London Gateway Logistics Park Local Development Order

Code of Construction Practice

THURROCK COUNCIL

October 2013

London Gateway Logistics Park Code of Construction Practice

Contents

Introduction

1. The London Gateway Logistics Park Code of Construction Practice (CoCP) forms part of the London Gateway Local Development Order (LDO) and must be read in conjunction with it.

2. This document provides a framework for compliance for all site preparation and construction works and applies to all parties involved in the construction of development permitted under the LDO. It establishes site-wide codes of practice and protocols, detailed work methodologies and provides a framework for the management of environmental impacts including specific control measures for managing noise levels, and impacts upon air quality, water resources, ecology and archaeology. All site works shall be undertaken in accordance with the EA's Pollution Prevention Guidance Note 6 (PPG6) 'Working at Construction and Demolition Sites' or the latest equivalent guidance. The CoCP does not avoid the need to obtain the necessary environmental permits, licences and regulatory notifications.

3. **Development must comply with all aspects of this CoCP in order to benefit from the permitted development rights conferred by the LDO.**

4. Contact details for the person or persons responsible for compliance with this Code shall be included on the London Gateway LDO Prior Notification Form submitted to Thurrock Council.

5. Where there is a specific requirement for monitoring set out in this CoCP, records shall be made available for inspection by the Environmental Advisory Group (EAG) at any time.

6. The monitoring regime proposed by the developer to meet these requirements is to be made available in the form of a scheme Construction Environmental Management Plan (CEMP) to the EAG for information and subsequent records are to be reported to the EAG at intervals to be agreed.

7. The EAG will advise the developer if it considers that action needs to be taken in relation to the monitoring results to comply with the CoCP. Appropriate remedial action shall be taken by the developer in a reasonable and timely manner in response to this advice.

8. A Tier 1 Site Umbrella Emergency Plan is included as an Appendix to this document and will be updated as necessary throughout the duration of the LDO. The protocols established in the Emergency Plan must be complied with by all parties.

Content of this Document

9. The CoCP comprises two parts.

10. **Part One** sets out specific **site preparation and construction standards** that shall be followed at all times during the construction period. Matters for control are set out in the following sections.

Section A: Traffic management (on site and off-site)
Section B: Operation of construction compounds
Section C: Site Remediation Works
Section D: Groundworks
Section E: Waste management.

11. **Part Two** sets out the **environmental control measures and procedures** that shall be followed to minimise the environmental impact of construction works.

12. All construction works shall follow best practice as set by CIRIA in their C692 Environmental Good Practice – Site Guide (CIRIA 2010) document. The environmental issues for control are set out in the following sections.

Section F: Habitats and protected species
Section G: Water quality
Section H: Dust management
Section I: Noise and vibration
Section J: Archaeological and cultural heritage
Section K: Landscape and visual impacts

Phasing

13. The rate of development of the logistics park shall be subject to market demand but shall proceed in a controlled and co-ordinated manner. Suitable plots to meet commercial requirements shall be released in a way that does not compromise the delivery of the overall development and enables the necessary supporting infrastructure to be bought forward in a timely manner.

14. In conjunction with the development of the first plots, the early phases of the development shall require the construction of:

- Park Roads 1, 2, 3, 6 and 8 as shown on Figure 1;
- Three new at-grade roundabouts referred as Roundabouts 1, 2 and 4 including facility for future accesses and road extensions;
- A new swale drainage system adjacent to the above roads, connected by culverts under road and access crossings and connected to the Carter's Bay Lagoon and pumping station;
- A new pumping station to drain run-off from the logistics and commercial park including the roads, accesses and associated areas;
- Earthworks to raise ground levels to the required level and geotechnical measures to allow for settlement expected of embankments, structures and other items;
- Maintenance of existing drainage and provision of temporary drainage where required.

15. Once a plot has been identified for development, the following general sequence of preparatory ground works shall be undertaken:

Figure 1: Park Roads and Roundabouts

a) The plot shall be cleared of vegetation and levelled. If protected species are detected during works, all works shall stop and the procedures set out in Section F of the CoCP shall be followed. Procedures set out in Section J shall also be followed to protect archaeological resources.
b) A geophysical survey shall be undertaken to identify obstructions requiring removal.
c) The plot shall be accurately set out and underground services shall be identified.
d) Temporary ditches shall be cut to drain the plot area and the ground shall be graded to fall towards the ditches.
e) Trial pits shall be dug across the plot area and samples taken and tested for contaminants in line with the Remediation Strategy set out in Section C of the CoCP.
f) Trail pit logs shall be analysed and areas of contamination delineated with all materials deemed to be contaminated sent to the on-site remediation compound for treatment.
g) Major obstructions and pipelines shall be removed. All steel shall be recycled and concrete obstructions crushed to provide road base materials, capping and Type 1 Sub-base.
h) Suitable material shall either be imported or sourced from the dredged granular material for the plot fill. All source material shall be tested and approved in line with the Environmental Permit held for the site prior to its use.
i) Each plot shall be shaped and contoured to allow water to drain from the area and to drain to the temporary ditches.
j) Existing internal access roads shall be used to provide access to all plots on the Park. If required, temporary haul roads shall be constructed of crushed concrete, with a minimum width of 7.0 metres.

16. Once preparatory ground works are completed, works shall commence on the construction of the individual units, internal access roads, parking and service areas.

Part 1: Site Preparation and Construction Standards

Part 1
Site Preparation and Construction Standards

A. Traffic Management

A1 Site Access

A1.1 Site access for construction vehicles (save for private vehicles of construction operatives) shall be from the Manorway (A1014) via the existing access Gates 1, 2 or 3 until operational Port and Park development exceeds one of the following combinations, at which point the new site access road shall be used:

- 377,000m² of park development plus 1 port berth (or the RoRo).
- 324,000m² of park development plus 2 port berths (or 1 berth plus the RoRo).
- 271,000m² of park development plus 3 port berths (or 2 berths plus the RoRo).

A1.2 Emergency vehicles and buses shall continue to be permitted to use Gates 1, 2 and 3 in perpetuity.

A2 Routing of Construction Traffic and Lorries

A2.1 If travelling from outside the immediate Stanford-Le-Hope or Corringham area, lorries and construction traffic shall use the major road network to access the site via the A13 and A1014.

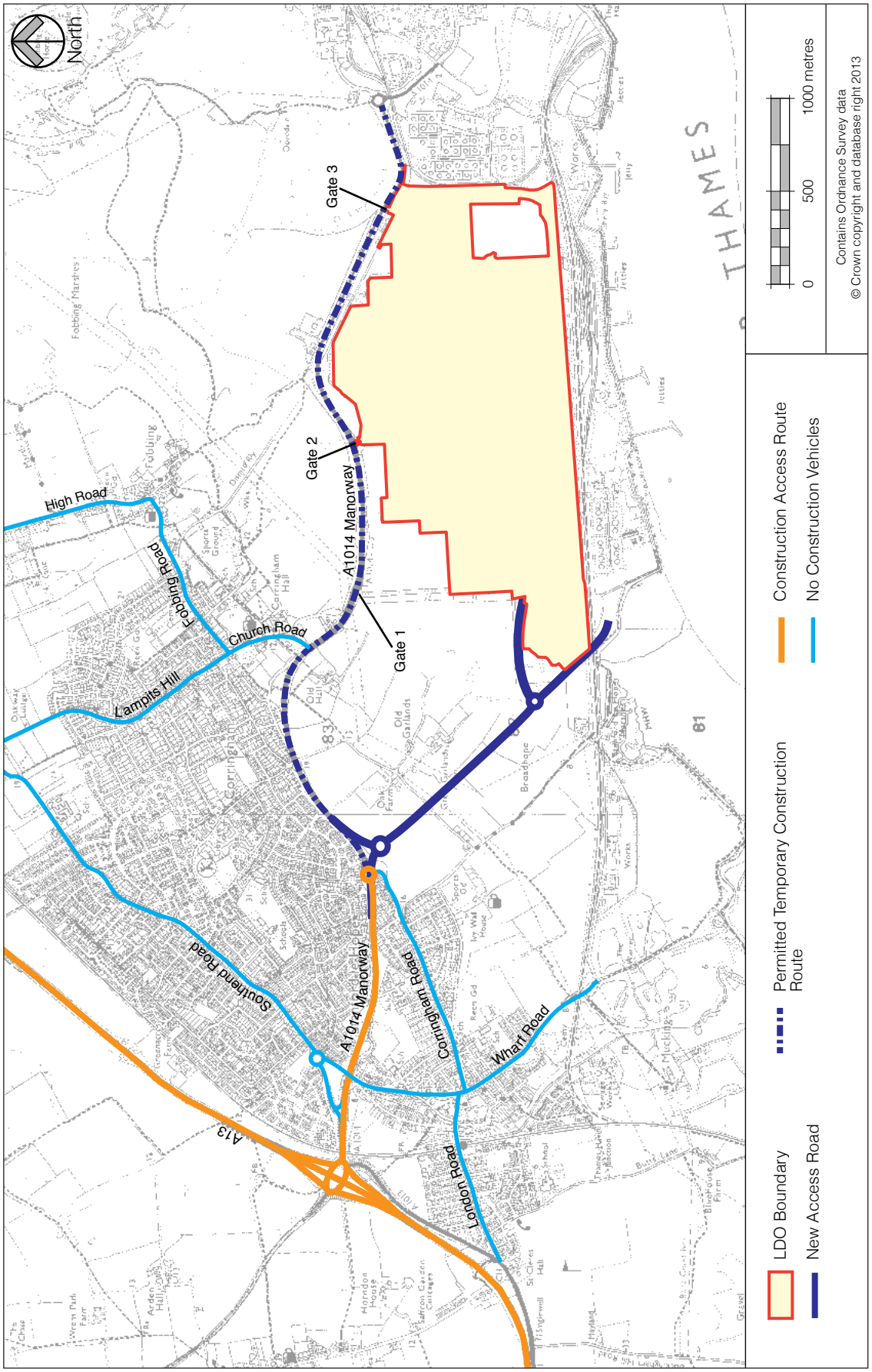
A2.2 Where construction traffic originates from the local area, contractors and suppliers shall be advised of the requirement to access the preferred routes indicated on Figure 2 in the most direct manner possible, having regard to the suitability of the local road network. The use of Southend Road, Lampits Hill, Corringham Road, Fobbing Road or other local residential roads, shall be avoided.

A2.3 The Borough of Thurrock, Corringham and Stanford le Hope (Weight Restriction) Order 2003 prohibits vehicles over 7.5 tonnes (gross weight) from driving in the following areas as shown on Figure 2:

Stanford le Hope

- Bounded by London Road at its junction with the A13 north eastwards on the southeast side of A1013 to its junction with the Manorway, eastwards on the southern side of the Manorway to its junction with Springhouse Lane, southwards down the eastern side of Springhouse Lane to Corringham Oil Refineries railway then in a westerley direction to its junction with London Road/A1013.

Figure 2: Routing of Construction Traffic



Corringham

- Bounded by the Manorway at its junction with the A13 north eastwards on the southeast side of the A13 to its junction with the High Road, southwards on the eastern side of the High Road to the Manorway, westwards on the northern side of the Manorway to its junction with the A13.

A2.4 Directional traffic signs notifying drivers of preferred construction routes shall be placed in clear view at all site exits and in construction compounds and shall be highlighted within site inductions.

A3 Emergency Access Strategy

A3.1 In the event that a traffic incident prevents access to the site via the A13 or A1014, contractors shall notify the supplier and request that any trips planned by vehicles in excess of 7.5 tonnes be rescheduled where possible.

A3.2 Traffic management procedures for the stacking or diversion of vehicles during emergency incidents have been agreed in principle with emergency service operators and shall be implemented accordingly. In the event of a diversion the B1420 is likely to be signed as the most appropriate alternative route of access to/from the A13 for HGVs exiting the site with HGVs approaching the Park being diverted back onto the A13 via the Five Bells junction.

A3.3 Gates 1, 2 or 3 shall remain available in perpetuity to provide access routes for emergency vehicles as appropriate dependent upon the location of the emergency incident within the Park.

A4 Abnormal Loads

A4.1 Where abnormal loads have to be delivered to the site by road, the protocols set out in the Highways Agency's "Aide memoire for notification requirements for the movement of Abnormal Indivisible Loads or vehicles when not complying with The Road Vehicles (Construction and Use) Regulations 1986") shall be adhered to, as shown in Table 1.

A5 Sustainable Transportation

A5.1 Wherever possible the transportation of construction material by road shall be minimised and the methods of transportation shall be considered in accordance with the following hierarchy:

- Potential to utilise materials recycled from within the development site boundary (existing hard-standings, roads, drainage, stockpiles, structures or use of dredged material);
- Consideration of potential to develop materials on site (concrete batching, etc.);
- Transportation via sea or rail;
- Transportation by road.

Table 1 Notification Requirements for the Movement of Abnormal Loads

Weight

Gross weight of vehicle carrying the load exceeding C & U limits up to 80,000kgs (78.74 tons)	2 clear days notice with indemnity to Highway and Bridge Authorities.
Gross weight of vehicle carrying the load exceeding 80,000kgs up to 150,000kgs (147.63 tons)	2 clear days notice and 5 clear days with indemnity to Highway and Bridge Authorities.
Gross weight of vehicle carrying the load exceeding 80,000kgs up to 150,000kgs (147.63 tons)	HA Special Order* plus 5 clear days notice to Police and 5 clear days notice with indemnity to Highway and Bridge Authorities.

Width

Width exceeding 2.9m (for C & U loads) 3.0m (9ft 10ins) up to 5.0m (16ft 5ins) for other loads	2 clear days notice to Police.
Width exceeding 5.0m (16ft 5ins) up to 6.1m (20ft)	HA form VR1** plus 2 clear days notice to Police.
Width exceeding 6.1m (20ft)	HA Special Order* plus 5 clear days notice to Police and 5 clear days notice with indemnity to Highway and Bridge Authorities.

Length

Length exceeding 18.65m (61ft 2in) up to 30.0m (98ft 5ins) rigid	2 clear days notice to Police.
Vehicle combination exceeding 25.9m (85ft)	2 clear days notice to Police.
Length exceeding 30.0m (98ft 5ins) rigid. NB For some very light loads, such as yacht masts, that are moved on conventional motor vehicles not exceeding 12 tonnes gross weight or trailers not exceeding 10 tonnes gross weight, an HA Special Order* will be required if the rigid length exceeds 27.4m (89' 11")	HA Special Order* plus 5 clear days notice to Police and 5 clear days notice with indemnity to Highway and Bridge Authorities.

* 'Clear days Notice' excludes Saturdays, Sundays or a public holiday in any part of Great Britain in relation to movements authorised by the Special Types General Order only, there being no such exclusion in Special Orders unless specifically stated.

** There is no statutory limit governing the overall height of a load, however, wherever possible it should not exceed 4.95m (16ft 3ins) in order that the maximum use can be made of the motorway and trunk road network.

A5.2 Where transportation of materials by road is necessary the following measures shall be considered:

- Proximity of suppliers to the development site;
- Use of vehicles with low emissions;
- Arrangement of deliveries outside the am and pm peak hours;
- Optimisation of vehicle loading;
- Implementation of appropriate route management;
- Adoption of efficient delivery management protocols.

B. Construction Compounds

B1 Construction Compounds

B1.1 Each contract for the construction of infrastructure or plot related works may be served by a separate segregated construction compound. The construction compound layout and position shall be dictated by the nature, scale, and location of individual development plots.

B1.2 Construction compounds shall make provision for the parking and manoeuvring of contractor's vehicles and if required, temporary hard-standings for the safe and secure storage of construction materials and plant, temporary office and welfare facilities and the control of pollution. Construction compound management shall include measures to prevent and respond to the escape of spilled materials from the compound to surface waters or groundwater in accordance with the procedures set out in Section G of the CoCP.

B1.3 Portacabin type accommodation shall be a maximum of three storeys in height. Perimeter security fencing panels, where required by individual contractors, shall be installed to a maximum height of 3.0m.

B1.4 Secure tool lockers and shower facilities shall be provided within construction compounds. A phone line for public enquiries shall be made available and publicised on London Gateway's website.

