subsequent works to the new infrastructure identified through any necessary inspections are likely to consist of only minor repairs. At the end of this period, consideration will need to be given as to whether more substantial works are needed to extend the design life of the infrastructure developed as part of the OMSSD project.

3.5 Oikos envisage that the infrastructure developed as part of the OMSSD project will continue to be used – possibly with appropriate adaptations and amendments - for the handling and storage of bulk liquid products beyond this 30 year period. As the facility comprises operational land of a statutory port undertaker – namely the Port of London Authority – its statutory status bestows certain operational benefits. In the light of this, it is considered very unlikely that the site of the proposed development – or indeed the facility itself – would ever be used for anything other than for port and associated activities. For this reason, it is not envisaged that there will be a decommissioning phase for the project.

3.6 Where it has not been possible to provide final details of the project, the PEIR considers maximum design parameters and worst case scenarios in order to ensure the provision of a robust preliminary assessment is reported.

3.7 The details of the OMSSD project reported in this PEIR have been drawn up following a design exercise – known as a Front End Engineering Design (FEED) process. This process – undertaken by specialist and experienced engineers and designers – has taken account of both current standards and guidance of relevance to the design of fuel storage and handling facilities and the knowledge and experience of Oikos employees and advisors in respect of designing and operating such facilities.

# Site Preparation Works

## Ecological mitigation and improvements

3.8 Within the existing Oikos Facility, there are two areas which were created as a result of the previous deep water jetty development at the Oikos Facility (CPBC planning permission ref: 16/0106/FUL). One of these areas is to the east of the existing Compound 4 and the second to the east of the existing Compound 5 in the south east corner of the facility. The location of the two mitigation areas is shown on Figure 2.1.

3.9 Oikos wish to relocate these mitigation areas off-site. This course of action is being progressed as an activity separate to the promotion of the OMSSD project because Oikos has now recognised that it is inappropriate to have such areas within an active site that stores and handles fuel and associated products. The proposed relocation is, therefore, a course of action which Oikos would be taking forward even in the absence of the proposed OMSSD project.

3.10 For the purposes of this PEIR, however, a worst case assumption has been made that these existing ecology areas are not moved in advance of the OMSSD project but that their relocation is secured as part of the OMSSD project.

3.11 It is proposed to recreate the ecological value of these areas and similarly mitigate for the other ecological impacts of the OMSSD project on land to the north of the Oikos Facility, alongside the private access road (known as Howards Way) that runs from Haven Road to the Calor facility. The land beside Howards Way was itself initially ecologically enhanced in 2013/2014 as part of the development of Howards Way (CPBC planning permission ref CPT/613/12/FUL) and the area is subsequently referred to as the Calor Road site.

3.12 In addition to providing ecological mitigation off site at the Calor Road site – see Figure 3.1 - other land within the vicinity of the Oikos Facility is being investigated to establish whether it would be suitable for the provision of an appropriate level of biodiversity enhancement or gain. In this context, at the time of writing the PEIR there are a number of potential options being investigated for the provision of this element of the package. This includes land to the north of the Oikos Facility at Brickhouse Farm and land within and adjacent to the Roscommon Way corridor to the north west of the Oikos Facility. Oikos is also, in this respect, in discussions with the Land Trust – an organisation recognised for successfully delivering ecological enhancements and with landholdings on Canvey Island and elsewhere within the Thames Gateway – about other potential ways in which biodiversity enhancements or gain could be achieved. Oikos is also in discussions with the Land Trust about that organisation becoming Oikos' preferred delivery partner for such enhancements.

3.13 Oikos are also investigating the possibility of being able to make a financial or management contribution to an existing scheme or programme of ecological enhancement works. Further details of the ecological offsite mitigation and improvements proposed as part of the OMSSD project are provided within Chapter 7 Terrestrial Ecology of this PEIR.

## Infrastructure and structures to be removed

3.14 Although largely clear of infrastructure, the southern part of the Oikos Facility – where the majority of the OMSSD project is proposed - contains some residual redundant tanks, infrastructure, bund walls and buildings associated with the historic use of this part of the facility. These will need to be dismantled and demolished and removed from the site. Tank bases from previous tanks located on this area of the Oikos Facility and demolished in 2018 also need to be removed. Two existing fire water lagoons located within the southern part of the Oikos Facility will be filled in. The structures to be demolished or removed and fire lagoons to be filled in are shown on Figure 3.2.

