ENVIRONMENTAL RISK ASSESSMENT

The Dock, St John's Road, Boston, Lincolnshire, PE21 6BN

Port of Boston Limited

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Waste, Planning & Environmental Consultants

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1.0	28/02/2024	CP	--	Application copy

Contents

List of Appendices:

Appendix I - Drawings

1 Introduction

1.1 Note

1.1.1 This Environmental Risk Assessment (ERA) considers the potential and actual risks associated with the use of the site at The Dock, St John's Road, Boston, Lincolnshire, PE21 6BN which will be operated as a household, commercial and industrial (HCI) transfer station comprising the acceptance, storage and transfer of SRF and RDF bales. No mechanical treatment will take place at the site.

1.1.2 The site will be operated by Port of Boston Limited in accordance with an Environmental Management System (EMS) and other associated management plans which will form part of the Environmental Permit (EP) regulated by the Environment Agency (EA).

1.1.3 All site staff should be provided with a copy of this ERA and be aware of where it is located on site.

1.1.4 All environmental risks identified in this document should be acted upon accordingly by site management to ensure all environmental risks can be appropriately managed/controlled.

1.1.5 This document primarily considers environmental risks associated with the site. This does not aim to provide detailed Health and Safety risk assessments as required separately through the necessary legislation.

1.1.6 Specified waste management operations include waste disposal and waste recovery operations listed Annex IIA and IIB of The Waste Framework Directive 2008/98/EC and are listed in summary below:

- R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced)

2 Site Receptors

2.1 Receptor Plan

2.1.1 A Receptor Plan has been produced to accompany this ERA and is shown in Appendix I referenced as on Drawing No. POB/3401/04. The receptors highlighted are those which are considered to be at risk from the site.

2.2 List of receptors

2.2.1 The receptors illustrated on the Receptor Plan are also shown in the table below with approximate distances to these properties.

Table 2.1 – Distances to Selected, Representative Sensitive Locations

Receptor	Location	Approximate distance from site boundary (m)
Numerous surrounding industrial and commercial uses	Surrounding	0 – 1,000
Residential dwellings in the surrounding area	Surrounding	115 – 1,000
Schools	North-west – north-east	570 – 950
Surrounding highway networks	Surrounding	200 – 1,000
Nearby leisure / retail	Surrounding	0 – 1,000
Surface Waters including the Haven watercourse to the south and east of thew site plus other surface waters in the vicinity	Surrounding	10 – 1,000
Priority habitat inventory; Mudflats and Coastal Saltmarsh	South, west and east	30 – 1,000
PPriority habitat inventory (deciduous woodland)	East	450
Local Nature Reserve	South-east	740 – 1,000

2.2.2 The above receptors are clearly identifiable on Drawing No. POB/3401/04 which should be referenced when reviewing these receptors. The receptor plan is scaled meaning the above areas can be clearly reviewed with exact distances from the site b

3 Environmental Risk Assessment Model

3.1 Fundamental considerations

3.1.1 **Source/Hazard:** A property or situation that in particular circumstances could lead to harm.

3.1.2 **Consequences:** The adverse effects or harm as the result of realising a hazard which causes the quality of human health or the environment to be impaired in the short or long term.

3.1.3 **Risk:** A combination of the probability of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.

3.2 Pathway

3.2.1 Important in the assessment of a particular risk(s) and to inform the subsequent management of the risk(s) is the identification of the pathway(s) through which the risk may affect the identified receptor(s). The following are examples of pathways:

- Air
- Ground
- Water
- Direct contact / exposure

3.3 Consequences

3.3.1 The following table highlights the consequences of the hazard(s) identified and the abbreviations for each as used in the Risk Assessment Table in Section 3:

Abbreviation	Consequences
A	MINOR INJURY
B	MAJOR INJURY
C	DEATH
D	AIR POLLUTION
E	WATER POLLUTION
F	POLLUTION OF LAND

3.4 Effects of consequences

3.4.1 In order to quantify the level of risk and identify the appropriate management procedures, the potential effects must be considered, as outlined in the table below:

Abbreviation	Effect of Consequences	Management Required?
S	SEVERE	In all cases
Mo	MODERATE	In most cases
Mi	MILD	Occasionally
N	NEGLIGIBLE	No

Note: "Management" is the action required to reduce the risk of a hazard causing a problem on site. Contingency measures are procedures which are in place to reduce the consequences of a hazard.