B1.5 Solid barriers shall be installed around construction compounds situated within 250m of the site boundary adjacent to the grazing marshes.

B2 Access

B2.1 Internal access shall principally be achieved using either the existing site access roads, or temporary haul roads constructed of crushed concrete with a minimum width of 7.0 metres. A 20mph vehicle speed limited shall be in force across the site.

B3 Delivery and Storage of Materials

B3.1 An area of impermeable hard-standing shall be provided, if required, within each construction compound for the delivery and storage of materials. Existing areas of hard-standing within the site shall be used wherever suitable, however if additional areas of hard-standing are required, they shall meet the following standards.

B3.2 Hard standing slabs shall be constructed some 300mm above surrounding ground and shall consist of either reinforced concrete slab on hard-core or bituminous surface on hard-core fill. Drainage shall be provided via the temporary ditches and any material that may cause contamination shall be bunded in accordance with best practice guidance to contain possible spillages and prevent pollution.

B4 Parking of Construction Related Vehicles

B4.1 Parking for construction workers shall be provided either within each construction compound serving separate elements of construction or within a communal parking area serving more than one works.

B4.2 Parking shall be provided as follows:

Contractor Parking - 0.75 spaces per full time operative employed on-site
Site Visitors - 0.25 spaces per full time operative employed on-site.

B4.3 The following parking management measures shall be adhered to:

- Parking shall be prohibited on all internal access roads or any areas outside of construction compounds unless specifically required as part of the construction or inspection process.
- Cycle, motorcar, LGV and HGV parking areas shall be segregated.
- Signage denoting parking areas and access routes for vehicles and pedestrians shall be provided.
- Sufficient manoeuvring areas shall be provided in accordance with the Design Code.
- Preferential parking shall be provided for operatives engaged in car sharing.
- Promotional information shall be posted on communal notice boards relating to the benefits of car-sharing and other sustainable travel initiatives.
- Information relating to local public transport services shall be provided.
- Minibuses shall be made available for construction operatives where practical.
- When not in use, all vehicles shall be securely parked within construction compounds.

B5 Wheel Washes

B5.1 Dedicated wheel wash facilities shall be provided prior to the construction egress point and there shall be a surfaced road between the washing facility and the Site exit.

B5.2 Wheel wash and construction egress shall be supervised by a banksman to ensure that all vehicles are free of mud and debris before entering the public highway.

B5.3 Wheel wash facilities shall be self-contained units. Systems shall be portable, require no ground excavation (save for an appropriately sized sump e.g. 0.75m x 0.75m) and not impact upon ground-water quality. The wheel wash facility shall be subject to regular inspection and maintenance.

B5.4 Disposal of debris/water shall be in accordance with Section E of this CoCP.

B6 Hours of Working

B6.1 All works shall take place in accordance with a licence provided by the Environmental Health Authority pursuant to Section 61 of the Control of Pollution Act 1974. In addition no works shall be carried out outside the core working hours (07:30 – 19:00 Monday to Friday and 08:00 to 13:00 Saturday) where they generate a noise level at the external boundary of the nearest residential receptor in excess of 75 dBL_{Aeq}. See also paragraph F8.3 regarding noise levels to protect ecological receptors.

B6.2 If any construction activities have to be planned to take place outside core working hours that exceed the levels set out in Table 2 (at the external boundary of the nearest residential receptor) or if the noise level is anticipated to be exceeded during core working hours, prior notification shall be given to Thurrock Council and to any local residents who might be affected.

Table 2 Noise levels outside core working hours

Day of Week	Time of Day	Noise level * dB $L_{(A)eq}$
Monday – Saturdays	19.00 – 23.00	65
Saturday	13.00 – 19:00	70
Sundays & Bank Holidays	07.00 – 19.00 19.00 – 23.00	65 60
Each Day	23.00 – 07.00	55
* see para F8.3		

C. Site Remediation Works

C0.1 Historical land uses have led to soil and groundwater contamination in some parts of the site. Works to remediate the site have already commenced and a substantial part of the site has now been remediated. Remediation of the remainder of the site shall proceed in a manner and to a programme that supports the development of plots, responding flexibly to commercial needs.

C0.2 The development of an individual plot shall only commence when that plot has been remediated in accordance with the procedures and methods specified below.

C0.3 The investigation, risk assessment and remediation of soil and groundwater shall be undertaken in accordance with the Environment Agency and DEFRA Model Procedures for the Management of Contaminated Land (CLR 11) and associated guidance.

C0.4 Where appropriate, contaminated soil and groundwater shall be treated for reuse on site, or where not appropriate for reuse, characterised and segregated for off-site disposal.

C1 Site investigation, contaminated soil excavation and backfilling works

C1.1 Site investigations have been undertaken and areas of the site have been categorised as having a low, medium or high risk. Following an appraisal of site conditions (based on the former use, frequency of investigations, previous remediation works and TPH concentrations) trial pits shall be excavated to the top of the alluvium in the areas shown on Figure 3 as follows:

(i) Low Risk – 2 trial pits per hectares
(ii) Medium Risk – 3 trial pits per hectare
(iii) High Risk – 7 trial pits per hectare
(iv) Along the route of drainage swales, for balancing ponds and where utilities are to be buried, at a frequency of 30m.

C1.2 Soil samples shall be collected and visually inspected by an appropriately qualified and experienced person for the level of risk in that area for both field screening and laboratory analysis for comparison against Site Specific Target Levels (SSTLs) as set out in Table 3 and Table 4. The laboratory must be UKAS accredited and hold MCERTS accreditation for the soil tests and ISO accreditation for water. The SSTL establish the maximum permissible concentration of each appropriate contaminant which can be present in soils on site without posing a risk to human health.

C1.3 Additional intrusive investigation techniques may be utilised to allow characterisation of site conditions. Such techniques may include advancing boreholes, multi-interface probes and drainage investigation surveys.

C1.4 A Relic Drainage Assessment shall be undertaken of the historic drainage channels, which are predominately located in the southern, northern and eastern areas of the site. The construction of the channels shall be assessed and sediment/sludge samples collected and analysed.

Figure 3: Contamination Risk

Table 3 Human Health Site Specific Target Levels (SSTL) – Soils

Contaminant	Sand, pH 7, SOM 1% Import Material /Topsoil (ENVIRON GAC Commercial) mg/kg	Sand silt loam, pH 7, SOM 1% Landscaped Areas 0.3 - 1.0m bgl mg/kg	Sand silt loam, pH 7, SOM 1% Landscaped Areas 1.0-3.0m bgl mg/kg
Inorganics/Metals			
Arsenic	635.06	647.39	NR
Aluminium	387,574.40	1,820,018.95	NR
Antinomy	7,546.24	13,190.92	NR
Barium	22,075.86	22,215.95	NR
Beryllium	417.10	3,967.39	NR
Boron	192,495.48	237,661.35	NR
Cadmium	230.29	398.39	NR
Chromium III	30,356.33	310,351.37	NR
Chromium VI	34.76	2,009.09	NR
Copper	71,742.09	176,643.16	NR
Lead	750.00	750.00	NR
Mercury (Inorganic)	3,641.42	4,405.40	NR
Molybdenum	17,673.04	17,937.12	NR
Nickel	1,787.58	22,423.36	NR
Selenium	13,023.11	13,105.79	NR
Vanadium	3,164.09	5,911.15	NR
Zinc	665,453.08	666,510.60	NR
Asbestos1	0.001% w/w	0.001% w/w	NR
BTEX and TMB			
Benzene	15.83	570.92	Saturation
Ethylbenzene	Saturation	196,318.19	Saturation
Toluene	Saturation	444,633.92	Saturation
Xylene, o-	Saturation	311,910.77	Saturation
Xylene, m-	Saturation	310,293.45	Saturation
Xylene, p-	Saturation	309,402.92	Saturation
1,2,3-Trimehtylbenzene	18.88	46,055.48	Saturation
1,2,4-Trimethylbenzene	22.88	1,966.40	Saturation
1,3,5-Trimethylbenzene	12.71	38,850.17	Saturation
Methyl tert-butyl ether (MTBE)	4,017.14	592,486.44	Saturation
Tributyl Tin (oxide)	134.01	243.70	Saturation
TPH			
TPH Aliphatic C5-C6	Saturation	Saturation	Saturation
TPH Aliphatic C6-C8	Saturation	Saturation	Saturation
TPH Aliphatic C8-C10	Saturation	99,621.39	Saturation
TPH Aliphatic C10-C12	Saturation	100,462.36	Saturation
TPH Aliphatic C12-C16	Saturation	100,897.34	Saturation

Contaminant	Sand, pH 7, SOM 1% Import Material /Topsoil (ENVIRON GAC Commercial) mg/kg	Sand silt loam, pH 7, SOM 1% Landscaped Areas 0.3 - 1.0m bgl mg/kg	Sand silt loam, pH 7, SOM 1% Landscaped Areas 1.0-3.0m bgl mg/kg
TPH Aliphatic C16-C35	Saturation	2,009,736.76	NR
TPH Aliphatic C35-C44	Saturation	2,009,736.76	NR
TPH Aromatic C5-C7 (Benzene)	15.83	570.92	Saturation
TPH Aromatic C7-C8 (Toluene)	Saturation	444,633.92	Saturation
TPH Aromatic C8-C10	Saturation	40,067.13	Saturation
TPH Aromatic C10-C12	Saturation	40,294.05	Saturation
TPH Aromatic C12-C16	Saturation	40,409.96	Saturation
TPH Aromatic C16-C21	28,134.67	30,258.05	NR
TPH Aromatic C21-C35	28,435.70	30,304.73	NR
TPH Aromatic C35-C44	28,435.70	30,304.73	NR
TPH Aliphatic & Aromatic C44-C70	28,408.02	30,312.21	NR
PAHs			
Acenaphthene	Saturation	117,690.21	Saturation
Acenaphthylene	Saturation	117,665.44	Saturation
Anthracene	522,477.94	589,566.25	Saturation
Benz(a)anthracene	91.02	233.95	Saturation
Benzo(a)pyrene	14.30	35.03	Saturation
Benzo(b)fluoranthene	101.55	246.35	Saturation
Benzo(k)fluoranthene	143.21	352.89	Saturation
Benzo(ghi)perylene	658.49	1,668.86	Saturation
Chrysene	140.17	331.80	Saturation
Dibenzo(ah)anthracene	12.87	32.17	Saturation
Fluoranthene	22,606.84	24,580.34	Saturation
Fluorene	Saturation	78,510.18	Saturation
Indeno(123-cd)pyrene	61.00	147.73	Saturation
Naphthalene	Saturation	29,890.28	Saturation
Phenanthrene	21,898.80	24,522.23	Saturation
Pyrene	54,263.16	59,002.39	Saturation
Chlorinated Solvents			
1,2-Dichloroethane (1,2-DCA)	0.36	224.95	1,852.53
1,1,1-Trichloroethance	391.51	Saturation	Saturation
1,1,2,2-Tetrachloroethane	156.09	11,349.33	Saturation
1,1,1,2-Tetrachloroethane	62.72	11,200.91	Saturation
Tetrachloroethene (PCE)	72.19	27,261.37	Saturation
Tetrachloromethane (carbon tetrachloride)	1.74	Saturation	Saturation

Contaminant	Sand, pH 7, SOM 1% Import Material /Topsoil (ENVIRON GAC Commercial) mg/kg	Sand silt loam, pH 7, SOM 1% Landscaped Areas 0.3 - 1.0m bgl mg/kg	Sand silt loam, pH 7, SOM 1% Landscaped Areas 1.0-3.0m bgl mg/kg
Trichloroethene (TCE)	6.61	Saturation	Saturation
Trichloromethane (chloroform)	57.25	21,250.90	Saturation
Chloroethene (vinyl chloride)	0.04	27.73	143.09
1,1,2-Trichloroethane	51.13	7,799.64	Saturation
1,1-Dichloroethane	148.25	Saturation	NR
1,1-Dichloroethene	15.36	Saturation	Saturation
Chlorobenzene	32.75	91,337.62	Saturation
1,2-Dicholorbenzene	Saturation	680,645.87	Saturation
1,3-Dichlorobenzene	17.66	3,315.10	Saturation
1,4-Dichlorobenzene	Saturation	138,480.32	Saturation
1,2,3-Trichlorobenzene	58.56	14,024.89	Saturation
1,2,4-Trichlorobenzene	123.25	76,071.19	Saturation
1,3,5-Trichlorobenzene	12.83	12,351.71	Saturation
1,2,3,4-Tetrachlorobenzene	Saturation	6,759.42	Saturation
1,2,3,5-Tetrachlorobenzene	27.98	744.71	Saturation
1,2,4,5-Tetrachlorobenzene	Saturation	124.94	Saturation
Pentachlorobenzene	Saturation	942.27	Saturation
Hexachlorobenzene	Saturation	60.85	Saturation
Phenol			
Phenol	30,790.39	64,024.72	Saturation
2-Chlorophenol	3,587.29	5,055.25	Saturation
2,4-Dichlorophenol	3,532.39	5,039.91	Saturation
2,4,6-Trichlorophenol	Saturation	5,055.14	Saturation
2,3,4,6-Tetrachlorophenol	Saturation	5,050.95	Saturation
Pentachlorophenol	1,233.73	1,571.45	Saturation
Hexachloro-1,2-butadiene	17.58	306.14	Saturation
Chloroethane	566.89	Saturation	Saturation
Chloromethane	0.59	Saturation	Saturation

NR – Not required . – This has been assessed qualitatively based on the non-volatile properties of the contaminant.
Saturation – the concentration above which the contaminant might be considered to represent a significant risk via modelled pathways exceeds the contaminant saturation value (for the soil type modelled). This is interpreted as a requirement to be present as free phase product before it was considered to represent a potential risk. Mobile free phase product will be treated in accordance with the strategies set out in this document.

[1] Asbestos concentrations in soils must not exceed 0.001% w/w in material that will be handled/disturbed in landscaped areas.

Table 4 Leachate Criteria

Contaminant	Leachate Criteria µg/l	Source of Value
Hydrocarbons		
Total Hydrocarbons	*10*	*UK DWS*
Benzene	*8*	*WFD EU EQS*
Ethylbenzene	*20*	*Non-Statutory DSD*
Toluene	*40*	*EU EQS - UKTAG*
Xylene	*30*	*UK EQS (from DSD)*
Polycyclic Aromatic Hydrocarbons (PAHs)		
Naphthalene	*1.2*	*WFD EU EQS*
Benzo(a)pyrene	*0.05*	*WFD EU EQS*
Benzo(b)flouranthene	*∑0.03*	*WFD EU EQS*
Benzo(k)flouranthene		
Benzo(ghi)perylene	*∑0.002*	*WFD EU EQS*
Indeno(123cd)pyrene		
Fluoranthene	*0.1*	*WFD EU EQS*
Inorganics		
Arsenic	*25*	*EU EQS- UKTAG*
Cadmium	*0.2*	*WFD EQ EQS*
Chromium (Trivalent)	*4.7*	*EU EQS - UKTAG*
Chromium (Hexavalent)	*0.6*	*EU EQS- UKTAG*
Copper	*5*	*EU EQS- UKTAG*
Cyanide	*1*	*EU EQS- UKTAG*
Lead	*7.2*	*WFD EU EQS*
Mercury	*0.05*	*WFD EU EQS*
Nickel	*20*	*WFD EQS*
Total Phenols	*7.7*	*EU EQS- UKTAG*
Selenium	*10*	*UK DWS*
Zinc	*40*	*EU EQS- UKTAG*
Miscellaneous		
Tributyl Tin	*0.0002*	*WFD EU EQS*
Chloride	*250,000*	*Non-Statutory DSD*
Pentachlorophenol	*0.4*	*WFD EU EQS*

WFD EQ EQS– 2008/105/EC Directive on Environmental Quality Standards in the field of Water Policy
EU EQS UKTAG – refer to item 2 below.
Non-statutory DSD – refer to item 4 below.
Assessment of other contaminants may be required, dependent on source material and assessment criteria will be based on the following in order of priority:

1. EU EQS for Priority Substances, obtained from Part 5 of the 2009 Ministerial Directions (based on 'other *surface waters'* (i.e. coastal and saline waters) annual average EQS)
2. UK derived EQS for Specific Pollutants, obtained from Part 4 of the 2009 Ministerial Directions (EU EQS UKTAG)
3. For substances which are not contained within Part 5 or Part 4 of the Ministerial Directions, refer to the UK DSD EQS
4. Former Non-Statutory UK DSD EQS (draft EQS for the DSD not formally implemented, but were used by the EA in the absence of other criteria).