3.15 Demolition spoil, such as brick rubble and concrete, will be crushed and re-used on site as part of the new works wherever possible, thereby reducing the number of HGV movements to and from the site. Any steel or metal generated will, where possible, be sent away from the site and recycled at an appropriate facility.

3.16 No infrastructure is currently envisaged as needing to be removed from the existing jetties for the purposes of the OMSSD project.

3.17 The redundant bund walls will be chopped into sections, using a machine with hydraulic breaker or jaw attachments. The concrete will be graded and separated from the steel.

3.18 Conventional methods for tank demolition are expected to be used to effect a controlled collapse of each redundant tank. Such conventional practice involves systematically removing the steel skin of the tank followed by the dismantling of the roof and support structures.

### Remediation and site levelling works

3.19 In addition to removing redundant built elements, it will be necessary to remove any pockets of contaminated land that exist within the landside area to be developed and which cannot be remediated on site. Preliminary investigative work as to the extent of contamination has been undertaken and further information is provided in Chapter 15 'Ground Conditions'. Following remediation activities, the site will be levelled in preparation for construction of the OMSSD project.

3.20 Careful consideration has been given to the best way of creating a level site for development that does not result in a significant amount of material needing to be removed from the site. In summary, a cut and fill method will be used to level the site, re-using clean soil to infill the two fire lagoons and other low points across the site. On the basis of investigations undertaken, it is provisionally estimated that approximately 5,000m$^3$ of contaminated soil will need to be taken off-site for remediation. This material will be removed from the site by HGVs.

3.21 In addition, it is proposed that the top 100mm of the site will be stripped to remove vegetation creating a further approximately 5,800m$^3$ of soil. It is currently being considered whether there are opportunities to re-use any of this material within the Oikos Facility. For the purposes of this PEIR, however, it has been assumed that all of this material will also be removed off-site, again using road transport.

3.22 It is estimated that these works will result in minimal changes in ground levels across the majority of the area from existing levels of between 0mm and approximately 400mm. This is with the exception of the south east area of the facility where the existing ground level is at present higher than the rest of the site and also in relation to the works that will be required to infill the two fire lagoons.

## Proposed Marine Infrastructure

### Jetty 1 infrastructure

3.23 A new 16-inch Marine Loading Arm (MLA), extending approximately 23m high above the jetty platform level, will be installed on the jetty head of Jetty 1. A new 16-inch pipeline will then be installed along the jetty, connecting this new MLA to the landside area of the Oikos Facility. This pipeline and the MLA will provide the Oikos Facility with additional product import and export capability.

3.24 For the purposes of this PEIR, two options for future firewater supply are considered. One option includes the construction of two firewater tanks on the site, whilst the other option

would utilise water taken from the River Thames. The second option would require the installation of two pipelines on Jetty 1 consisting of one 24-inch pipeline for water intake and a second 16-inch pipeline for water discharge. These pipelines would be attached to the jetty 1 structure into the river. From Jetty 1 these pipelines would be connected overground and underground to the proposed new firewater pumphouse. Further design work will consider the proposed location of these pipes into the river, should this option be the one taken forward.

3.25 All new pipelines from Jetty 1 into the facility will be constructed to enable the flood defence wall to be raised as necessary in the future. In addition, the DCO application will also contain provision for existing pipelines along Jetty 1 to be similarly amended in the future.

### Jetty 2 infrastructure

3.26 Two new 16 inch MLAs, approximately 23m in height will be constructed and assembled on the jetty head platform of the existing Jetty 2. These new MLAs will each be connected to a new 24-inch diameter pipeline (two new pipelines in total) which will be installed along the length of the jetty approach and into the landside area of the Oikos Facility via the existing gantry structure that is already in place. These new pipelines and MLAs will have the ability to both import and export product.

3.27 On reaching the landside area of the Oikos Facility the two new 24-inch pipelines will connect into new pipeline manifolds that allow the piped product to be distributed to the new storage tanks. Pigging stations will be installed at the end of such distribution pipelines. Pigging is the industry practice of using devices known as 'pigs' to perform cleaning and maintenance operations to a pipeline and a pigging station is a point on a pipeline network where the 'pigs' are launched and / or received.

### Jetty 2 dredged berth pocket

3.28 A capital dredge is proposed alongside Jetty 2 to create a berth pocket with a depth of 16.5m below chart datum (CD). The berth pocket will be approximately 350m in length and 60m wide with appropriate provision for dredge pocket side slopes as shown on Figure 8.1. This dredge will enable Jetty 2 to accommodate a broader range of fully laden 120,000 DWT vessels and provide improved operational and commercial flexibility.