3.5 Risk estimation and evaluation (probability/frequency of occurrence of hazard)

3.5.1 The following table allows the likelihood of an occurrence of an identified risk to be assessed:

	Probability	**Evaluation**
1	Very likely	Could occur during any working day
2	Likely	Could occur regularly
3	Possible	Event possible
4	Unlikely	Event very unlikely

3.6 Risk assessment outcome (combination of probability & consequence)

3.6.1 The following table shows the resultant risk of an identified hazard or potential situation. This uses the hierarchy of both probability and consequence to assess the level of risk. The level of risk determines what level of management would be required in order to reduce the risk of occurrence and/or scale.

		Consequence			
		S	**Mo**	**Mi**	**N**
Probability	**1**	**High**	**High**	Medium	Low
	2	**High**	Medium	Low	Near-Zero
	3	Medium	Low	Near-Zero	N/A
	4	Low	Near-Zero	N/A	N/A

3.6.2 Where the risk assessment outcome is high, first-level management of the risk is essential, i.e. removal of hazard, implementation of major infrastructure/structural design measures to contain the risk/hazard and company policy changes to incorporate the management of the risk. All risk management measures must be supplemented with detailed induction training, spot training and tool-box talks to ensure all site staff

and users are made fully aware of the risk/hazard, all potential consequences and necessary management and contingency procedures.

3.6.3 Where the risk assessment outcome is medium, the management of the risk should be tackled by management or delegates. If removal of the hazard is not possible, management will normally be met through implementing minor structural design measures or by imposing procedures for the prevention of occurrences which will be conveyed to all site staff through the appropriate training, including any contingency measures/procedures.

3.6.4 Where the risk assessment outcome is low, the management of the risk can be done wholly through appropriate training to site staff including any contingency measures/procedures.

3.6.5 Where the risk assessment outcome is near-zero, site staff should be made aware of the possibility of an occurrence and contingency measures should be readily available to all staff should they be required.

4 Risk assessment table

4.1 Table

4.1.1 The following pages contain the site-specific risk assessment for the site with appropriate remedial actions, recommendations and comments included for each identified hazard, potential contaminant or situation. The table also contains references to the appropriate section(s) of the site's EMS for additional management procedures. As discussed in Section 3.6 above, all situations which identify a risk from Low –High should be incorporated into the staff/visitor training schedule, where appropriate and acted on as required.

Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Dust / particulates	Site surfaces (dry and windy weather) Waste delivery vehicles (dry and windy weather)	Air	See section 2	A, B, D, E	Mi to Mo	3	Low to Near Zero	Due to the waste types handled and processed on site, it is not envisaged that dust will be problematic for adjacent surroundings. However, the operator is aware that the containment of dust on site and the prevention of its escape is paramount to operational compatibility with these residents and businesses. No treatment of waste is to be permitted at the site. Vehicle speed on site is restricted to 5 miles per hour. Signs are erected to advise drivers of the speed limit. Vehicle drivers will be instructed to ensure they use main access routes on site and avoid areas which harbour excessive mud/dust build-up. Off-site water supplies are available. The site manager or designated operative will carry out regular visual inspection for dust emissions and record any findings and action taken in the site diary and/or on inspection form. Site surface comprises concrete and will not create excessive dust. Complaint's procedure in place.

Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Odour	Storage of potentially odorous waste material externally Cracks in concrete leading to trapped waste in unsealed joints. Poor housekeeping leading to waste becoming trapped in site surfaces, storage bays or buildings Dry/hot weather conditions exceeding three dry days Prevailing wind to towards residential receptor locations Staff negligence leading to odour releases from unauthorised waste acceptance and treatment	Air	See Section 2	A, D	Mi to Mo	3	Low	The site will operate in accordance with an approved Odour Management Plan (POB-3401-G)
Litter	Litter escaping from storage bales which are damaged Vehicles delivering / removing and waste during dry and windy weather conditions including unsheeted / poorly sheeted vehicles Poor or faulty storage containment i.e. bays Poor housekeeping Staff negligence leading to litter escaping off site Winds exceeding 4 or above on the Beaufort Scale meaning litter could be blown around on site or exceed surrounding containment	AIR	See Section 2	A to C E,F	Mi to Mo	4	Low	The has the following to prevent litter escaping: - All waste storage comprises bale stacks which are wrapped ensuring litter will not present an issue. - Any damaged bales upon delivery to the site will be returned to source. - Any damaged bales discovered on site following site inspections will be quarantined in a skip and removed off site. - Daily inspections for litter. - Use the complaint's procedure from the EMS to ensure any litter complaints are addressed and substantiated. In addition to the above, the site does not mechanically process any waste. There are no free-standing piles of waste on site. There are no wheelie bins or commercial trade bins stored on site. All vehicles entering and leaving the site will be sheeted to comply with the requirements of the Duty of Care legislation.

Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Noise / vibration	HGVs travelling to and from the site for delivery/collection of wastes Loading/unloading of waste delivery vehicles Small vehicles travelling to and from the site (e.g. staff and visitor's cars, courier van deliveries etc.)	Air	See Section 2	A, D	Mo	3	Near Zero	Background noise levels are high in the surrounding areas given the nature of the site and that it is situated at a busy port. Noi mechanical treatment of waste takes place at the site. All vehicles are required to be driven onto and off site with due consideration for neighbouring premises. HGV movements will be spread out evenly throughout the day. Vehicles must be well maintained and operated with silencers. Moving parts to be regularly lubricated. All vehicles must be driven slowly around the site (5mph site speed limit). Mobile plant inspected and monitored at least twice per day. Engines to be switched off when not in use. Reversing alarms to be preferentially fitted with white noise alarms to minimise impacts on neighbouring sites. No shaking of vehicle bodies whilst raised. Engines to be switched off when not in use (no idling policy). Plant to be well maintained and operated with silencers. Moving parts to be regularly lubricated. Operation of mechanical treatment plant i.e. tyre baler will be carried out within a building. IAll those working on and visiting the site to be made aware of need for considerate driving and keeping vehicles well maintained. Small vehicles will arrive marginally earlier than the main site operating hours. Complaint's procedure in place.

Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Vermin causing leptospirosis and other respiratory diseases	Poor housekeeping Staff negligence leading to acceptance of unauthorised waste giving rise to pests Broken bales of waste	Water, direct contact with waste	Site personnel/ visitors Surrounding site users/occupiers Surface waters Residential receptors Schools	A to C	Mi to Mo	4	Near zero	The containment of all waste and the strict waste acceptance criteria presents a very low risk of the site attracting pests. All waste stored is wrapped meaning it will not give off any odours which could attract pests. The wastes before being unloaded into the dock will be inspected for contrary items or damaged bales and any material found not suitable i.e. non-conforming waste or damaged bales, the load will be rejected and delivered back to the source. Any wastes identified on site which are non-conforming or if any bales are discovered to be damaged during daily inspections, they will be quarantined in a sealed container and removed off site. Wear PPE - gloves and masks as appropriate Site inspections daily Strict pre waste and normal acceptance procedures in place Refer to Section 4.2 of EMS in terms of daily inspections Pest controller called in the event of pests being present at the site or complaints received from receptors Any wastes with the potential to cause pests accepted which are not shown on Drawing No. POB/3401/03 will be stored within a secure bay or container and removed from site within 48 hours.
Fire/ smoke / particulates	Refer to Section 2.1 of operator's FPP	Air, direct contact	See Section 2	A to F	Mi to S	3	Medium	Refer to Fire Prevention Plan POB-3401-B. No fires are permitted on site. No waste will be burnt on site.

Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Vehicle collision/ accidents including impacts and injury	Poor visibility Spillages of oils/fluids causing vehicles to skid Lack of PPE worn by staff Staff negligence i.e. mobile plant operators Excessive waste storage causing collapse of stored materials / falling materials and reducing accessibility around the site	Direct contact	See Section 2	A to F	Mi to S	3	Low	Good housekeeping (Refer to Section 4.2 of EMS) in terms of daily inspections. The location of the above areas are shown on Drawing No. POB/3401/03 and comprise bale stacks which have suitable vehicle passing areas around all stacks. Spill kits located off site in the event of a vehicle malfunction. Good vehicle management and refer to the FPP in relation to preventative maintenance check to reduce the likelihood of fixed or mobile plant failure. An accident logbook is kept in the site office so all new and existing staff members can review previous accidents. Encouragement for staff for greater number of “accident-free days” to encourage a safer working environment Appropriate signage throughout the site. All staff have radio’s and use horns / alarms on equipment to alert them of their presence The operator has trained staff who control vehicle movements throughout the site. Vehicle movements on site restricted to 5mph. Dedicated staff & visitor parking areas as shown on Drawing No. POB/3401/03. Staff training procedures shown in Section 6 of the EMS.
Leachate	Poor housekeeping Staff negligence leading to acceptance of unauthorised waste giving rise to leachate Overflowing trade waste bins Defects to the concrete surfaces storing waste Defects to the site drainage system	Ground	See Section 2	E, F	Mi to S	3	Low	The site does not receive waste types which are liable to give rise to contamination. All waste stored comprise RDF/SRF bales which are securely wrapped. Regular (minimum daily) checks of site surface infrastructure. 5In the event of a spillage a spill containment kit (absorbent pads, booms or granules) will be used to prevent further spillage and the contaminated absorbents placed in a skip for disposal to a suitably permitted facility. FPP in place which details suitable fire water containment measures.

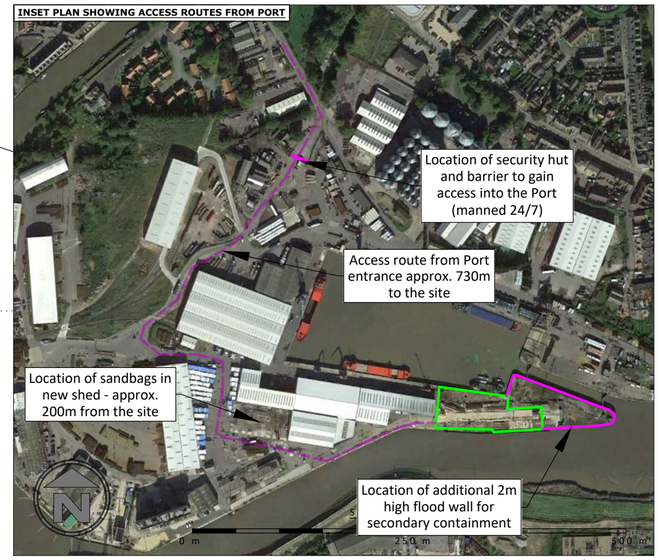
Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments
Hydrocarbons including release of gases/fumes/ vapours/ volatiles	Fixed and mobile plant malfunction Overturned vehicle plant/plant failure Reaction between stored wastes	Ground - direct contact, ingestion Inhalation (of volatiles)	See section 2	A, B, D, E, F	Mi to S	3	Low	No fuel stored on site All waste accepted undergoes strict acceptance procedures to ensure any contaminated waste is returned to the producer's vehicle or safely quarantined on site. Spill kits kept off site which are close to source(s) of hazards. Preventative maintenance schedule for plant/machinery. Any spillages identified will be dealt with in accordance with the spillage procedures outlined in the EMS.
Adverse weather conditions	High winds Poor visibility due to fog Freezing weather conditions Droughts, warm, hot weather Long periods of rainfall i.e. excessively for 3 no. days	Direct contact	Site personnel / visitors Vehicle users Pedestrians	A to F	Mi to S	3	Low	**High winds** – All waste stored comprises bale stacks which are wrapped and as each bale weighs approximately 1.2 tonne, they are unlikely to be affected by high winds. **Poor visibility** – The site will not operate in conditions of poor visibility such as dense fog to reduce the risk of accident or vehicle collision. **Freezing weather** – The site has road salt available on site to lay on site surfaces to prevent vehicles and staff skidding causing accidents or injuries. The continuous movement of plant on site will also prevent site surfaces from icing over in winter months. **Droughts / warm weather** – FPP in place and no dust is expected given waste stored. **Long periods of rainfall or flood events** – Due to the site's surface and waste types accepted, there is very limited potential for mud tracking off site. The site is not located within a flood risk zone. The operator will set up a notification alert with the Met Office to receive prior notifications of the above unforeseen adverse weather conditions to ensure mitigation can be put in place prior to the event. The site may be forced to close during events which could cause a significant risk to staff, human health or the environment.
Flooding	Climate change leading to risking sea/river levels Flooding due to heavy rainfall events Blocked drains	Direct contact	Site personnel / visitors Vehicle users Pedestrians	A to F	Mi to S	3	Low	The site is located in flood zone 1 meaning it has a low probability of flooding from rovers and sea. The site is situated over 150m from an area demarcated as flood zone 3. The site is surrounded by flood defences including a new 2m high flood wall to the south so the likelihood if flooding on site is negligible. In terms of surface water flooding, there is a suitable drainage system on site to prevent water pooling.