UK DWS – UK Drinking Water Standards

Leachability testing will be required to be undertaken in accordance with BSEN12457-2 (single stage leach test at L/S 10 (water:soil 10:1) for 24hours)
Note - Dredged material will be tested against the leachate criteria on a 70m length frequency in soft landscaped areas within 10m lateral distance of a swale and once the material is in situ within a plot. This equates to approximately 1 in 1,000m^3 of material (assuming an average of 1.5m depth of dredged material). If these results pass for the first plot, the testing frequency will increase to an in-situ equivalent of 1 in 5000m^3 thereafter.

C1.5 There is potential for unexploded ordnance to be present on the site and this risk shall be taken into account prior to all intrusive investigations.

Delineation

C1.6 Where soil samples exceed the screening criteria in laboratory analysis, further targeted trial pit investigation at a more intensive frequency shall be undertaken to identify the nature and extent of the identified contamination.

Excavation and Tracking

C1.7 Delineated soils which exceed the screening criteria shall be excavated and transported directly to the on site Remediation Compound. All significant movements of soil, whether considered to be contaminated or not, shall be tracked.

Validation and Backfilling

C1.8 Further soil samples shall be collected from the base and sidewalls of remaining excavations on a 25m grid with a minimum sample of 1 per base and 1 per wall and these shall be compared with the screening criteria. Where soils are suitable for use, the excavation shall then be backfilled with suitable materials.

C1.9 All relevant documentation shall be filed for inspection for a minimum of 2 years and shall be reported in a Validation/Verification Report.

C1.10 Evidence that the soil falls within the SSTLs criteria shall be submitted to the Environment Agency and Thurrock Council's Environmental Health Department.

C2 Operation of Remediation Compound

C2.1 A second remediation compound (should it be required) may be established on an area of hardstanding sized to suit requirements.

C2.2 The compound shall be used temporarily for the stockpiling, sorting and treatment of excavated materials during the remediation process. Treatment bays shall be impermeable, be routinely maintained and designed and built to prevent any horizontal or lateral migration of contaminants.

C2.3 The compound shall include segregated areas for stockpiling site won contaminated and non-contaminated soils.

C2.4 A puddle pump shall be made available to direct standing water to sumps of sufficient capacity to deal with heavy rainfall events.

C2.5 Spill kits shall be made available on site in the event of accidental leakage from site traffic or delivery of fuel to bowsers outside of the treatment bays. Staff shall be trained in the use of spill kits and made aware of their locations. All fuel bowsers shall be double bunded and located within the site compound area. Refuelling areas shall be located away from surface watercourses and drains to prevent pollution.

Table 5 Air Emission Trigger Levels

Air Emissions	Frisbee No. 1 Monthly Trigger Levels	Frisbee No. 2 Monthly Trigger Levels
Dust Deposit	200mg/m^2	500mg/m^2
VOC Species		
Benzene	5ug/m^3	10ug/m^3
Ethyl-Benzene	4.5ug/m^3	9ug/m^3
Toluene	1.9ug/m^3	3.8ug/m^3
Xylenes	4.5ug/m^3	9ug/m^3

C2.6 Stockpiles shall be stored in such a way as to minimise dust emissions. For example, they shall be sealed when material is not being processed and in dry conditions dampening techniques shall be deployed to minimise dust generation during loading/unloading and mechanical processing of soil.

C2.7 Two Frisbee gauges shall be utilised for the duration of the remedial works to monitor dust deposition. One shall be located between the treatment compound and the existing London Gateway administrative office and the other adjacent to the compound in a north east direction. Volatile organic compound (VOC) concentrations shall also be routinely monitored at the Frisbee locations. Trigger levels are specified in Table 5.

C2.8 To manage water run-off, rain and leachate within the treatment area, a water treatment plant shall be set-up consisting of a settlement tank, oil water separator, sand and carbon filtration (a Granular Activated Carbon System (GAC)). Water produced shall be piped into the adjacent site drainage in compliance with the relevant discharge consent. A mobile unit shall also be made available for deployment. Water treated as part of the mobile treatment activities shall be returned in situ subject to compliance with the requirements of the Environment Agency.

C2.9 Oil collected shall be stored in double skinned containers and disposed of off-site promptly.

C2.10 The level of odours shall be recorded daily. If odour nuisance arises, an odour suppression unit shall be utilised on the compound. Where any odours or emissions are likely to be transported beyond the site boundary, immediate action shall be taken to stop operations giving rise to the emissions.

C2.11 The remediation compound shall be decommissioned upon completion of the remediation process and the compound shall be made good.

C3 Remediation Processes

C3.1 Contaminated soils shall be remediated in accordance with the Environmental Permit held for the site. Acceptable technologies are likely to include:

- Blending, mixing, bulking, particle size reduction and/or particle separation to facilitate remediation;

- Bioremediation;
- Chemical Oxidation;
- Stablisation/Solidfication;
- Pumping and treatment of perched water in excavations.

C3.2 Remediation Criteria targets required for treated soils are as follows:

i) <5,000 mg/kg Total Petroleum Hydrocarbons (TPH);
ii) <1 mg/kg Benzene, Toluene, Ethylbenze & Toluene (BTEX) Compounds;
iii) <150mg/kg Polyaromatic Hydrocarbons (PAH);
iv) <5ppm Volatile Organic Compounds (VOC) (headspace screening).

C3.3 Free-phase oil product in groundwater or soils which are heavily impacted by hydrocarbons shall be removed and treated in-situ or in the treatment plant.

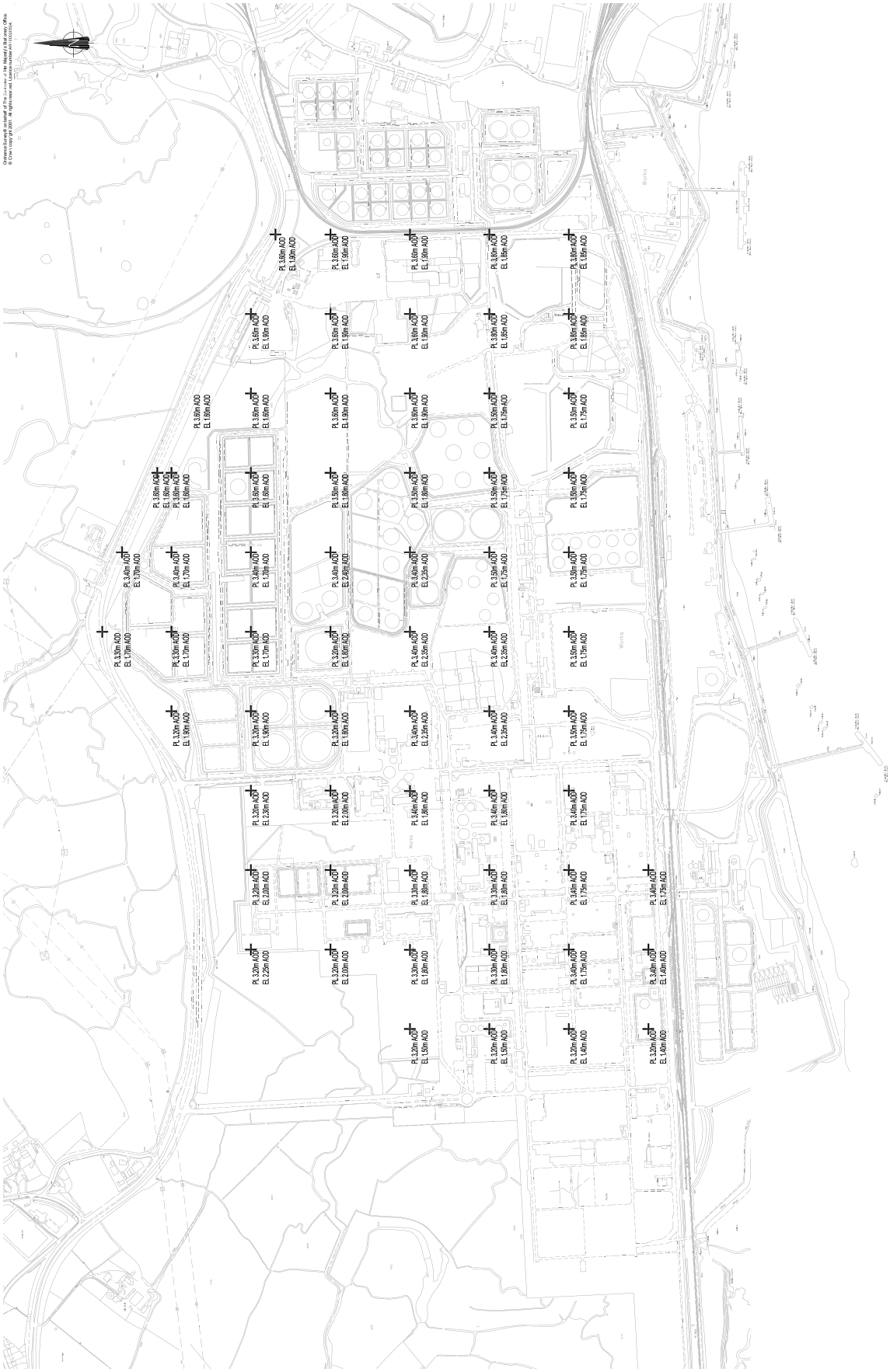
C3.4 If potential asbestos containing materials (ACM) as visually identifiable material is encountered in the ground, isolation measures shall be undertaken prior to the ACM being disposed of off-site. If the location of the ACM is to be further disturbed by future groundworks, once removed the remaining ground conditions (i.e. asbestos fibre content in soil) shall be verified by a suitably qualified contractor. Where asbestos fibres are encountered in shallow existing ground either as visually identifiable material or at concentrations above the 0.001% weight/weight (w/w) threshold and where disturbance of such soils is then required for construction, appropriate isolation of asbestos impacted soil and either off-site disposal or re-use elsewhere on the site at a depth of >1m below ground level shall be pursued. Asbestos fibre concentrations in soil must not exceed 1% w/w for on-site re-use otherwise material shall be disposed of off-site.

C3.5 Remediation measures (e.g. hand picking of identifiable material from soil) shall be undertaken by suitably qualified personnel and in accordance with the licence requirements of the Control of Asbestos Regulation (2012) or any subsequent amendments to it.

C3.6 Where for logistical reasons it is not practical or prudent to transport contaminated soils to the Remediation Compound for treatment, in-situ remediation works may be undertaken, such as screening, grading and bio-remediation.

C3.7 If a batch of impacted soils is unsuitable for remediation either at a remediation compound or in-situ, then such material shall be quarantined and stored on an impermeable, bunded and controlled location. Following further testing, such material shall be removed from the site within seven days for further treatment or disposal at a licensed facility unless an alternative date is agreed with the Environment Agency.

Figure 4: Existing and Proposed Site Levels



D Groundworks

D1 Bulk Upfilling

D1.1 The existing ground levels shall generally be raised across the Site to the levels shown on Figure 4, with localised additional raising up to finished floor level. Bulk upfilling works shall not commence until the underlying land has been remediated and validation completed.

D1.2 Where infilling proceeds on a plot by plot basis, the final ground level of each plot shall be contiguous with the finished ground level of the completed infrastructure service corridor and any other completed neighbouring plots. Plot boundaries abutting land that has still to be raised shall be shaped and contoured to allow surface water to drain to temporary ditches.

D1.3 The material required for raising levels may be obtained from either dredged material from the Thames Estuary, site won material (e.g. crushed concrete) or be imported.

D1.4 All potential fill material, wherever sourced, shall be screened and assessed for contamination and shall only be used where it meets the soil remediation criteria targets (SSTL) or Import Criteria and as set out at Table 3 in Section C. Based on the outcome of assessment and screening process, suitable fill material shall only be used for those purposes specified in Table 6 below.

D2 Imported Material

D2.1 Materials shall continue to be imported under the terms specified in Environmental Permit (Reference EPRIYP3691 EK/A001) which allows the re-use and recovery of waste materials for construction purposes. The import of material has strict controls over the type and condition of material that can be imported. The material must:

- conform with the types of material allowed for import in the Permit as classified by European Waste Codes (e.g. soil and stones or crushed concrete);
- be of solid form with no liquid or saturated waste allowed;
- meet engineering specifications. Soil analytical test certificates must be provided prior to import and there must be conformance against the import criteria depending on the location of final use on-site (the import criteria are the SSTLs generated within the CLRAS as outlined in Table 3).

D2.2 Where material is imported for use in soft landscaping areas and where infiltration may lead to leachate generation, soil leachate testing (as per Table 4) shall be undertaken to confirm the suitability of material for re-use. On receipt at the site the imported material shall be subject to further visual inspection to verify that it conforms to the characterisation provided prior to import.

D2.3 Sample analysis shall be carried out on all imported fill material. The analysis shall include an assessment of all chemicals identified as having potential to

Table 6 Materials Management Strategy

<table>
<tr><td colspan="2">Material</td><td colspan="2">Assessment</td><td colspan="3">Fate</td></tr>
<tr><td colspan="2">Mobile Free Phase Oil Product</td><td colspan="5">Excavation for Ex-situ remediation at on-site remediation compound by third party</td></tr>
<tr><td colspan="2" rowspan="3">Asbestos Impacted Soil in Areas of Future Ground Disturbance/ Material Re-use</td><td colspan="2">Exceeds 0.001% w/w asbestos</td><td colspan="3">Excavation for Off-site disposal by Remediation Contractor</td></tr>
<tr><td colspan="2">Exceeds 0.001% w/w asbestos AND visual evidence of asbestos containing materials</td><td colspan="3">Material with <1% w/w asbestos can however be replaced at a depth of 1m below ground level within the site boundary.</td></tr>
<tr><td colspan="2">Does not exceed 0.001% w/w asbestos BUT contains non-friable or friable asbestos containing materials suitable for hand picking</td><td colspan="3">Potential Hand Picking by appropriately qualified LGPDL appointed contractor.</td></tr>
<tr><td>Source</td><td>Passes Import Criteria</td><td>Passes SSTL for proposed end placement depth

(Refer to Scenario SSTLS Table C1)</td><td>For soils between surface and 1m depth and within 10m of swale Passes Leachate Criteria (Table C2)</td><td>Suitable for Use in all areas</td><td>Suitable for Use in all areas, except within 10m of swale</td><td>Suitable for Use under buildings /hard surfacing only</td></tr>
<tr><td rowspan="3">Site Won Excavated Materials</td><td rowspan="3"></td><td>✓</td><td>✓</td><td>✓</td><td>-</td><td>-</td></tr>
<tr><td>×</td><td>×</td><td>×</td><td></td><td>✓</td></tr>
<tr><td>✓</td><td>×</td><td>×</td><td>✓</td><td>✓</td></tr>
<tr><td rowspan="3">Remediation Site Won Materials</td><td rowspan="3"></td><td>✓</td><td>✓</td><td>✓</td><td></td><td>-</td></tr>
<tr><td>✓</td><td>×</td><td>×</td><td>✓</td><td>✓</td></tr>
<tr><td>×</td><td>×</td><td>×</td><td></td><td>✓</td></tr>
<tr><td rowspan="3">Imported Materials (Dredged)</td><td rowspan="3"></td><td>✓</td><td>✓</td><td>✓</td><td>-</td><td>-</td></tr>
<tr><td>×</td><td>×</td><td>×</td><td>×</td><td>✓</td></tr>
<tr><td>✓</td><td>×</td><td>×</td><td>✓</td><td>✓</td></tr>
<tr><td rowspan="3">Imported Material (other)</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>-</td><td>-</td></tr>
<tr><td rowspan="2"></td><td>✓</td><td>×</td><td>×</td><td>✓</td><td>✓</td></tr>
<tr><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td></tr>
<tr><td colspan="7">Note that any site won material not intended for use in soft landscaped areas will not necessarily require analysis and assessment against the SSTLs, but will as a minimum require inspection for mobile free oil product.</td></tr>
</table>

be present within soil following a review of the historical use of the land from which the imported material has been sourced. The limits set out in Table 3 and Table 4 define the maximum permitted concentrations of these identified chemicals in soils.