## Proposed Storage Infrastructure

3.29 Within the southern part of the landside element of the Oikos Facility as shown on Figure 3.1, it is proposed to construct new tank storage compounds containing storage tank suitable for the storage of various liquid bulk products including gasoline, jet fuel, diesel and non-hazardous products such as Fatty Acid Methyl Ester (FAME constituent of biodiesel).

3.30 The new storage tanks will collectively provide the Oikos Facility with an approximate additional 325,000m$^3$ of operational storage capacity. Necessary pump infrastructure, pipeline connections, pigging infrastructure, blending facilities, impermeable compound base

liner, access, instrumentation, lighting, drainage infrastructure and associated safety requirements and infrastructure will be provided for each of the new bunded compounds.

## Compounds 1, 3, 6, 7 and 8

3.31 The new storage compounds 3, 6 and 7 will in total contain seven storage tanks each having an operational capacity of approximately 33,000m$^3$. A further new compound, Compound 8, will contain one storage tank of approximately 33,000m$^3$ and two tanks with operational capacity of approximately 23,400m$^3$.

3.32 Each tank of approximately 33,000m$^3$ capacity will be approximately 45m in diameter and have an overall height of approximately 29m. This will be made up of the vertical height of approximately 22m to the top of the shell of the tank, the tank roof structure, deluge pipework and handrails and the height of the concrete base, which will be supported on concrete piles. The two tanks in Compound 7 will be designed to allow for the storage of gasoline.

3.33 The two tanks in Compound 8, each having an approximate capacity of 23,400m$^3$ will have a diameter of approximately 38m and an overall height of approximately 26m. These smaller tanks will also have a vertical height of 22m to the top of the tank shell and will also have a roof structure, pipework and be constructed on a concrete base supported on concrete piles.

3.34 The new Compound 1 will contain two tanks each having an operational capacity of approximately 7,200m$^3$ for the storage of Fatty Acid Methyl Esters (FAME), an additive for biodiesel, or similar products. Each tank will be approximately 27.5m in diameter and have an overall height of approximately 18m comprising a vertical height of 12m, a roof structure, concrete base and associated pipework. The concrete base for these tanks will also be supported on concrete piles.

3.35 Each new compound will have a single reinforced impermeable concrete wall, supported on piles, built around the entire compound. Details of the currently envisaged minimum height of each bund wall is included in Table 3.1 below. Where there will be more than one tank in a compound, then each tank will be separated from another tank by an intermediate bund wall approximately 0.5m in height.

*Table 3.1: Details of bunded compounds 1, 3, 6, 7 and 8*

| Compound | Number of tanks | Internal bund height m | External bund height m |
|---|---|---|---|
| 1 | 2 | 2.2 | 2.8 |
| 3 | 3 | 2.9 (three sides only) | 3.65 (three sides only) |
| 6 | 2 | 3.4 | 4.0 |
| 7 | 2 | 3.4 | 3.85 |
| 8 | 3 | 3.4 | 4.15 |

3.36 The internal bund wall heights are given in Table 3.1 as a lower figure due to the internal compound base area being built up. An impervious base across the whole of each compound area will be installed. This involves the removal of existing material within the

compound area down to a depth of approximately 0.5m and the placement of an impervious bentonite / clay base mat layer with the area then backfilled with sand, ballast and gravel back up to an appropriate level.

3.37 A new compound wide drainage system will be installed for each compound. This drainage system will be created in the infill material area within the compound and drain to newly created sump chambers within each compound, from which the water can then be manually pumped into the site wide drainage system when appropriate to do so.

3.38 The final element of construction for the storage tanks includes the provision of necessary product pipework, associated infrastructure and fire / safety infrastructure within each compound area.

### Compound X

3.39 Compound X will be located to the north of Compound 1. For the purposes of this PEIR, this compound is shown to contain two firewater storage tanks as one of the two options for the future firewater system for the Oikos Facility. Should the alternative firewater option of using water from the River Thames be proceeded with – discussed in a later section of this chapter - then this compound will most likely be used for the storage of non-hazardous products in the future – thereby further increasing the amount of additional product storage provided by the OMSSD project. The tanks and compound will match those to be provided in Compound 1.