D2.4 In instances where the imported soils are placed (and thus effectively encapsulated) beneath a building footprint it may not be necessary to analyse these soils for their leachate quality.

D2.5 Potential fill material not meeting the import criteria (at the 95th percentile mean) will not be acceptable.

D2.6 A visual assessment for evidence of asbestos containing material, supplemented with confirmatory laboratory based screening shall be carried out by a suitably qualified person against a limiting value of 0.001% weight/weight.

D2.7 Aggregate used for concrete and road base shall not require any additional analysis to that provided within the material supply certificate. For recycled aggregates the absence of asbestos must be confirmed.

D2.8 Dredged material from the Thames estuary shall be reviewed against the SSTLs criteria set out previously in Table 3 in Section C to confirm its suitability for use.

D2.9 Soil for use in soft landscaped areas shall also be assessed against the criteria set out in Table 3 and Table 4 in Section C above. Soil leaching limits shall be applied to material intended for use in landscaped areas at the surface or to a depth of 1m and within 10m lateral distance of swales.

D3 Suitable End Uses for Material

D3.1 The suitable end use of site won, remediated or imported material is summarised in Table 6 based on the results of the assessment and screening process.

D4 Undiscovered Contaminated Soil and Groundwater Watching Brief

D4.1 During the course of any ground preparation works that penetrate existing site levels, a watching brief shall be undertaken by a suitably qualified person to identify undiscovered contaminated soil and groundwater.

D4.2 Work shall stop immediately should any material be encountered that appears to be visually impacted by mobile oil product and/or asbestos and LGPDL shall be notified and the material remediated in accordance with Section C of this document.

D5 Earthworks Procedure

D5.1 All movements of soil, whether considered to be contaminated or not, whether imported or site won, shall be tracked. An Earthworks and Materials Tracking Spreadsheet shall document each movement of soil around the Site, including site of origin and location of deposition, quantities and all quality control checks.

D6 Geophysical Survey and Removal of Obstructions

D6.1 Prior to plot development, a geophysical survey shall be undertaken.

D6.2 Where obstructions are encountered these shall be cut back as required to facilitate the construction of the new building otherwise obstructions shall be left in situ to avoid the risk of creating new pathways between shallow near-surface contaminated soils and the underlying Minor Aquifer. Building sub-structures shall be designed to overcome and bridge any existing piles. All material recovered shall be recycled and re-used on site wherever possible. Any underground services to be retained shall be checked and recorded.

D7 Piling Procedure

D7.1 Whilst all plots will have been subjected to detailed site investigation and where necessary remediation prior to construction work, there remains a possibility for hot spots of hydrocarbons or suspected asbestos contamination to be identified during site works. A risk assessment shall be undertaken prior to work commencing and the appropriate piling methodology (either driven or bored piles) adopted taking into account site conditions, previous site investigations etc. in line with the Environment Agency's Pollution Prevention Guidelines specifically National Groundwater and Contaminated Land Centre report NC/99/73 (May 2001): Piling and Penetrative Ground Improvement Methods on Land Affected by Improvement Methods on Land Affected by Contamination or any subsequent updates to it. The floor slab design of buildings shall be constructed in accordance with CIRIA Report C665 and BS8485 and shall incorporate a gas and damp proof membrane with the necessary Quality Assurance and Quality Control as standard, beneath which the piling mat shall also provide a permeable venting layer to prevent the potential for volatilisation of contaminants and ground gases to enter indoor air spaces in the buildings. Service ingress points shall be sealed.

D7.2 A groundwater monitoring programme for the River Terrace Deposits (RTD) shall be maintained through the construction works to ensure that piling activities do not increase the risk of contamination to the underlying secondary aquifer

D7.3 Visual and olfactory inspections shall be undertaken by suitably qualified persons during excavation activities. Should contamination be suspected work shall stop immediately and appropriate action taken.

D7.4 Trial piles may be utilised to inform foundation design. For any piling operations which are required to be undertaken within 25 metres of a vibration sensitive building a vibration impact assessment based on BS 5228-2:2009 'Code of practice for noise and vibration control on construction and open sites' shall be undertaken and depending on the outcome of the assessment, vibration monitoring conducted. Occupiers of buildings within 50 metres should also be taken into consideration when selecting a piling solution.

D7.5 When a site is partially built and piling works are required adjacent to an occupied plot potentially resulting in separation distances below 25 metres, measures to control vibration set out in BS5228 could include:

- The use of a low vibration alternative plant and/or methods of work e.g. using bored rather than driven piles.
- Measures to reduce the levels of vibration at source such as the reduction of energy per blow or pre-boring for driven piles and the removal of obstructions.
- Cut-off trenches.

D7.6 Impact piling shall not take place between the months of October to March inclusive, in the hatched area identified on Figure 5, or in the Tongue Land identified on Figure 6. If piling is necessary, an alternative piling method shall be employed. All piling works in this area shall be monitored continuously by the contractor and the results made available to the Environmental Advisory

Group on request. Where ambient construction noise levels (LAeq) exceed 70dB(A) or sudden irregular noise levels (LAmax) exceed 65dB(A) within 250m outside of the northern and western Park boundary all piling activities shall cease.

D8 Stripping and Storage of Topsoil and Sub Soil

D8.1 Most of the topsoil required shall be imported 'General purpose' grade in accordance with BS 3882-1994.

D8.2 Topsoil that exists on the site is of very thin depth and shall not generally be removed.

D8.3 In areas of excavations, if topsoil of a thickness greater than 100mm is encountered, it shall be stripped, tested and stock-piled for re-use within the works.

D8.4 Topsoil materials containing concentrations of toxins, pathogens or other extraneous substances harmful to plant life shall not be used. Peat or products containing peat shall not be used.

D8.5 All topsoil shall be tested to ensure that it is not contaminated with any hazardous material or substances including controlled wastes (as defined in the Environmental Protection Act 1990 Part IIA or any subsequent amendments to it) or hazardous wastes (as defined in the Hazardous Waste (England and Wales) Regulations 2005 or any subsequent amendments to it) and radioactive wastes (as defined in the Radioactive Substances Act 1993 or any subsequent amendments to it).

D8.6 The (maximum) limiting values for contamination of materials (including topsoil) are set out in Table 3 and 4 in Section C.

D8.7 Topsoil shall be deposited over new earthworks in bulk, in layers of 150mm to 300mm vertical depth in grassed areas, or up to 450mm depth where landscape planting is to be carried out.

D8.8 Appropriate plant shall be used to minimise disturbance, trafficking and compaction during excavation and placement of topsoil.

D8.9 Contamination of topsoil by subsoil, stone, hard core, rubbish or material from demolition shall be screened out on site.

D8.10 Different grades of topsoil shall be kept separate from each other when stock piling and handling. Topsoil handling shall be kept to a minimum.

D8.11 Stockpiling of topsoil shall be carried out in accordance with the DMRB.

D8.12 Topsoil shall not be compacted. A friable texture of visible crumbs shall be preserved.

D9 Final Ground Levels and Conditions

D9.1 Landscaping fill material to be used for shaping and contouring shall be sourced from within the site wherever possible. Prior to use, site won material

Figure 5: Impact Piling Restriction (October - March)

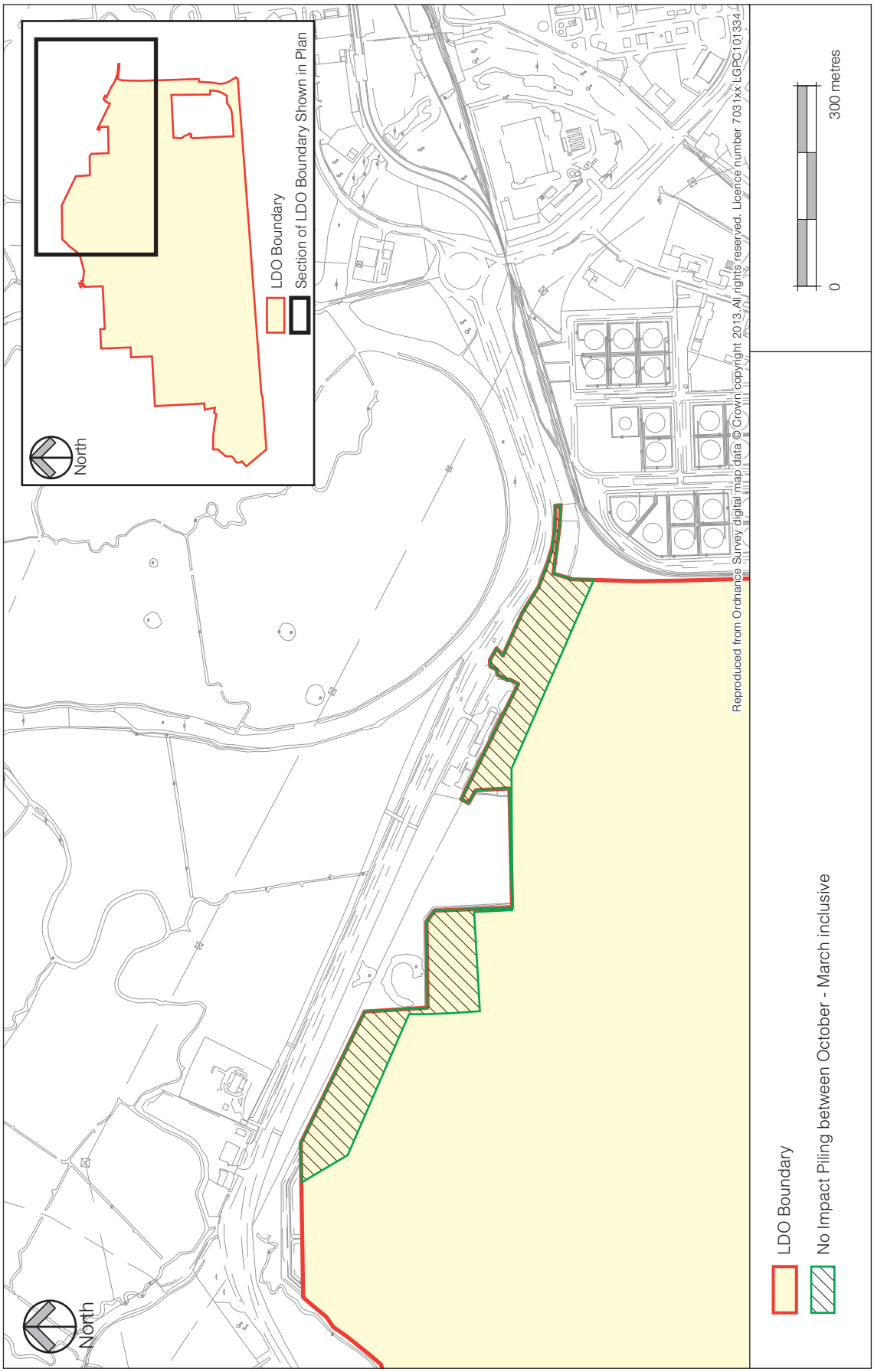
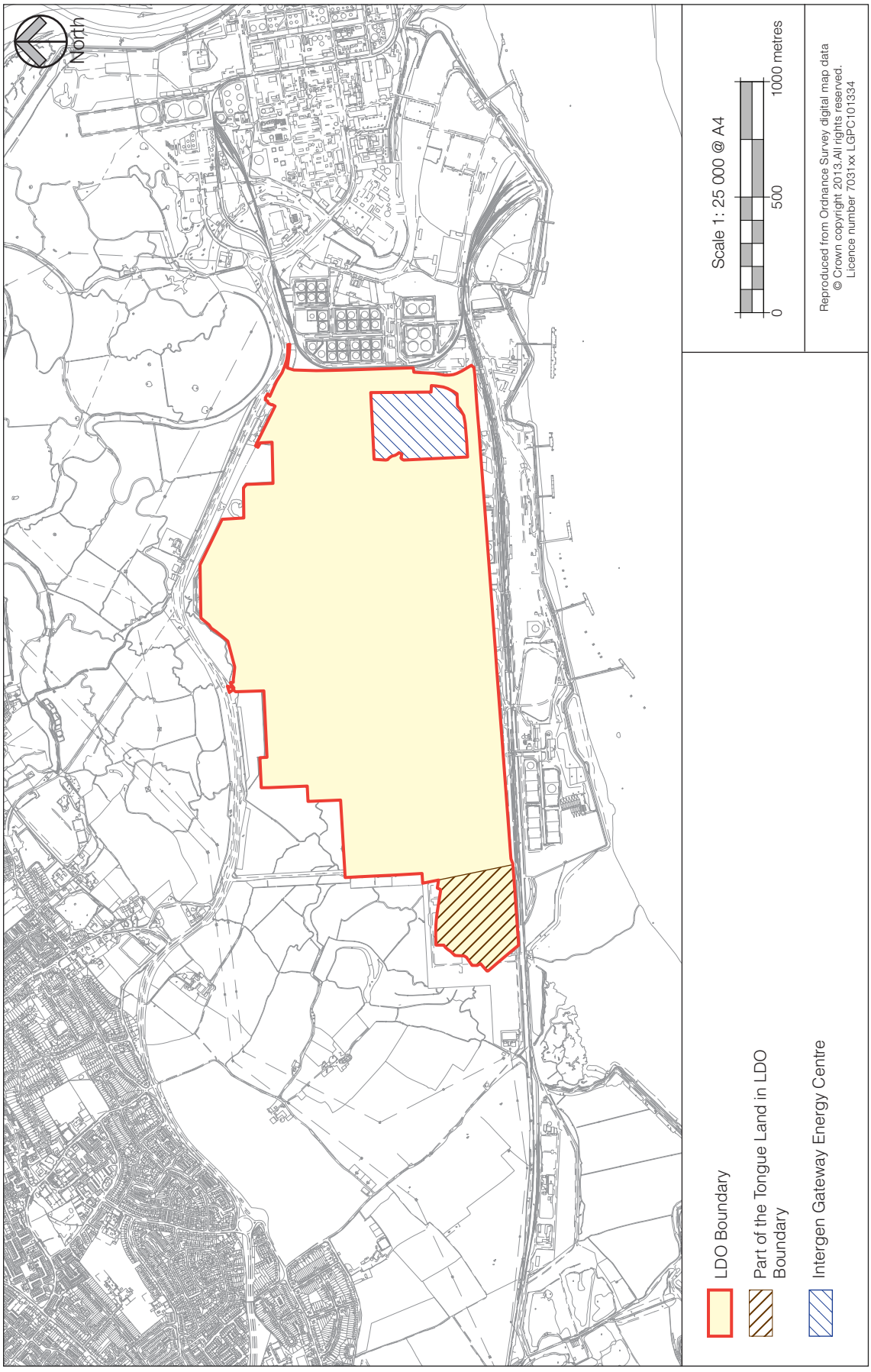


Figure 6: Tongue Land



shall have been tested and remediated to the appropriate standard as specified in Table 3 and 4 in Section C.

D9.2 All imported materials for use as a growing medium or for any other purpose, including fill, shall also be tested for compliance to the standard specified in Table 3 and 4.

D9.3 Deposition of landscape fill material shall be carried out as soon as practicable after excavation.

D9.4 The degree of compaction shall be sufficient to remove large voids and to produce a coherent mass whilst preventing over-compaction.

D10 Services Infrastructure

D10.1 Where the installation of water pipe, ducts or any other excavation occurs within current ground levels, a watching brief shall be maintained and any mobile oil product encountered will be excavated for ex-situ bioremediation at the remediation compound. Supply pipe materials shall be appropriate for use in contaminated ground. Supply pipes installed at shallower depths, within material used to raise ground levels, will not require any special mitigation measures other than the provision of a gravel/pea shingle filled trench.