### Tank colour

3.40 It is envisaged that all the new tanks will be painted white with a blue stripe to match the colour scheme of the existing storage tanks at the Oikos Facility. By painting the tanks white, the evaporative losses from the stored products are reduced. The colour also assists in maintaining the low temperature of the product stored inside.

## Proposed Landside Infrastructure

### New product and service pipelines within the Oikos Facility

3.41 All new product pipelines required to move product around the site will be made from welded steel and located above ground. The pipelines will be supported as necessary with pipe supports at appropriate locations along their proposed route.

3.42 From the pipe manifold at the base of Jetty 2, the two new 24-inch pipelines will extend above ground and connect to the new tank compounds (Compounds 1, 3, 6, 7 and 8) as shown on Figure 3.1. From Jetty 1, the new 16-inch import/export pipeline will also connect to the wider distribution network of pipelines at the Oikos Facility. Additional smaller capacity pipeline connections to and from the existing storage tanks within the Oikos Facility will also be provided as necessary.

3.43 Pipelines will vary in height above the surrounding ground level within the site to enable them to span the internal site access roads. In these locations the pipelines will be carried on pipe bridges. The maximum height of approximately 8.5m will be in locations where it is necessary to provide sufficient clearance for vehicles where the pipes run over existing or proposed vehicle access routes within the Oikos Facility.

### Pipeline manifolds and distribution plant area

3.44 New pipeline manifolds and distribution plant areas will be created close to the new compounds. These areas will contain necessary operational infrastructure such as pumps, additive injection systems and filtration plant, and pipeline manifold and 'pig' management equipment. The locations of these areas are shown on Figure 3.1 as 'Pump Pad'. The equipment and infrastructure within these areas will be positioned on concrete platforms or a series of concrete platforms, bunded as necessary, with areas of gravel and shingle located between as necessary.

### Operational infrastructure

3.45 In addition to the pipeline manifold and distribution plant infrastructure, other operational infrastructure will also be provided as shown on Figure 3.1. This will include three switchrooms or Motor Control Centres (MCC) each with a transformer pen attached. The largest switchroom will be approximately 21.5m by 5.2m by 4m high, including the transformer pen. A compressor house with approximate dimensions of 11m by 4m by 4m high will also be provided. This operational infrastructure will be located on concrete hardstanding, bunded as necessary.

## Proposed Landside Distribution Infrastructure

### Additional road loading bays and HGV parking

3.46 The OMSSD project also includes the provision of an additional five road tanker loading bays to enable a variety of products to be distributed from the Oikos Facility by road. The additional bays will be located south of the three existing road loading bays already in operation. For the purposes of this PEIR, a worst case preliminary assessment has been undertaken on the basis that all the new road loading bays will operate 24 hours a day, seven days a week and 364 days per annum, although in practical operational terms this will certainly not be the case.

3.47 In order to accommodate the additional road loading bays and provide a safe route for HGV vehicles on site, the internal access road network close to the main entrance will be altered. The current security barrier providing access to the road loading facility immediately adjacent to the main entrance will be removed and replaced with fencing along the southern boundary of the road loading facility. A new sliding gate approximately 50m from the main vehicle entrance into the Oikos Facility, will provide access to the road loading bays where vehicles

will be held by an automated controlled barrier before they move into the road loading bay area.

3.48 The internal circulation area east of the main vehicle entrance into the Oikos Facility will be modified and will provide access to a separate fenced area for HGV parking to be located to the south of the entrance area.

3.49 The separate HGV parking area for up to 23 HGVs, will provide a safe and secure area on-site for those vehicles waiting to access a road loading bay. This will prevent vehicles queuing on Haven Road whilst they wait for a road loading bay to become available. Once an HGV has been loaded with liquid product at the loading bay, it will then leave the Oikos Facility via the secondary (northern) access as per the current arrangement.

3.50 Each road loading bay will be equipped with necessary infrastructure and the loading of vehicles will be driver controlled – which is a normal operation within the industry. An overhead pipeline gantry will supply product and power to the loading bays, carrying pipelines, cabling and associated infrastructure.

3.51 Supporting infrastructure for the new road loading bays will include additive pumps, local low level lighting and CCTV provision. The area where the loading bays will be located will incorporate small storage facilities for additives and 'slop' fuel. A Vapour Recovery Unit (VRU) will be installed which will prevent gasoline emissions from the loading operations being released into the atmosphere. Surface water falling on this area will be collected in a new underground interceptor, which in turn will connect to the wider Oikos Facility site drainage system.