E Waste Material Management

E0.1 All waste material generated on-site during the construction process shall be handled and disposed of in accordance with waste management legislation and the waste hierarchy as follows:

- Waste Prevention
- Material Reuse
- Material Recycling
- Disposal

E0.2 The management of construction waste shall be phased in line with the construction works phasing.

E0.3 During the construction phase, waste management shall be reviewed for each of the waste hierarchy stages and the suitability of the materials to each stage will be assessed. For material reuse, recycling and disposal off site, a review of waste management companies shall be undertaken to assess the capacity for certain materials to be recovered.

E0.4 The following measures shall be considered to ensure that waste is minimised:

- avoidance of waste at the design stage;
- use of materials with recycled content;
- provision of construction material cut to size to reduce waste generated in site;
- just-in-time deliveries;
- safe and secure storage of materials;
- minimisation of packaging;
- reuse or recycling of unwanted packaging e.g. pallets; and
- reuse of waste on site.

E0.5 The following targets have been set for waste management:

- 100% of remediated soil to be reused on-site;
- 80% of contractor's waste to be recycled (tracked through monthly reporting system).

E0.6 Materials available within the development site (existing hard standing, roads, drainage, stockpiles, structures or use of dredged material) shall be re-used on site wherever possible.

E0.7 All construction works shall be carried out in accordance with a Site Waste Management Plan which shall be made available to the EAG on request.

E1 Waste Streams and Segregation

E1.1 Waste shall be segregated into the following waste streams:

- Mixed construction/demolition waste – excluding:
- Timber
- Metal

- Cardboard
- Recyclable Office Waste
- Non-Recyclable Office Waste
- Insulation – glass fibre, mineral wool, purlboard, breather paper;
- 'Green waste'
- Plasterboard – all plasterboard waste must be sent to a licensed facility for recycling
- Concrete washout
- Road sweeper arisings (insert waste)
- Hazardous waste.

E1.2 Under no circumstances shall mixed demolition and construction waste go straight to landfill.

E2 Preventing Escape of Waste

E2.1 All waste produced on-site shall be appropriately stored to prevent escape or leakage whilst stored on-site or in transit. Waste storage facilities shall be suitable to contain waste and labelled with a description of the waste. Vehicles used for transporting waste shall be suitable to prevent escape during transit.

E2.2 Containment bunds with rain shelters and sealed containers shall be used if there is any likelihood of stored waste contaminating the surrounding area. Liquid waste shall be stored away from drains, boreholes and watercourses.

E2.3 No wastes shall be burnt or disposed on site

E3 Transfer to an Authorised Person

E3.1 Waste shall only be transferred to an appropriately licensed waste consignee. A copy of the Waste Carriers Licence or registration shall be retained by the waste consignor.

E4 Off Site Waste Disposal or Treatment

E4.1 The final waste disposal or treatment facility must be authorised to accept specified wastes and hold an appropriate waste management license, environmental permit or waste management license exemption.

E5 Record Keeping

E5.1 Appropriate records for all waste material transported off-site shall be retained. Waste transfer notes shall be retained for a minimum period of two years, and hazardous waste consignment notes shall be retained for a minimum period of three years.

E6 Managing Hazardous Waste

E6.1 The following measures shall be adopted for the management of hazardous waste.

- Registration with the Environment Agency as a producer of hazardous waste.
- Hazardous wastes shall be segregated and stored in labelled facilities, or areas.
- Non-hazardous waste shall not be contaminated with hazardous waste.
- The Environment Agency shall be notified of the movement of hazardous waste, through the hazardous waste consignment process.
- All hazardous waste shall be clearly and appropriately identified and labelled prior to transit from site.

Part 2: Environmental Control Measures / Procedures

Part 2 Environmental Control Measures / Procedures

F Habitats and Protected Species

F0.1 Protected species have already been translocated to receptor sites within the vicinity of the development area as shown on Figure 7. Activities and works shall not disturb or damage the ecological mitigation and management measures that have already been implemented (e.g. fencing, ponds etc.). In the event that damage occurs it shall be repaired at the earliest practical opportunity. Further detail on the monitoring and management requirements for the ecological receptor sites is set out in the London Gateway Ecological Mitigation and Management Plan (EMMP).

F0.2 As part of an induction process, the contractor shall be made aware of the potential for protected species to be found on site. In the event that protected species are encountered during construction works, all works shall cease in that area until the procedures set out below have been satisfactorily completed.

F0.3 A qualified ecologist shall be appointed to oversee construction activities.

F1 Adder, Common Lizard, Slow Worm, Grass Snake

F1.1 Long-term reptile exclusion perimeter fencing has been erected around receptor sites to prevent reptiles entering the construction areas and this shall be maintained until site earthworks and landscaping have been completed.

F1.2 On a monthly basis throughout the construction period, the integrity of the reptile exclusion fence shall be checked and, if damaged, shall be repaired immediately. If necessary, sections of damaged reptile exclusion fence shall be replaced, or if possible, repaired with a waterproof cloth tape.

F1.3 If encountered, reptile habitat shall not be disturbed between November and March whilst the animals are hibernating. If necessary survey and translocation to an identified receptor site shall be carried out between April and September (occasionally early October). Any areas of reptile habitat identified shall be protected by post and wire fences to prevent accidental damage until the reptiles can be moved.

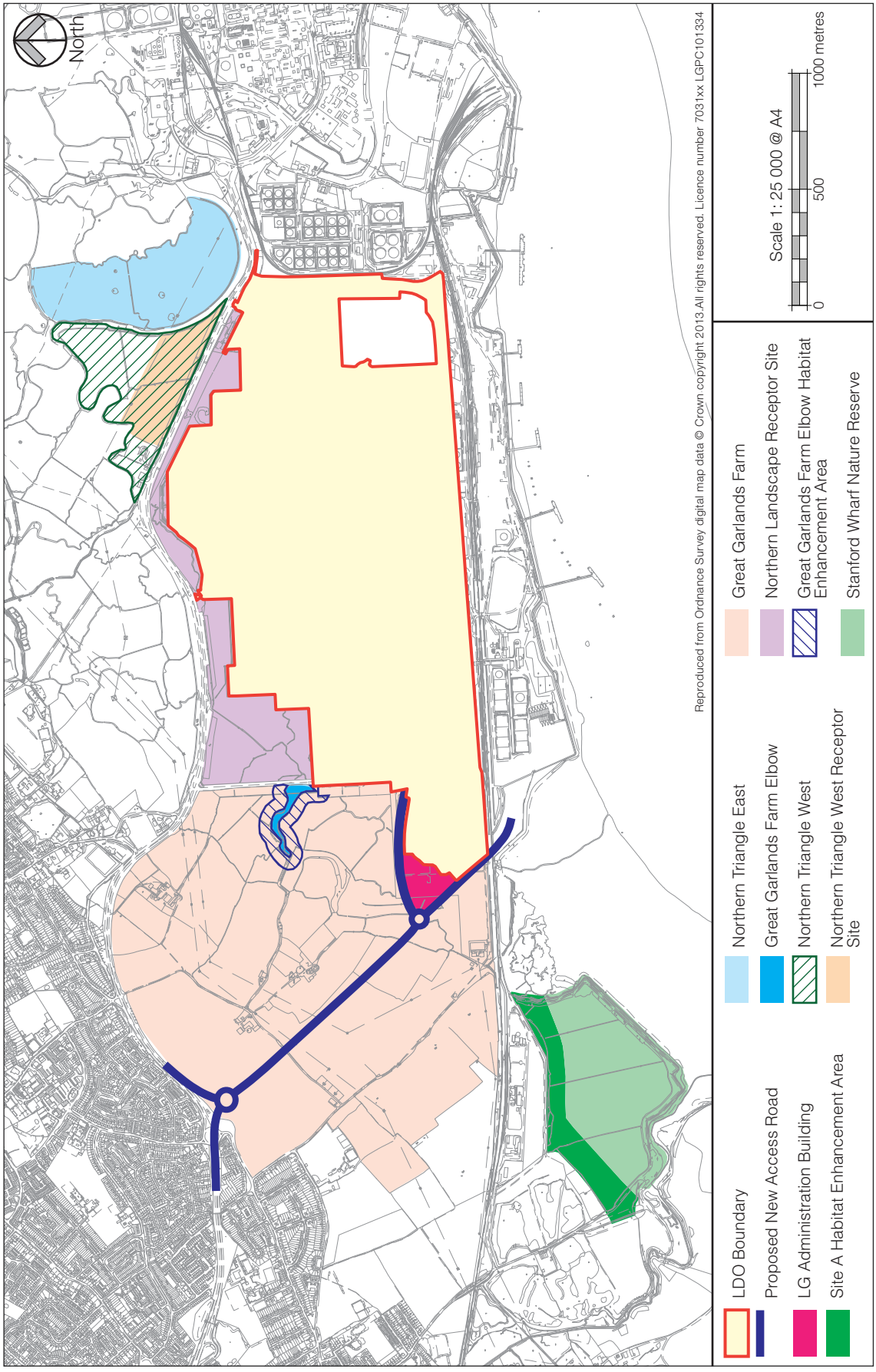
F1.4 Removal of the exclusion fencing post construction shall be done under the supervision of an ecologist and outside the reptile hibernation period, i.e. between the months of April to September inclusive.

F1.5 Monitoring shall take place annually until 3 years after construction works have been completed.

F2 Great Crested Newt

F2.1 Amphibian fences and a secure fence shall be maintained around refuge areas for the duration of construction. A secure fence shall be maintained outside the amphibian fences to prevent accidental entry by construction traffic or plant. Warning signs shall be displayed to ensure contractor awareness.

Figure 7: Ecological Receptor Sites / Habitat Enhancement Areas



F2.2 A watching brief for amphibians shall be maintained throughout all site clearance operations. The fences surrounding the newt refuges shall be walked at least once every three months throughout the construction period to check for and if necessary close up or repair any gaps or cracks through which newts could escape.

F2.3 A watching brief shall be maintained for amphibians throughout all site clearance operations and any animals found shall be removed to the refuge areas.

F2.4 An annual survey shall be carried out of all water bodies remaining on the Site and any animals found shall be translocated to suitable refuges. Handling and transfer of great crested news shall be by a licensed ecologist.

F3 Bats

F3.1 Any buildings to be demolished shall be surveyed for the presence of bats and if any bats or bat roosts are present then work that will impact on bats and their roost shall not proceed until the appropriate European Protected Species License has been obtained from Natural England.

F3.2 No work shall be carried out on known or suspected hibernation roosts between December and February, or on a known or suspected maternity roost between May and August. Work is possible (under licences) on male bachelor roosts during the latter period.

F3.3 All site workers associated with the development of the site shall be informed of the presence of bat roosts and briefed to undertake actions to protect bat roosts within buildings.

F4 Badgers

F4.1 The site has been cleared of badgers and exclusion fencing exists around the whole perimeter.

F4.2 In the event of night workings, appropriate lighting that minimises side scatter shall be erected along temporary haul routes to assist in avoiding collision with badgers at night. Lights shall be directed away from areas of semi-natural habitats and from badger setts.

F4.3 Warning signs shall be erected indicating potential for badgers.

F5 Water Vole

F5.1 Water voles on site have been translocated to Northern Triangle East and the River Colne near Colchester.

F5.2 Any water bodies within the construction area shall be surveyed by a qualified ecologist in advance of works and if water voles are present, steps shall be taken to exclude them and prevent recolonisation. Any remaining water bodies shall be fenced to prevent accidental damage by plant or vehicles and shall be protected from pollution or silt run-off from the works.

F6 Brown Hares

F6.1 Areas of grazing marsh and arable land in the vicinity of the works have been fenced off, preventing accidental incursion into the areas by construction traffic. In the event of construction works taking place at night, appropriate lighting (see paragraph K1.4) shall be erected along temporary construction traffic routes to help avoid collisions to brown hare as well as other species.

F7 Breeding Birds

F7.1 During construction, surveys shall be undertaken each year in April, May and June to assess the impact of the works on the populations of important species. More frequent surveys using results of breeding bird surveys shall be carried out around working areas to locate nest-sites of Schedule 1 species and ground-nesting birds for protection, where required.

F7.2 Ecologists shall provide a watching brief in all areas thought to be occupied by breeding birds. If breeding birds are present, measures shall be taken to avoid disturbance. These shall include the creation of an exclusion zone to avoid the area, or the delay of construction activities until the end of the breeding bird season (or fledging of juveniles in the event that individual nest sites are identified). A marker fence shall be erected at a suitable distance from the nest-sites of any bird species. Marker fencing shall also be erected in un-cleared grassland close to working areas if ground-nesting birds are present, to prevent contractors accessing these areas.

F7.3 All potential breeding habitat shall be cleared between September and February prior to and after breeding season has ceased. Outside this period, clearance work shall immediately follow a thorough checking survey to identify active nests which, if found, shall be left undisturbed.

F7.4 Once the vegetation is cleared and the ponds have been filled in, construction works shall either commence immediately or the cleared ground shall be managed to minimise its attraction to the majority of breeding birds. Specifically, the ground shall be kept clear of vegetation through the use of herbicides. The construction area to be developed shall also be marked out/fenced and a series of posts and highly coloured, reflective mirrors and/or tape with trailing markers/streamers used to criss-cross the construction sites. Physical exclusion may also be provided by the installation of netting to exclude birds from the development site as long as the netting is of a coarse gauge to ensure birds do not get tangled.

F7.5 An experienced ornithologist shall check the cleared areas for ground nesting birds if works are to occur in the breeding season.

F7.6 Appropriate measures shall be taken to deter birds from breeding in any areas of suitable bird breeding habitat which have not been cleared. Specifically bunting shall be used to provide a constant deterrent and the presence of field surveyors can also cause disturbance and deter birds from nesting. The situation shall be monitored closely and further action shall be taken if required such as audio and visual bird deterrents and the use of agricultural bird scarers or kites, balloons, scarecrows and raptor decoys.

F8 Wintering Birds

F8.1 Work directly affecting wintering waterfowl habitat shall be avoided between October and March.

F8.2 Prior to the start of construction a 2m high opaque hoarding shall be installed along the western boundary to screen ground level construction activity. This hoarding shall remain in place until the works within the Tongue land and the plots adjoining the western boundary have been completed.

F8.3 In order to avoid disturbance of wintering birds, the noise level within 250m of the western and northern boundaries outside of the Park shall not exceed 70dBL_{Aeq} and 65dB$_{LAmax}$ during the months of October to March inclusive.

F8.4 Construction vehicle speeds across the Site shall be limited to 20 mph.

F8.5 Construction workers shall be made aware of the sensitivity of wintering birds and how to minimise disturbance during their induction process.

F8.6 Post-construction, strategic landscaping shall be planted along the western boundary to screen pedestrian and vehicular movement activity adjacent to the grazing marshes.

F9 Plant Species

F9.1 All scarce plant species discovered during the clearance of the Park have been translocated to a nursery on Northern Triangle East. A walkover survey by a qualified ecologist shall be undertaken prior to construction. Any remaining nationally scarce plant species discovered shall be marked out, fenced off and protected until they are translocated or if not being translocated, until the end of the construction period.

F9.2 Construction workers shall be made aware of the purpose of the fencing during their induction process.

G. Water Quality

G0.1 All works shall be undertaken in accordance with standard regulatory practice to prevent pollution.

G0.2 The potential for impacts to occur as a result of on-site storage of materials and contamination of water by oil or other liquids shall be minimised by the following measures:

- Storage compounds for fuels, oils or other liquid chemicals shall be located away from surface water drains wherever possible. They shall have an impermeable base and impermeable bunds with a capacity of at least 110% and shall not drain directly into the surface water drains. Where practical, drainage from storage compounds shall be passed through oil interceptors prior to discharge.
- Spill kits shall be located near to watercourses and within the works compound.
- Drums and barrels shall be stored in designated, bunded safe areas within the compound.
- All drums and barrels shall be fitted with flow control taps.
- All drums and barrels shall be properly labelled.
- Small plant such as pumps shall be fitted with drip trays.

G0.3 The potential for impacts to occur as a result of disturbance of silt on land shall be minimised by implementing the following measures:

- All pumped drainage from the construction works, including areas used for temporary storage of construction materials or excavated soils, shall be passed through silt settlement treatment prior to discharge to surface watercourses or drains. Silt settlement treatments may, for example, include straw bales, grassland soakaways and silt settlement lagoons. Balancing ponds shall be at least partially excavated during the early phases of the construction programme to allow them to act as temporary settlement lagoons.
- Any pumping operations shall be carried out on a ‘permit to pump’ basis. All pumps shall have a tag indicating this authorisation.
- Where appropriate, access to watercourses shall be bunded to prevent contamination from surface water run-off.
- All roads and hard-standing shall be kept clean and tidy to prevent the build-up of oil and dirt that may be washed into a watercourse or drain during heavy rainfall
- The use of water spray to reduce dust or wash down construction areas shall be carefully regulated to avoid washing substantial quantities of silt etc. into the watercourses of surface water drains. Where large quantities of gravel, mud or other such material require cleaning, the area shall be swept clean prior to any subsequent hosing down.

G0.4 Foul water from welfare facilities shall be sumped and pumped out.

G1 General Construction Control Measures

Silt and Suspended Solids

G1.1 The following control measures shall be put in place to manage silt generation.

- *Excavations*: Where possible water shall be prevented from entering excavations using cut off ditches to prevent entry of surface water and groundwater.

- *Exposed ground and stockpiles*: The amount of exposed ground and soil stockpiles shall be minimised. Silt fences shall be constructed from a suitable geotextile to reduce silt levels in run-off water. The height of stockpiles of material for reuse shall be minimised to avoid damage to the soil structure. Spoil and temporary stockpiles shall be positioned away from watercourses and drainage systems. Surface water shall be directed away from the stockpiles to prevent erosion at the base.
- *Pumping*: Pumped discharges shall be made using a pump of suitable size and at a rate which shall not cause erosion or disturbance to the bed of the watercourse (see disposal of waste water section below).

Concrete & Cement

G1.2 The following control measures will be put in place:

- *Concrete & Cement Operations:* Operations shall be carefully controlled and supervised at all times to minimise the risk of any materials entering watercourses.

- *Concrete & Cement Washout*: Washing out and cleaning of concrete batching plant or ready mix lorries shall be carried out in a contained area as far from watercourses as practicable. The area shall be appropriately bunded and segregated to prevent the escape of contaminated water into a watercourse.

- *On-site concrete production:* Careful initial siting of concrete mixing/batching facilities is vital. A settlement and recirculation system for water reuse shall be provided to minimise the risk of pollution and reduce water usage.

Oil & Chemical Storage & Use

G1.3 All oils and chemicals shall be stored and handled in an appropriate manner to prevent leaks or spills to surface water or groundwater.

G1.4 All storage tanks, buildings, ancillary handling facilities, filling, drawing and overflow pipes shall be enclosed within an impervious bunded area of at least 110% of the tank capacity.

G1.5 The measures in the EA's Pollution Prevention Guidelines for Above Ground Oil Storage Tanks (PPG2) or latest equivalent guidance shall apply.

G2 Disposing of wastewater from site

G2.1 The most appropriate method of discharging wastewater from site without adverse environmental impact shall be used. The option that is most appropriate to a specific operation will be dependent upon the following factors:

- The quantities of water involved;
- Whether areas are available for storage and treatment;
- The level of suspended sediment in the water;
- The characteristics of the sediment; and
- Whether the wastewater is likely to be contaminated.

G2.2 The velocity of the peak flow at the Carter's Bay outfall shall not exceed (1m/s) unless in an emergency, to prevent erosion of the mudflats.

G2.3 London Gateway Park Development Limited (LGPDL) shall monitor the outfall for signs of scour. In the event that scour is occurring appropriate action shall be taken to minimise its effect. This may include the construction of concrete or stone blocks/teeth onto the outfall apron.

Site dewatering

G2.4 The Environment Agency shall be notified of any planned excavation that extends below the water table, or that is likely to require dewatering for more than 28 days. A license shall be required if it is intended to make use of the pumped water on-site (with the exception of dust suppression).

G2.5 Pumping to soakaways or grasslands is not permitted.

Pump to controlled waters

G2.6 A discharge permit must be obtained from the Environment Agency for discharge to controlled water (canal, river, lake etc). Treatment may be required to remove some contaminants prior to discharge in order to meet these consents.

Pump to tanker for off-site disposal

G2.7 If there is no alternative option, contaminated wastewater shall be tankered off-site by an appropriate contractor for disposal as a hazardous waste. Temporary welfare facilities shall include appropriate foul sewage storage for subsequent removal and disposal off-site.

G3 Water Quality Monitoring

G3.1 Watercourses shall be visually inspected daily to identify whether there have been any changes in water quality during construction operations. The aspects to be inspected are:

- Colour;
- Odour;

- Suspended solids; and
- Presence of oily films and discolouration.

G3.2 Where problems are identified it may be necessary to carry out more detailed scientific tests to determine the extent of the problem and treat as necessary.

G3.3 Visual monitoring of all wastewater discharged shall be undertaken as best practice. Chemical analysis shall be required when discharging water in line with an environmental permit.

G4 Drainage Pollution Control Measures

G4.1 Contractors shall ensure the ready availability of equipment to contain spillages, including oil booms, drain blockers and dams to contain soluble pollutants.

G4.2 The measures in the EA's Pollution Prevention Guidelines for the Use and Design of Oil Separators (PPG3) or latest equivalent guidance shall be adopted on-site.

G4.3 All re-fuelling and maintenance works during the construction phase must be undertaken off-site where possible. If this is not possible then an appropriate area of hardstanding, in line with the recommendations for construction compounds and storage must be provided.

G5 Water Demand Management Measures

G5.1 In order to help minimise water demand during the construction phase, an analysis of the key sources of demand for mains water shall be undertaken and an estimate of their associated costs for the duration of the project using mains supplies calculated.

G5.2 Processes to be considered would include:

- Concrete-batching.
- Bentonite-batching.
- Pressure cleaning.
- Grit blasting.
- Damping down.
- Wheel-washing.
- Block toilets and basins.
- Block showers and changing facilities.
- Canteen facilities.

G5.3 An appropriate feasibility study for the introduction of non-potable water supplies to substitute mains water supply where a drinking water supply is not required shall be carried out by the developer and reported to the EAG for consideration.

G5.4 Where temporary accommodation and facilities are to be used during construction, suppliers shall calculate the costs and benefits of supplying more water-efficient fixtures, fittings and systems as standard. Contractors should

be encouraged to fit in-line water purifiers in preference to bottled water. Other recommended practices are as follows:

- Make sure that taps are not left running or dripping.
- Fit controls to existing systems including self-closing taps, flow regulator/restrictors and trigger-operated spray guns & hoses.
- Investigate opportunities for re-using process water, e.g. from wheel wash area.
- Check equipment and systems periodically for leaks and insulate pipes to prevent against frost damage.

H. Dust

H0.1 During periods of dry and windy conditions, surfaces shall be damped down to minimise the volume of dust being generated and transported.

H0.2 The dust control methods shown in Table 7 shall be employed as appropriate.

H1 Haulage Routes

- Haulage routes shall be sited away from any sensitive sites.
- Heavily used areas shall be paved where possible, and swept regularly.
- There shall be a length of paved road prior to the exit from site.
- The width of haul roads shall be kept to the minimum required to reduce the surface area from which dust can be produced.
- Paved access roads and public highways shall be regularly swept using a road sweeper as required.
- Speed limits for site traffic shall be kept to a minimum (20mph) and enforced to minimise dust production.

Table 7 Dust Control Methods

Activity	Possible Dust Control Methods
Soil handling & excavation	Restrict the duration of the activity where possible. Seal and seed storage mound surfaces where possible. Where possible protect surfaces from winds until disturbed areas are sealed and stable.
Laying granular materials	Use water sprays
Material storage	Dampen material. Protect from wind and store under cover where possible.
Transport by vehicle within and off-site	Restrict vehicle speed. Water un-surfaced roads and paved roads Wheel or body wash at an appropriate distance from the site entrance. Load and unload in areas protected from the wind wherever possible. Minimise drop heights. Sheet or cover loaded vehicles wherever possible, Use water sprays/spray curtains to moisten material wherever possible. Sweep/wash paved roads. Use paved roads where practicable. Demolition and construction vehicles conform to at least Euro III standards.

H2 Demolition

- Enclosed and dampened chutes shall be used for dropping demolition waste to ground level.
- Buildings shall be screened with suitable screens and sheets to minimise airborne material.
- Asbestos shall be removed by a registered specialist prior to demolition.
- Bird droppings and other biological matter shall be removed prior to demolition.
- Crushing plant shall be sited away from sensitive areas.

H3 Plant

- Wheel washing shall be made available for all mobile plant leaving site to reduce the amount of mud being deposited on adjacent roads.
- Exhausts shall not discharge directly to the ground.
- Plant and equipment shall, where at all possible, be operated away from sensitive receptors near to the site.
- Any mobile plant that is used on site shall be appropriately licensed and operated within its design capacity.
- The Local Environmental Health Authority shall be notified in advance of any mobile crushing plant being bought to the site.

H4 Earthworks & Excavations

- Temporary or complete earthworks shall be sealed or re-vegetated as soon as possible.
- Earthworks shall be kept damp during dry periods of working.

H5 Materials Handling & Storage

- Account shall be taken of prevailing wind/sensitive receptors when locating stockpiles to minimise dust generation and impact.
- Stockpiles shall be kept to a practical height with gentle slopes.
- Stockpile surfaces shall be compacted and bound.
- The amount of time materials are stored on site shall be kept to a minimum.
- Waste or excess material shall be removed from the site as soon as practical.
- Long-term stockpiles shall be protected from wind erosion by screens, wind barriers, capping, vegetation or other effective methods.
- Loose stockpiles can be stabilised with binding agents to reduce wind erosion, however consultation with the Environment Agency is necessary in advance of binders being used.
- Dry or fine materials shall be stored in an appropriate location, such as inside a building or covered/sheeted bay.
- Material handling operations shall be kept to a minimum.
- All dust generating materials shall be delivered under tarpaulin covers.
- Spillages shall be cleared away as soon as possible if they occur using wet handling methods.
- Methods and equipment for cleaning up spillages shall be in place at all times.

- Vehicles carrying loose materials shall be adequately sheeted or contained during travel along site roads and upon leaving the site. Un-sheeting shall only be permitted in designated areas.

H6 Concrete Batching & Pouring

- Large quantities of concrete or bentonite slurries shall be mixed in enclosed areas.
- Dirt in formwork shall be vacuumed rather than blown out prior to concrete pours.
- Concrete pours shall be kept clean once they have gone off.
- Cement or other powder materials shall be delivered by bulk tanker and transferred to silos fitted with particle filtration systems.
- Silos shall be equipped with filters to remove dust from venting air and fitted with alarm systems to warn of overfilling or the failure of dust arrestment systems.

H7 Cutting/Grinding/Grouting/Packing

- Cutting and grinding on-site shall be kept to a minimum.
- Dust extractors or wet cutting shall be used when using concrete/stone cutters and saws.
- Standard angle grinders and disk cutters with no dust control shall not be used on site.

H8 Hot Bitumen Processes

H8.1 If hot bitumen processes are to be used during construction, best-practice measures shall be employed to minimise the production of fugitive black smoke emissions during operations. Such measures should include:

- Avoiding the overheating of bitumen;
- Covering pots and tanks when practical to do so;
- Extinguishing small fires immediately;
- Minimising and clearing up spillages; and
- Care to be taken during 'torching'.

H9 Damping Techniques

H9.1 A fine spray of water shall be used and applied regularly, especially during warm and sunny weather. The following shall be sprayed:

- Unpaved work areas subject to traffic or wind.
- Structures and building during demolition.
- Sand, spoil and aggregated stockpiles.
- During the loading and unloading of dust generating materials.

H10 Preventing Emissions and Odours

Vehicles & Plant

- Low emission plant and vehicles shall be used.
- Vehicles and plant used on site shall be well maintained and regularly serviced.
- All vehicles shall comply with MOT emissions standards at all times.
- Deliveries to site shall be controlled to minimise queuing.
- All engines shall be switched off when not in use.
- Refuelling areas shall be located away from sensitive receptors.

Additional measures

- Waste materials shall not be burnt on site.
- Waste shall be enclosed in a covered container and removed frequently.
- Organic waste shall be removed before it begins to decompose.

Chemicals on site

- Weather conditions shall be accounted for when planning activities that produce any aerosols, fumes, odours and smoke.

I Noise and Vibration

I0.1 All works shall be undertaken under a Section 61 consent (under the Control of Pollution Act) and shall comply with the recommendations set out in BS5228: 1997 Noise and Vibration Control and Construction and Open Sites Part 1: Code of Practice for Basic Information and Procedures for Noise and Vibration Control. Employees shall be made aware that the minimisation of noise is required at the Site. This shall include the following:

- Where practicable, ensuring the use of quiet working methods, the use of the most suitable plant, reasonable hours of working for the most noisy operations, and economy and speed of operations.
- Controlling noise and vibration at source and limiting the spread of noise.

I0.2 If noisy processes cannot be avoided the following measures shall be employed wherever practicable:

- Increasing separation distance between source and receiver if possible.
- Screening through barriers or other structures (such as site buildings).
- Management of timing of site operations.

I0.3 Whilst the volumes of construction traffic may not able to be reduced, careful attention shall be paid to the routing and timing of construction traffic.

I0.4 Measures to maintain good community relations shall include informing local residents on progress and the measures employed to minimise noise impacts wherever practicable.

I1 Noise Control Measures

I1.1 The following control measures shall be implemented where feasible:

Plant

I1.2 Plant shall be selected to minimise noise and vibration, the following should be considered:

- All plant shall conform to relevant standards and directives for noise emissions as stated above.
- Noise control equipment, such as enclosures, shrouds and silencers, on plant shall be fitted and used properly when in use.
- The fuel source for the plant shall be considered; electrically powered plant is often quieter than diesel or petrol driven plant.
- All plant shall be operated correctly.
- All plant shall be turned off when not in use.
- All plant shall be regularly inspected and maintained.
- Rotating, impacting or percussive machinery shall be fixed on anti-vibration mountings.

- Wherever practicable, noisy plant or processes shall be substituted with less noisy alternatives and shall be carefully sited to minimise noise disturbance.

Screening

I1.3 Temporary screens shall be used where appropriate to reduce noise levels to an acceptable standard.

I2 Monitoring

I2.1 A noise and vibration risk assessment shall be undertaken by the contractor to establish whether an application needs to be made for a Section 61 consent. Where required a Section 61 consent shall be obtained for work near the closest noise sensitive receptors. When determining the consent the Local Authority will have regard to 'Best Practicable Means'.

I2.2 On-site noise levels shall be monitored regularly by a suitably qualified person appointed specifically for the purpose, and in particular during the critical phases of construction, such as piling or when changes in construction method or plant are introduced. The required locations and intensity of noise monitoring shall vary depending on the construction phase and location of the works. As a minimum, noise monitoring shall be undertaken on a weekly basis at appropriate locations at 250 metres from the LDO northern and western site boundaries and the nearest appropriate occupied noise sensitive property. The survey shall follow the recommendations in BS5228-1: 2009. Noise and vibration measurements shall be taken to verify that noise levels are reasonable and not in contravention of any limits that have been imposed. If limits are exceeded or complaints received then these shall be reported to the Environmental Health Authority.

I2.3 Best Practicable Means (for example appropriate mitigation and sensible use of site equipment) shall be employed so the noise impact on wildlife on the grazing marsh is kept to a minimum. The results of the weekly noise monitoring shall be submitted to the EAG on request. As noted in paragraph F8.3, ambient construction noise levels (LAeq) shall not exceed 70dB(A) and sudden irregular noise levels (LAmax) shall not exceed 65dB(A) within 250m of the site boundary. If limits are exceeded then work shall stop immediately and the timing or method of working amended such that noise levels are effectively reduced.

J. Archaeology

J1.1 No protected archaeological sites or historic landscapes are present within the LDO area. The site nevertheless has potential for archaeological remains, deeply buried within floodplain deposits, as detailed in baseline studies including a geological 'Deposit Model' (Oxford Archaeology, February 2012, A Multi-Disciplinary Investigation of the Sediments at the London Gateway Site, Essex: Geophysics, Palaeoenvironment and Dating, Final Deposit Model Update). Areas of high archaeological potential, based on the 'Deposit Model', are shown on Figure 8.