### Connections to the national fuel distribution pipelines

3.52 New pipework connections within the Oikos Facility will be constructed to connect the new storage tanks with the two existing underground national distribution fuel pipelines – UKOP and the Exolum Pipeline System.

## Related Works

3.53 Details of the associated works which will form part of the OMSSD project will be finalised as part of the ongoing engineering design process. The associated works will include:

- A new workshop and stores buildings, along with an extension to the existing office building;
- Modification and improvement to the internal road network within the facility;
- Parking area with mess facilities for HGV drivers;
- Additional processing equipment, including filtration facilities;
- Installation of a new firewater system for the OMSSD and improvement and expansion of the current fire water system.

- Additional and improved roadways, pipe bridges, road bridges and pathways for operational and emergency service access;
- Lighting improvements;
- Upgraded and additional on-site sewerage, water, drainage and electrical infrastructure; and
- On-site planting and landscaping.

3.54 These related works are described further in the following paragraphs as necessary.

## Proposed new and extended buildings

3.55 The existing main office building in the south west corner of the facility will be extended via a new link to allow a larger control room and additional office space. This extension will have dimensions of approximately 10m by 6m by 3.95m high (to the top of the pitched roof). Additional PV panels will be installed on the roof of the extended office building.

3.56 A new workshop building approximately 20m x 40m x 9m high (to the top of the pitched roof) is to be constructed on land north of the main office building. It is proposed to install PV panels on the roof of this workshop building. An equipment laydown compound area and circulation space will be created adjacent to the new workshop.

## Proposed alterations to the internal access roads

3.57 The internal access arrangements east of the main vehicle access will be amended to provide access to the road loading facility.

3.58 The existing central access road will be realigned as part of OMSSD project. A new access road will be created around the perimeter of Compounds 3, 6 and 7. This road will provide access to all parts of the compound perimeter for maintenance, safety and security purposes and link into the wider road network within the Oikos Facility. A further access road will surround Compound 8. These improvements will also include amendments and additions to the access roads in and around the office and new workshop.

## HGV driver parking area with mess facilities

3.59 North of the proposed new workshop, a parking area for vehicles for HGV drivers will be provided. Adjacent to the HGV driver parking area, a small building approximately 10m by 5m will be constructed to provide mess facilities for the HGV drivers. Oikos will look to install PV panels on the roof of this building.

## Proposed additional processing equipment

3.60 Additional product processing equipment will be installed, the key elements of which are shown on Figure 3.1.

## Proposed fire water system

3.61 As explained earlier in this chapter, the two existing fire lagoons on site are to be filled in. For the purposes of the PEIR, two options for a replacement firewater system are being considered as follows:

- Two firewater tanks in a separate bunded compound (Compound X) north of Compound 1, or
- The installation of firewater pipes along Jetty 1 to use water from the River Thames.

3.62 Both options require the construction of connecting pipework to a new firewater pumphouse building containing three pumps. The pumphouse will be a flat roof building located to the east of the main office building. The new firewater system will be tested weekly with each pump run for 20 minutes. Testing of the three pumps also takes place after any maintenance works are carried out.

3.63 The pumps will in turn connect to the existing fire system pipework that runs around the Oikos Facility and the additional fire system pipework to be provided as part of the OMSSD project.

## Lighting improvements

3.64 New operational lighting provided as part of the OMSSD project will follow the same design principles as used elsewhere within the Oikos Facility.

## Upgraded and additional sewerage, water, drainage and electrical infrastructure

3.65 A new electricity sub-station is to be installed adjacent to the western boundary of the Oikos Facility, to the north of the main entrance. This building will have approximate dimensions of 11m by 4.2m by 3.5m high. It is proposed that a separate access to the substation will be provided for the electricity company, UK Power Networks, most likely through a new gate in the boundary fence of the facility with another separate access for Oikos personnel from within the facility. The existing 11HV cable on site will also be upgraded, although the route of this cable is not expected to alter as a result of the OMSSD project.

3.66 The water supply to the Oikos Facility will be upgraded from the existing 80mm pipe to 100mm. Discussions over this element of the proposals are ongoing with Essex and Suffolk Water.

3.67 An existing part of an overground Intermediate Pressure (IP) gas pipeline, which runs across the south eastern area of the Oikos Facility from the Calor Facility to the landing point of Jetty 2, will be replaced in the south eastern area and re-routed around the new Compound 8 before joining to the existing underground section of this pipeline that starts close to the landing point of Jetty 2. Oikos are in discussions with the relevant statutory gas undertaker, Cadent Gas, to facilitate this work.