J1.2 In the majority of cases it is expected that construction activities undertaken within the parameters established by the LDO Design Code will not have a significant impact on archaeological sites due to the planned thickness of artificially raised ground covering the site. The latter comprises existing made ground laid during development of the former Shell oil refinery and ground-raising permitted under the LDO.

J1.3 Wherever possible, any archaeological remains shall be preserved *in situ* through sensitive design and where this cannot be achieved any remains shall be investigated and recorded.

J1.4 Before construction takes place, groundwork designs of all types shall be assessed and a professional opinion provided by a suitably qualified and experienced archaeologist (a full Member of the Institute for Archaeologists) to determine whether formal assessment is required.

J1.5 Construction and drainage features that penetrate below the base of artificially raised ground into alluvial deposits shall in all cases be subject to formal assessment based on a comparison of finalised design drawings with the archaeological 'Deposit Model'. Features requiring assessment include (but are not limited to) drainage installations and other buried services, piled foundations, strip foundations, ponds and swales, and areas of deep ground mixing.

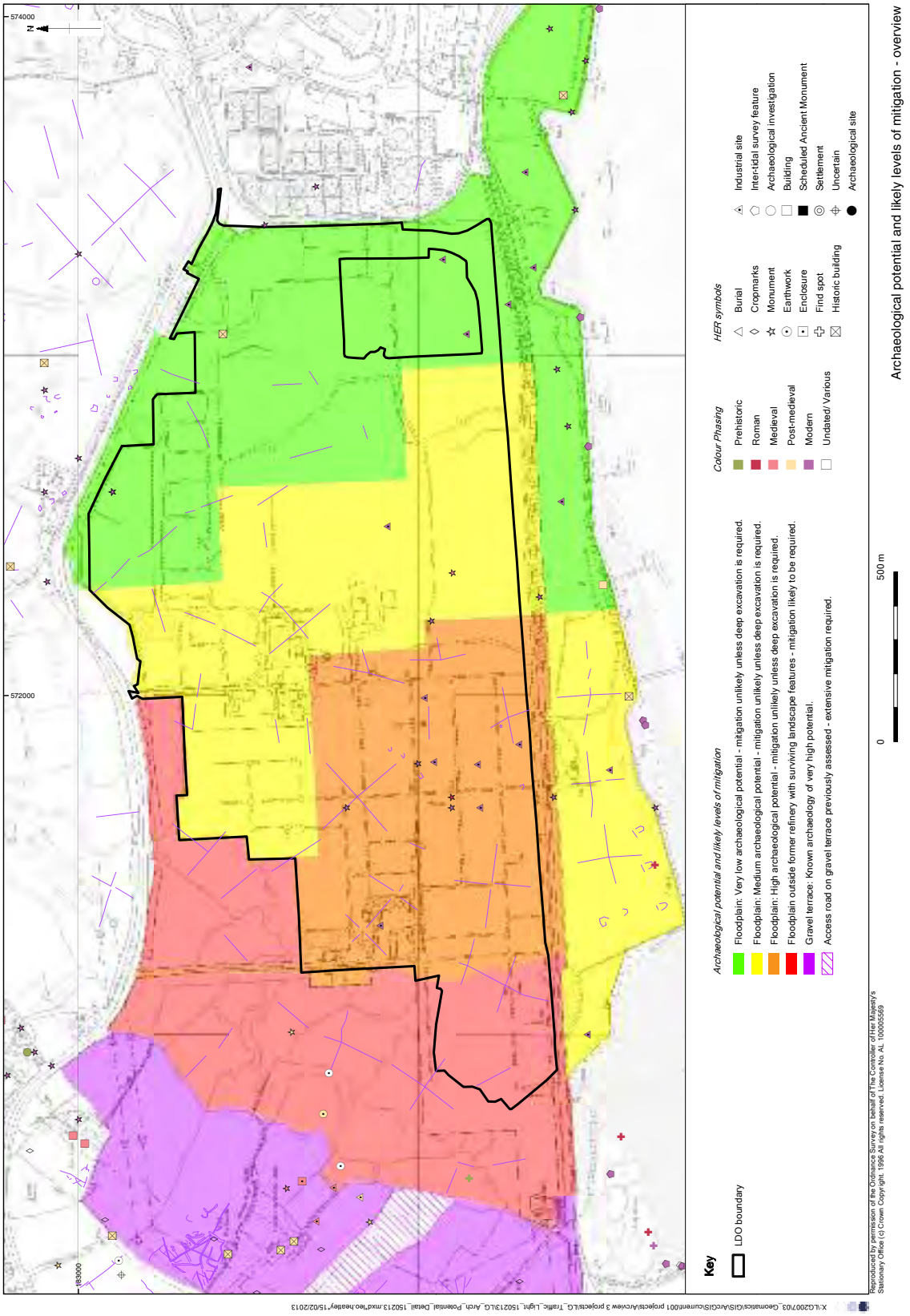
J1.6 Features that do not penetrate below the base of artificially raised ground shall not require archaeological investigation.

J1.7 Piling will not normally require archaeological investigation, although unusually dense piling schemes in archaeologically sensitive areas may trigger a requirement for investigation.

J1.8 Where preservation in situ is not feasible, investigation shall be required to identify any significant archaeological remains within the affected area and preserve them by record. Preservation by record may comprise monitoring during construction, trench investigation or other appropriate methods agreed with the relevant local authority archaeological advisor.

J1.9 The professional opinion, archaeological assessments and any investigation proposals arising shall be submitted for approval by the local authority archaeological advisor in advance of the LDO prior notification process in the form of an Archaeological Project Design (APD). The local authority

Figure 8: Areas of High Archaeological Potential



archaeological advisor shall have no more than 15 days to consider the APD. A short format APD is suitable for documenting the assessment process where no investigation is deemed necessary. Where investigation is required a full APD shall be produced, including a greater level of site specific information, commensurate with the scale and archaeological significance of the investigation. As a minimum the following information shall be included in APDs:

- **Principal contractor/ client name**
- **Plot name**
- **Contract reference**
- **OS grid reference**
- **Planned period of construction work**
- **Summary description of works**
- **Planning background:** Standardised text for LDO area
- **Archaeological baseline summary:** Standardised text for the LDO area can be used in the short format APD
- **Heritage baseline data drawing:** (not required for short format APDs)
- **Heritage baseline data reports:** List of relevant baseline report references
- **Archaeological Assessment:** Identification of the importance of the archaeological resource at the specific location
- **Impact Assessment:** Description of the anticipated impact of the proposed groundworks on the archaeological resource
- **Construction design drawings consulted:** List of design drawings consulted in making the assessment
- **Archaeological requirements:** Identification of specific measures proposed to either preserve archaeology in situ or preserve it by record.
- **QA sheet:** To be signed by the archaeological specialist, local authority archaeological advisor and client/ principal contractor representative at the following stages: a) acceptance of the APD; b) completion of any archaeological requirements; c) completion of interim report where relevant; d) completion of final report and archive deposition requirements where relevant (short format APDs require signature at stage a) only).

J1.10 Guidance describing existing archaeological baseline information, relevant professional standards, methods and the preparation of APDs is provided in the Archaeological Management Plan.

K Landscape and Visual Characteristics

K1.1 Control of waste and good housekeeping shall reduce any visual impacts from windblown material.

K1.2 Existing mature trees and hedgerows shall be protected in accordance with BS 5837:2012 Trees in relation to Design, Demolition and Construction-Recommendations.

Lighting

K1.3 The type and level of lighting provided will be dependent on the particular construction activities in progress. Lighting shall be in general accordance with EN 12464-2:2007 *Lighting of Work Places* (Part 2 – Outdoor Work Places). In particular Table 5.3 of that standard relates to building sites and recommends minimum lighting levels for construction areas to have an average illuminance of 50 lux with 40% uniformity.

K1.4 As a minimum, lighting will be likely to be required during the winter months and may also be required during the night depending on construction activities, programme and permitted working hours. When construction operations are undertaken at night, temporary lighting shall be provided in accordance with the HSE requirements. Typically the contractor will employ mobile tower floodlights powered by a diesel generator. These units can typically extend the mast to a height of between 5m-9m and are equipped with 4 or 6 1000W metal halide floodlights. The general lighting shall be supplemented where necessary with local task lighting.

K1.5 Monitoring of the temporary lighting installations shall be undertaken to ensure correct aiming angles are being achieved, and appropriate modifications made where necessary, should undue light spill or glare on human or ecological receptors be identified.

K1.6 Possible sources of obtrusive light are:

- Light trespass – light spilling beyond the boundary of the site on which a light is located.
- Glare – the uncomfortable brightness of a light source when viewed against a darker background.
- Sky glow or upward light produced from poorly controlled or aimed lighting.

K1.7 Consideration shall be given to the location and angle of site lighting to minimise the potential for obtrusive light to impact upon sensitive receptors.

K1.8 The following best practice measures shall be implemented:

- Lights shall where practicable, be positioned facing away from sensitive receptors. Where this is not possible lighting units will be placed in such a way that obtrusive light is minimised. Unless health and safety requirements dictate otherwise, no lighting shall be directed to face towards any sensitive receptor.

- All luminaires used around the perimeter of the site shall be mounted within the site, so that the main photometric distribution of the luminaire will be towards site works, keeping all light within the boundary of the development and preventing artificial light spilling outside of this.

- All artificial lighting used during the construction phase shall be directed below the horizontal to prevent unwanted upward light.

- Where necessary glare shields, baffles and cowls shall be used to control and minimise light distribution.
- Modern, high efficiency lamps and luminaires shall be employed throughout the site to be as energy efficient as possible.

- Illuminance levels shall be designed in accordance with BS EN 12464-2:2007 *Lighting of Work Places* and the areas shall not be overlit.

- When not in use all artificial lighting used for demolition or construction shall be extinguished; this shall include periods outside of normal site working hours.

- Any security lighting shall be kept to a minimum at all times.

- Checks shall be made each evening to ensure no lights are left on in error.

- Any complaints relating to obtrusive light shall be fully investigated by the site management.

Appendix 1:
Tier 1 Site Umbrella Emergency Plan

Purpose of Plans

The purpose of this Framework Emergency Management Plan is as follows:

To set an emergency planning framework for the development of detailed emergency plans by individual site contractors, operators, occupiers and management companies ensuring a consistent and coordinated approach;

To ensure that emergency incidents are suitably managed and mitigated in a safe and efficient manner, minimising the impact upon the development, its occupiers, its neighbours, the wider community and the environment;

To facilitate planning and liaison with emergency service providers, neighbours and other stakeholders

Requirement for the Plans

Statutory/Legislative Requirement

The statutory requirement for the provision of emergency management plans is set out within the following legislation:

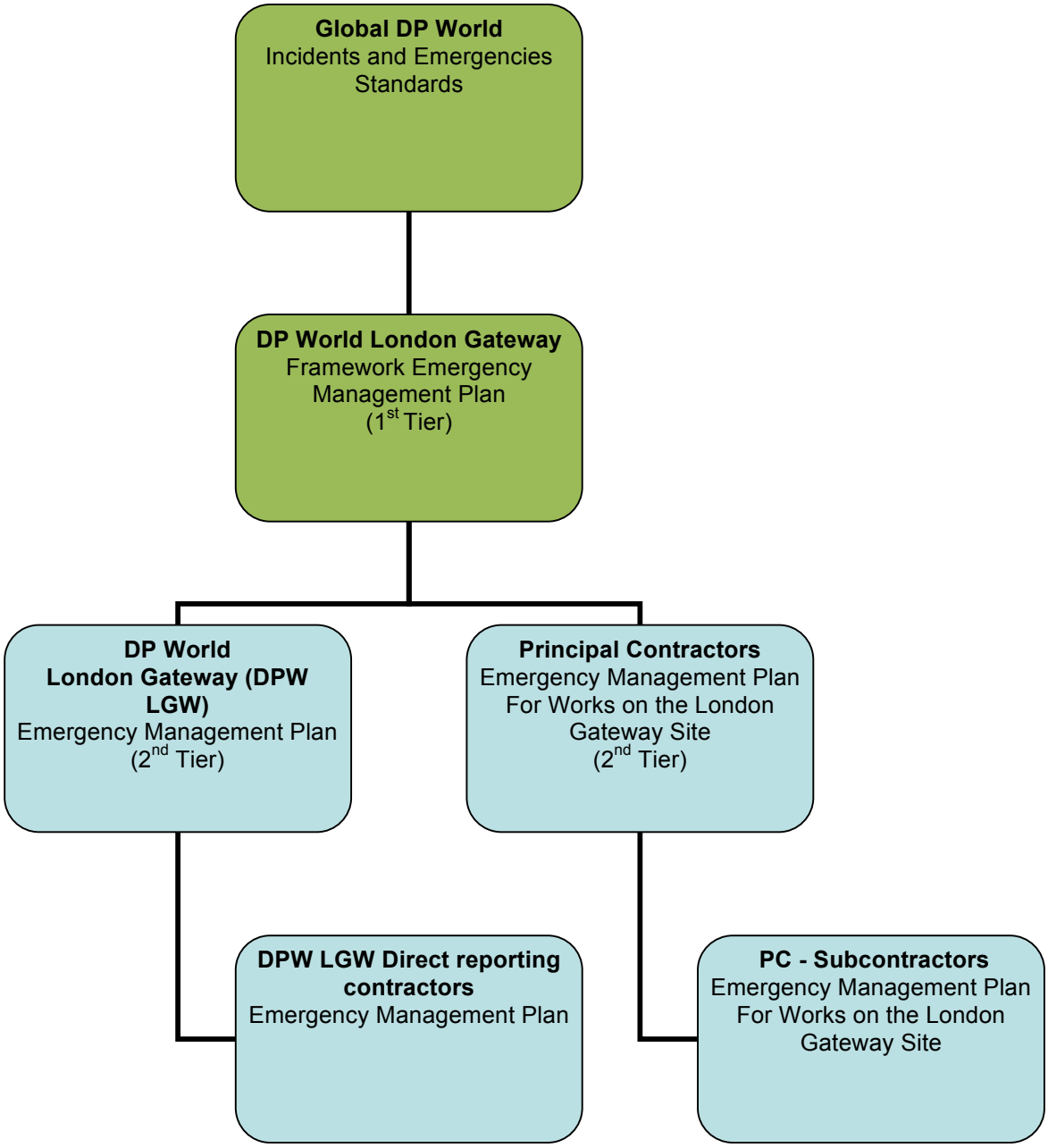
- **Health & Safety at Work Act 1974** (General duty to provide a safe place of work for all employees and others)
- **Health & Safety (consultation with employees) Regulations 1996** (Required to consult with employees on health & safety matters, provide information, training etc)
- **Management of Health & Safety at Work Regulations 1999** (Reg 4 - Implement preventative & protective measures against identified risk) (Reg 5 – Ensure effective planning, organisation, control, monitoring & review of control measures)
- **Regulatory Reform (Fire Safety) Order 2005** (Establish procedures for serious and imminent danger)
- **Construction (Design & Management) Regulations 2007** (Part 4 - emergency procedures, routes & exits)

Corporate Requirement

DP World requires all global business units to develop Emergency Management Plans in accordance with the organisations “Incidents and Emergencies Standard”. Once completed individual Emergency Management Plans, which develop proactive initiatives to reduce the impact of emergency situations and speed up the response and recovery process, will be incorporated within the organisations overall “Emergency Management System” to facilitate Regional and Global support if and when required.

Wider Plan Context

The flow chart below indicates the role of this framework Emergency Management Plan in the context of the wider D P World corporate Emergency Management System. The framework plan forms part of the overall DP World Emergency Management System and informs the development of individual emergency management plans by site contractors, occupiers, operators and management companies.


Global DP World
Incidents and Emergencies Standards
DP World London Gateway
Framework Emergency Management Plan
(1st Tier)
DP World London Gateway (DPW LGW)
Emergency Management Plan
(2nd Tier)
Principal Contractors
Emergency Management Plan For Works on the London Gateway Site
(2nd Tier)
DPW LGW Direct reporting contractors
Emergency Management Plan
PC - Subcontractors
Emergency Management Plan For Works on the London Gateway Site

Liaison with Service Providers and Local Stakeholders

DP World – London Gateway are committed to establishing suitable liaison between emergency service providers, site contractors, site occupiers, site management companies and local stakeholders and, to this end, have set up the London Gateway Emergency Planning Committee.

During the construction phase of the development it is anticipated that this committee will meet on a Regular basis, extending to an annual basis once construction has been completed and the site is fully operational.

The committee constitution and a list of member parties are provided within Appendix A. It is anticipated that membership will expand to include representatives of site contractors and occupiers as development proceeds.

In addition to the emergency planning committee, DP World – London Gateway are also committed to liaison with the Essex Resilience Forum, set up under the Civil Contingencies Act 2004. As a Harbour Authority, London Gateway is defined within the Act as a Category 2 Responder. Section 1 of the Essex Resilience Forum document "Combined Operational Procedures for Essex", which defines the roles and responsibilities of Category 1 and Category 2 responders, is provided within Appendix B

Site Context

Site Location

For the purpose of this framework Emergency Management Plan the overall London Gateway development area comprises several aspects which are defined as follows:

- The Port
- Park Site
- The Rail Line
- The Northern Triangle
- Site A (Ecological Mitigation)
- Site X (Ecological Mitigation)
- Off-Site Highway Improvement Works
- Activities within the river Thames

The location of the above development areas are indicated by the plans provided in the OHS Management System and / or Supporting Documents

Site Layout

Site layout plans for each area controlled Principal Contractors must be provided within the 2nd Tier

Emergency Plans

Access Routes for each element of the London Gateway development area are provided within the 2nd Tier Emergency Plans for the following access requirements:

- Construction access
- Operational access
- Maintenance access
- Emergency access

Local Sensitive Environments

Areas in the vicinity of the London Gateway site which are of particular environmental or ecological importance are indicated on the plans provided within the environmental management system

Particular Site Considerations

The following considerations are known to be relevant to the London Gateway development area:

- Working in or proximate to water
- Unexploded ordinance (UXO's)
- Working proximate to live highways
- Working proximate to a live rail line
- Aviation fuel and bitumen pipes
- Neighbouring COMAH sites
- Overhead power lines

Critical Site Infrastructure

Critical site infrastructure is defined as infrastructure which, if unavailable or offline as a result of an incident, would materially impact upon the ability to manage the incident. Individual Emergency Management Plans should identify elements of critical infrastructure relevant to the particular plot or site area under consideration and alternatives in the event that critical infrastructure is offline.
In terms of the wider London Gateway site critical infrastructure is considered to include the following

- Site access roads (emergency access/evacuation routes)
- Gatehouses
- Emergency control rooms
- Information technology hardware
- Communications hardware
- Drainage outfalls
- Fire fighting equipment

Incident Hierarchy

An emergency incident is defined as an incident which has the potential to result in damage or harm to human health, physical infrastructure, the environment, commercial/brand reputation or have potential financial impacts.

The Table below indicates the DP World incident hierarchy structure and severity thresholds. Whilst the overall hierarchy structure and safety, environment and commercial thresholds should be reflected as stated within individual 2nd Principal Contractor Emergency Management Plans, financial thresholds are simply provided as an indication of DP World's global classification.

Severity Level	Safety	Environment	Financial Cost ($US)	Commercial/ Brand Exposure	Reporting to LGW
1 Insignificant	Hazard identified with no injury	No environmental damage Environmental hazard identified On site release of pollutant (<20 litres/Kg)	Financial loss 0 – 20K	Reputation loss from local staff Disruption to contract	Must report to LGW within 2 Hours
2 Minor	First Aid Treatment, 1-2 days lost	Onsite release of pollutant (<200 litres/kg) that is immediately contained without causing land contamination AND does not migrate offsite to land or waterways.	Financial loss 20K – 50K	Reputation loss (local media attention) Disruption to contract	
3 Moderate	Medical treatment, >3 days lost time	Onsite release of pollutant (<200 litres/kg) that is mostly contained but causes moderate contamination (refer to financial loss) OR offsite release of pollutant (<200 litres/kg) to land or waterways.	Financial loss 50K – 250K	Reputation loss (State/Country media attention) Disruption to contract	Must Report to LGW immediately
4 Major	Single fatality, extensive injuries such as permanent disability/ amputations and/or resuscitation	On-site release of pollutant (200 to 2000 litres/kg) that cause major contamination (refer to financial loss) OR off-site release of pollutant (200 to 2000 litres/kg) to land or waterways	Financial loss 250,000 – 500,000	Reputation loss (National media attention) Disruption to contract	Must Report to LGW immediately
6 Catastrophic	Multiple Fatalities	Onsite release of pollutant (>2,000 litres/kg) that causes catastrophic land contamination (refer to financial loss) OR offsite release of pollutant (>2,000 litres/kg) to land or waterways.	Financial loss >500,000	Reputation loss (international media attention) Disruption to contract	

Incident Management

Emergency Management Team

Each individual Emergency Management Plan is required to establish an Emergency Management Team, which should comprise the following team members:

- **Incident Commander** (Lead contact point for emergency services and site communications)
- **Site Incident Warden (s)** (Liaison between Area Warden and Incident commander, this position and the area warden can be managed by one member of staff if able to)
- **Traffic coordinator**
- **Communications Manager**

Instructions within individual Emergency Management Plans should make provision for communication by individual Incident Management Team's to the site-wide Emergency Control Centre discussed within Section 4.2.

Emergency Control Centre

A site-wide Emergency Control Centre (ECC) is currently provided by DP World near the Gate 3 gatehouse (the Biometrics Portakabin). The role of the site wide ECC is to provide a central point of information for the coordination of emergency incidents, including the coordination of access for emergency services. Where incidents are of a severity whereby they cannot be managed by the individual contractor without external assistance, the ECC must be informed immediately. Such incidents include the following:

- Any incident which requires the assistance of the emergency services (fire, ambulance, police)
- Any incident which results in the spillage of chemicals or pollutants in excess of 20 litres
- Any incident which has the potential to affect neighbouring plots or contracts within the London Gateway site or land beyond the boundary of the London Gateway site.
- When contacting the ECC the following information should be provided:
- The nature of the incident
- The location of the incident
- The extent of impact (number of persons involved/extent of spill/extent of damage to infrastructure)
- The nature of injuries or damage
- In relation to spillages details of the material or chemical involved

The ECC can be contacted by phone on 01375 644625 or by email security.gate3@londongateway.com

Incident Commander

Each site contractor, occupier or operator is required to make appropriate arrangements for the provision of an incident commander (IC). This will include a rota of on-site staff during operational hours and appropriate out of hours call out arrangements.
The IC should be informed of an incident at the earliest opportunity. Once informed of an incident the IC will relieve the person in charge and assume control of the incident providing the necessary central coordination and issuing necessary instructions. The IC will not usually attend the scene of the incident instead remaining in a position where the incident can be effectively coordinated and controlled. Where incidents are of a severity that requires coordination via the ECC the Incident Commander should relocate to the ECC as soon as practical to do so.
For each respective contract or plot the IC will be responsible for:

- Determining the scale of the incident
- Determining whether an emergency situation shall be declared
- Ensuring that Emergency Service Providers (ESP's) have been notified
- Ensuring that the site ECC has been notified

- Directing specific operations (response/consolidation)
- Implementing specific procedures
- Ensuring appropriate response to support casualties
- Company liaison (with DP World and ESP's)
- Declaring an end to the emergency and co-ordinating the recovery process
- Incident debrief and review (lessons learned)
- Incident reporting

Site Incident Warden

Each site contractor, occupier or operator is required to make arrangements for the provision of a Site Incident Warden (SIW) during operational hours.

The SIW will be mobilised by the IC and will effectively provide the IC's eyes and ears on the ground. For each respective contract or plot the SIW will be responsible for:

- Carrying out the instructions of the IC
- Taking control of the scene, securing the area and directing all activities until the arrival of ESP's
- Setting up a field incident control post and required staging areas
- Sizing up the incident and directing incident response and rescue
- Recommending response strategies to the IC and ESP's
- Maintaining communication with and between the IC and ESP's
- Assisting the IC in coordinating activities

Traffic Coordinator

Each site contractor, occupier or operator is advised to make arrangements for the provision of a Traffic Coordinator (S) (TC) during operational hours.
The TC will be mobilised by the IC and will facilitate traffic management for external emergency staff and the on site Emergency Management team to and from the incident site

Communications Manager

For incidents with a commercial/brand exposure impact of level 2 or above potential exists for a degree of media interest. In all circumstances no direct communication should be undertaken by representatives of site contractors, occupiers, operators or management companies with local, national or international media relating to emergency incidents at the London Gateway site. Instead, all media contact should be directed to the DP World Communications Manager (DPWCM).

The DPWCM will be informed of an incident, or any relevant facts pertaining to an incident, by the site-wide ECC. During the recovery phase of an incident the DPWCM may contact the IC's of individual contractors or site occupiers to obtain further information.
The IC's of individual contractors, site occupiers, site operators or site management companies are required to report any contact by the media in relation to emergency incidents to the DPWCM.

Potential Incidents

It is considered that potential exists for the following incidents to occur at the London Gateway development site (note this is not a exhaustive list, Principal Contractors must conduct relevant Risk Assessment to identify Hazards:

Potential Incidents	Incident controlled		Likelihood of Incident		
	1st Tier EMP	2nd Tier EMP	Low	Medium	High
Neighbouring Emergencies	✔		✔		
Gas Leak	✔		✔		
Suspicious articles		✔	✔		
Civil disturbance / personal threat		✔	✔		
Bomb Threat	✔	✔	✔		
Off-site event	✔		✔		
Collision with aviation / bitumen pipeline	✔	✔	✔		
Vehicular accident close road or prevents access	✔	✔	✔		
Flooding	✔		✔		
Extreme Weather Conditions		✔	✔		
Large Land / Air / Water Contamination		✔	✔		
Small Land / Air / Water Contamination		✔	✔		
Fire		✔	✔		
Industrial incident/medical emergency		✔	✔		
Explosion		✔	✔		
Evacuation	✔	✔	✔		
Electricity Supply Failure		✔	✔		
Vehicle / personnel / cargo in water		✔	✔		
Vehicle / personnel / cargo bogged down in water		✔	✔		
Biological Threat		✔	✔		
Collapse of Excavation		✔		✔	
Collapse of Crane or Piling Rig		✔		✔	

Where relevant, individual Emergency Management Plans are required to provide risk assessments and emergency procedures for each of the incidents identified above, in addition to any other incidents for which a reasonable potential for occurrence exists.

Where appropriate, procedures should define suitable measures to limit the effects of atmospheric, aquatic or land pollution as far as reasonably practical.

Incident Response

Planning

Informed by identified potential incidents and associated risk assessments, individual Emergency Management Plans are required to demonstrate a reasonable level of planning to control potential emergencies. As a minimum such planning should include the identification of procedures for the following:

- Emergency exercises and drills
- Provision of assembly and staging area
- Provision and maintenance of emergency equipment
- Recording of hazardous materials stored on site

Each individual site contractor, operator, occupier or management company will be required to become a member party to the London Gateway Emergency Planning Committee (see Section 1.5), and the respective Incident Commanders will be expected to attend committee meetings on their behalf to facilitate wider site emergency coordination.

Management

The individual Emergency Management Plans of site contractors, occupiers, operators and management companies should set out procedures for the following stages of incident management:

- Initial Response
- Incident Consolidation
- Incident Recovery

The procedures should define the roles and responsibilities of site operatives and the Incident Management Team (IMT) (see Section 4). In particular procedures for communication with emergency services and the site wide emergency control centre should be defined for each incident phase.
In defining the roles and responsibilities of first responders (operatives who discover an incident), Incident Controllers, Site Incident Wardens, Area Wardens and Incident Facilitators, the use of action cards is encouraged.

Incident Reporting

Incident reporting criteria for DP World

All Incidents with a Incident hierarchy of 3, 4 and 5 (as identified in section 3) must be reported to the DP World London Gateway Health, Safety and Security Manager immediately, this must be done by a phone call to the land line and mobile number, if the HSS Manager is unavailable a voice message must be left and the incident must then be reported to Contact 2 on the Emergency Contacts list (Appendix G) and so on until verbal communication has been achieved

All other Incidents with an incident hierarchy of 1 and 2 (as identified in section 3) must be reported to the DP World London Gateway Health Safety and Security Manager within 2 hours of the incident happening, this can be done by Phone, Email or Text

When reporting an incident to DP World the following information must be provided:

- The nature of the incident
- The location of the incident
- The extent of impact (number of persons involved/extent of spill/extent of damage to infrastructure)
- The nature of injuries or damage
- In relation to spillages details of the material or chemical involved

Internal Incident Reporting

All Incidents must be reported to in line with each individual company requirement an overview of this procedure must be documented within the 2nd Tier Emergency Plans

Business Continuity

Objectives

Individual emergency management plans are expected to set out proposals to satisfy the following objectives:

a) To maintain service provision to DP World – London Gateway, as defined within service agreements, during emergency incidents
b) To ensure that the impact upon the wider London Gateway site is minimised during emergency incidents (i.e. maintaining through access)

It is noted that whilst objective (b) is relevant to all parties (contractors, operators and occupiers) with a responsibility for an area of site, site occupiers do not have a responsibility to maintain service provision to London Gateway in terms of their business output and therefore objective (a) is directed mainly towards site contractors and operators.

Site Wide Business Continuity Planning and Provisions

The common infrastructure areas of the London Gateway business park and site access provisions are managed by DP World London Gateway who will be responsible for maintenance of the following services within the common infrastructure areas up to individual plot (operational or construction) boundaries:

- Vehicular and pedestrian access
- Gas
- Electricity
- Communications
- Water
- Drainage
- Sewerage

Provisions for continuity of service in relation to common infrastructure services will be discussed within the Park Common Infrastructure Emergency Management Plan.

Business Continuity Requirements of Individual Emergency Plans

Individual Emergency Management Plans of site operators or contractors will be required to consider the provision of services within individual plots (operational or construction) and should identify procedures to minimise interruption to service provision to DP World – London Gateway during emergency incidents, including impact on programme or work schedules.

Document Management

Development and Adoption

It is anticipated that the requirement to develop individual Emergency Management Plans and procedures will be secured within individual construction contracts or tenancy agreements. It is recommended that draft documents are initially developed for the purpose of consultation with local Emergency Service Providers and Emergency Planning Committee members. Following consultation the documents should be formally adopted by the related contractor or tenant.
All Emergency Management Plans should consider the following aspects of document management:

- Maintenance of a central document history
- Recording and reporting of incidents
- Periodic review

All 1st Tier and 2nd Tier Emergency Management Plans must be stored on Business Collaborator. A copy of the most up to date 1st and 2nd Tier Emergency Management Plans must be stored in the site-wide Emergency Control Centre (ECC) located near the Gate 3 gatehouse (the Biometrics Portakabin).

Dissemination and Training

Individual Emergency Management Plans are required to set out procedures for dissemination to staff and sufficient staff training. This should include procedures for site induction.

Change Control

It must be acknowledged that individual Emergency Management Plans of site contractors, occupiers, operators and management companies will be constantly evolving over the life of the development:

- Amendment to site layout, including site access arrangements
- New site operations or construction activities
- Changes in personnel
- Changes in skills and training
- Statutory or legislative amendments
- Amendment to corporate policy

It is therefore clear that individual management plans must set out effective measures for document management and change control to ensure that general site operatives, those with particular responsibilities, London Gateway management and Emergency Service Providers are informed of the latest procedures.
Individual Emergency Management Plans are required to consider the following aspects of document

management in relation to amendment to plans or procedures:

- Identifying procedures for proposing amendments
- Identifying procedures for consultation and subsequent authorisation and adoption
- Informing relevant parties of adopted revision
- Identification of latest plan or procedure revision
- Removal of superseded plans or procedures from circulation

DOCUMENT AMENDMENT HISTORY:

The latest change to this document is displayed at the footer; further documented amendment history is stored in the Master OHS Management System files and is maintained by the Top Management Appointee.