### Drainage work improvements

3.68 In addition to the installation of drainage within the new compounds, outside the compounds, new below ground drainage elements will be installed to connect to the existing site drainage system which already includes interceptor and attenuation infrastructure with associated outfall pumps and discharge pipework.

### Landscaping

3.69 Some localised landscaping will be provided within the western part of the Oikos Facility in close proximity to the Haven Quays residential area. Further details of the type of landscaping that could be delivered is discussed in Chapter 17 of this PEIR.

## Indicative Construction Activities

3.70 For the purposes of this PEIR, indicative construction activities have been considered based on Oikos' technical expertise gained from the construction of other projects within the Oikos Facility and external engineering advice provided as part of the design process. It is presently anticipated that overall, the construction process is likely to take approximately 24 months and although at this stage there can be no certainty as to the precise construction period, for the purposes of this preliminary assessment, a worst case assumption has been assessed in terms of potential environmental effects.

3.71 On that basis, it is envisaged that construction activity will commence during the first quarter of 2023. Oikos ideally hopes that it will have at least some tanks commissioned and operating by the fourth quarter of 2024, with the aim being that the project will then be largely commissioned and operational by the end of 2025.

3.72 Oikos, however, recognises that final detailed construction information, including matters of timing and phasing, will only be fully determined once the detailed design work has been completed and a contractor or contractors have been appointed. These work streams will be continuing after the submission of the DCO application and will need to take account of matters emerging from the final environmental assessment process and the examination of the DCO.

3.73 The current intention, however, is that the OMSSD project will come on stream in a phased manner. In other words, as soon as tanks and compounds have been completed, they will be commissioned and brought into service. This means that the majority of work packages – more detail of which is provided below – could potentially be carried out in parallel with each other. For example, tank / compound construction in one part of the facility could be occurring at the same time as pipework installation or mechanical or electrical commissioning is occurring in another part of the facility. In addition, this also means that some elements of construction activity on parts of the OMSSD project could be undertaken whilst other parts have been constructed and are in operation.

3.74 For the purposes of the preliminary assessments reported in this PEIR, construction activity has been broken down into a series of packages as set out in Table 3.2 which has then been used by the specialist consultants preparing the individual topic assessments. Recognising that it is not possible to be definitive about precise construction phasing and timeframes at this stage – for example the construction period may, for various reasons, extend beyond the 24 month estimate - it is considered that the approach adopted in the preliminary assessments results in worst case likely effects being identified and assessed at this preliminary stage.

*Table 3.2: Indicative construction packages*

| Construction package | | Indicative activities |
|---|---|---|
| 1. | Site Preparation works | Establishment of construction compound, removal of remaining redundant tanks and infrastructure, demolition of buildings, ground remediation work, fire water lagoon infill work, site levelling.<br>Construction compound / laydown areas will be located in the area north of the current office building up to the site security building. Acoustic screening to be provided as appropriate along the western edge of this area from the outset.<br>Various stockpile areas associated with ground remediation work are envisaged within the area of the proposed works and also in the northern part of the Oikos facility in the area adjacent to Compound 10.<br>The infilling of both the fire water lagoons will not take place until the new firewater system has been constructed and is operational, or a temporary alternative is in place. |
| 2 | Construction of the new fire water system | Two systems are considered in this PEIR, (i) using water from the Thames or (ii) using water stored in two above ground water tanks. Ideally, the new system will be in place before the fire water lagoons are filled in, but a short term temporary solution – possibly involving temporary storage tanks – may be required if it is not possible to provide the permanent solution within the necessary timescale.<br>For the purposes of the PEIR, however, it has been assumed that the permanent replacement fire water system is one of the first activities to occur alongside site preparation works. |
| 3 | Construction of Compounds and Tanks | It is envisaged that this activity will begin as soon as site preparation works have progressed to enable a start to be made. This package will, therefore, begin before package 1 is complete. It is envisaged that these works will likely be taking place for the majority of the overall construction process and could take place on a phased basis. Works, in general, will consist of:<br>• Levelling of each individual compound area;<br>• Piling of bund wall foundations and tank bases;<br>• Laying of impermeable compound base;<br>• Construction of bund walls and tanks;<br>• Construction of compound drainage elements; and<br>• Creating the gravel compound floor. |
| 4 | Office extension and works to the existing control room | The small extension to the existing office, required to house non-essential site control equipment, will likely be constructed around the mid-point of the construction programme. |

| Construction package | | Indicative activities |
|---|---|---|
| 5 | Erection of new MLAs, pipework and infrastructure on the jetties | The works to Jetty 2 and 1 are envisaged as taking place relatively early in the construction process so that they can be made operational by the time the first tanks are commissioned and become operational. |
| 6 | Construction of pipework and pump manifolds within the site | It is envisaged that this activity will take place on a phased basis, as and when required, during the construction process. Necessary pipework and pump equipment will likely be provided on a compound by compound basis at a time to enable each compound to be commissioned and become operational in a timely manner. |
| 7 | Mechanical and electrical installation and commissioning | It is envisaged that this activity will be undertaken in a phased way, similar to that described for package 6. |
| 8 | New Drainage Infrastructure | The provision of new drainage elements and the amendments to existing drainage is considered likely to be carried out on a phased basis through the construction process, with the drainage for a particular compound area or part of the site being in place before that element becomes operational. |
| 9 | New Road Loading Bays and associated Infrastructure | The construction of the road loading bays will likely take place toward the end of the construction process. This is to ensure minimal conflict between construction and any new operational traffic. |
| 10 | Creation of new / amended site access roads | This activity will take place through the construction process. Some roads will need to be built early in the construction phases to allow construction traffic to move around once old road infrastructure has been removed. |
| 11 | Amendments to the site entrance area | Some amendments to the site entrance area will take place at the early stage of construction, with some final works not in place until towards the end of the construction process. |
| 12 | Lighting | New operational lighting will be provided on a phased basis throughout the construction process, as and when different elements of the OMSSD project become operational. |
| 13 | Construction of the New Workshop building | This is proposed to take place at an early stage of the process, alongside site preparation work, to ensure that the new workshop is in place before the old workshop is demolished. Due to its proximity to the main construction compound the new workshop may also be used to store construction equipment and materials. |
| 14 | Lorry parking area, associated facilities and associated landscaping | These activities are likely to occur toward the end of the construction process as they can only be provided once the main construction compound and lay down area are no longer required. |
| 15 | Capital Dredge of Jetty 2 berth pocket | This is envisaged to take place towards the end of the construction process or even after commissioning. |

## Equipment

3.75 This section provides a list of the plant and equipment that is likely to be used during the construction of the terrestrial elements of the OMSSD project.

- 20 Tonne and 14 Tonne 360° excavators and backhoe excavators – These will be used to dig down and remove material during remediation / site levelling activities and

within and around the compound to reach the required depth for the laying of the impermeable membrane and the construction of bund walls.

- Tracked Hydraulic Piling rigs – to be used to pile the tank and bund wall foundations.
- Concrete Pumps – to be used in the construction of the bund walls and pipework support bases / plinths.
- Tandem Rollers – These will be used for flattening the floors of the compounds once the impermeable membrane has been laid and they have been back filled, and for the compacting of the site access roads and other amendments to the site access arrangements.
- Small 360˚ slew tele-handler suitable for much of the heavy plate installation during the tank builds. This machine would likely stay on site for the duration as it can also be used to unload deliveries of materials.
- 50t to 130t mobile cranes – These will be used to lift sections of the tank roofs, pipework and other equipment into place and will come to the site as needed.
- Hydraulic tank jacking equipment– This equipment will be used to lift sections of the tanks during the construction process.
- Staging (fixed scaffolding installed on the outside of the tanks) – This equipment will provide access to the outside of the tank.
- Temporary site lighting.
- Concrete 'pecker', crusher and screen.
- Welding equipment including generators, bowsers, welding invertors, transformers, welding cables, internal tank lighting and silenced compressors.
- Other ancillary equipment and vehicles including generators, water pumps, dumpers, road haulage wagons and hand tools will also likely be used during the construction of the terrestrial elements.
- Road Sweeper and wheel wash facility.

3.76 For the marine elements it is envisaged that the equipment to be used will consist of:

- Barges and tugs – These will be used to deliver materials to the site of the marine elements. Large barges are typically 50m long by 30m wide. There may be some welding activities on these barges – welding sections of pipe together before craning into position.
- Crane barges and tugs – Crane barges will be used to lift materials into position, each having a dumb barge (an engineless barge) alongside holding the components being installed. The crane barges will either be located on anchors or spud legs, with the dumb barges moored in close proximity and manoeuvred into position by tugs. For work in the intertidal zone, it is likely that the barges will rest on the ground at low tide, and continue working;
- A safety boat – this boat will be on site on a continuous basis throughout the work;

- Various hand tools and equipment – these will be used to complete construction activities on the various jetties and platform elements, and
- Backhoe or Trailer Hopper Suction dredger – to undertake the capital dredge of Jetty 2 berth pocket.

### Hours of working

3.77 Oikos would wish to undertake some aspects of construction work on a 7 day a week basis. Working hours Monday to Friday would generally be 10 hours (8am to 6pm) and generally 8 hours (8am to 4pm) on Saturdays and Sundays. Some equipment maintenance or set up work may, however, need to take place outside the hours specified above. The potential implications of these hours of working, and how the process can be managed effectively, are considered within the relevant topic assessments that follow in this document.

### Construction Traffic

3.78 Road-based traffic flows generated by construction activity will vary across the construction period but based on previous experience of other projects at the Oikos Facility, it is assumed that a peak flow of approximately 80 HGV loads (160 movements) per day will be generated during the construction phase.

3.79 Around 120-150 construction workers are expected on site on a typical day. The Census 2011 journey to work data for the middle super output area within which the site is located (Castle Point 011) shows that around 65% of people drive to work. Applying this to the maximum number of staff indicated above equates to 98 trips (196 two-way light vehicle movements).

3.80 In total, therefore, forecast peak construction traffic movements are 196 light vehicle and 160 heavy vehicle movements per day. This is a total of 356 movements per day.

3.81 All HGV movements associated with the construction of the project will route via Roscommon Way and the A130 to and from the site in order to avoid the residential built-up areas on Canvey Island.

3.82 Overall daily construction traffic movements will be lower than the operational traffic level set out in the following paragraphs. Furthermore, this level of construction traffic will be occurring for a temporary period of time.

## Indicative Operational Information

3.83 This section provides details of the expected operation of the Oikos Facility once the OMSSD project is completed.

3.84 The Oikos Facility will continue to operate 24 hours a day, seven days a week and 364 days a year. All liquid bulk product will continue to be delivered by vessel, stored on site and then

exported via the existing fuel distribution pipelines, via tanker and following the completion of the OMSSD project, also exported via vessels using Jetty 1 and 2.

3.85 The percentage of product leaving the Oikos Facility via each route, will be determined by the operational requirements at any given time. It is expected, however, that the majority of the product stored at the Oikos Facility will continue to be exported via the two national fuel distribution pipelines, the UKOP and the Exolum Pipeline Systems.

### Vessel movements

3.86 The OMSSD project will result in an increased number of vessels visiting the Oikos Facility. The increase in vessel activity will ultimately depend on the size of vessels berthing on each of the jetties. Whilst a different vessel can be accommodated on each jetty at the same time it is also possible that one vessel may move between the two jetties.

3.87 The actual numbers of additional vessels that will utilise the Oikos Facility once the OMSSD project has been constructed is difficult to predict with precision. It is, however, for the purposes of the assessment estimated that the number of vessels using Jetty 2 per year could increase as a result of the OMSSD project by around 107 vessels above the 2019 figure of 42 vessels. For Jetty 1, an increase of 93 vessels above the 2019 figure of 43 vessels could be expected.

### Road traffic movements

3.88 For the purposes of the preliminary assessment reported in this PEIR it has been assumed that the five new road loading bays will operate at full capacity 24 hours a day, seven days a week and 364 days a year. This approach has been agreed with Essex County Council Highways and Highways England. Further details are provided in Chapter 11 Traffic and Transport.

3.89 Based on this assumption the resulting increased traffic associated with the five new road loading bays will generate a peak of 20 HGVs per hour (10 movements in and 10 movements out). This is derived from the peak safe loading / pumping throughput of each bay of 1 HGV every 30 minutes and therefore each bay can load no more than 2 HGVs per hour. Over a 24 hour period at maximum capacity the throughput would therefore be 240 loads (480 movements).

3.90 It is emphasised that these levels are identified for the purposes of the preliminary assessment in the PEIR as in practical operational terms this will not be the case.

3.91 It is anticipated that there will not be a material increase in levels of operational traffic as a result of the OMSSD project apart from the traffic generated by the new road loading bays. The OMSSD project will result in approximately 10 additional members of staff, some of whom will work shift patterns and therefore there will be a minimal increase in staff vehicles entering and leaving the site on a day to day basis. Chapter 11 of this PEIR provides further details.