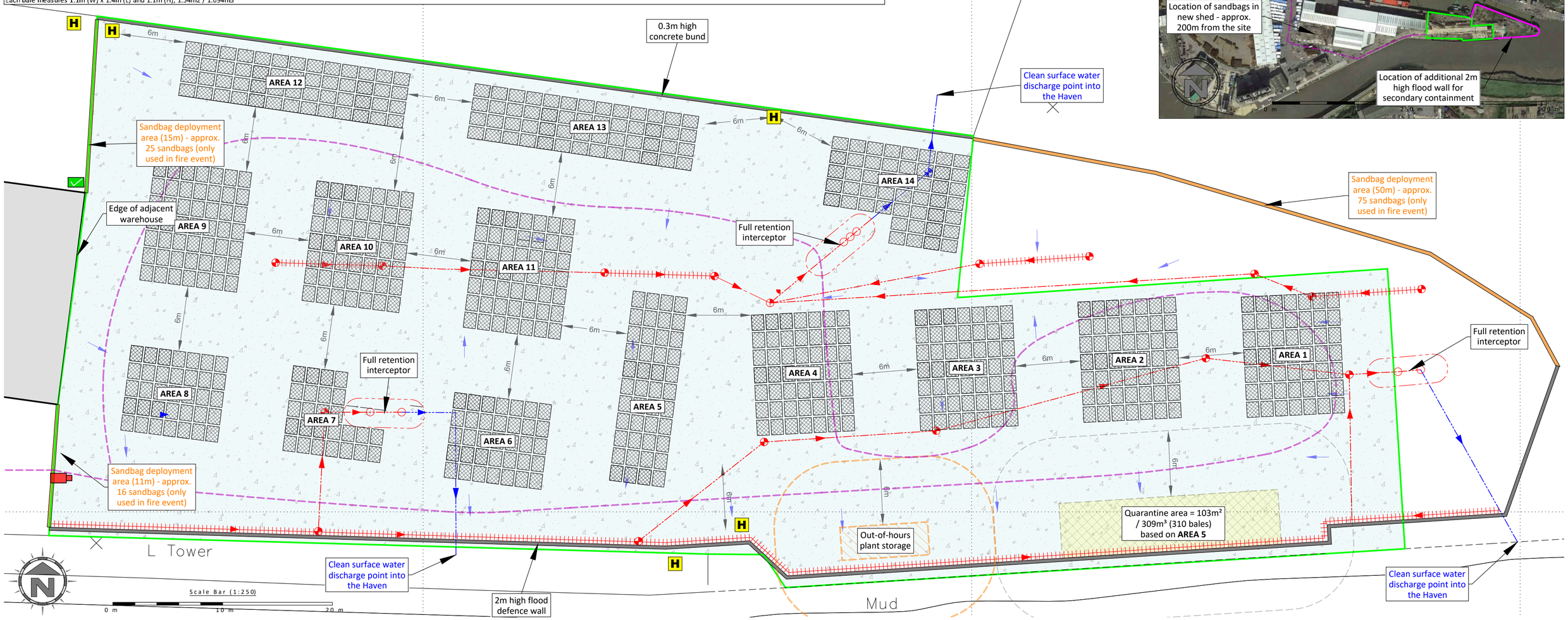
Appendix I

Drawings

Storage Area Details													
Plan Ref	**Description**	**Storage type**	**Containment / type**	**Height of firewall (m)**	**Max Width (m)**	**Max Length (m)**	**Max storage height (m)**	**Approx. Area (m2)**	**Conversion factor used**	**Approx. volume (m3)**	**Approx. no. of bales**	**Approx. tonnage**	**Max storage time**
AREA 1	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	11	4.4	99	1	436	196	274	<12 weeks
AREA 2	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	11	4.4	99	1	436	196	274	<12 weeks
AREA 3	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	11	4.4	99	1	436	196	274	<12 weeks
AREA 4	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	11	4.4	99	1	436	196	274	<12 weeks
AREA 5	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	5	20	4.4	100	1	440	208	291	<12 weeks
AREA 6	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	8	4.4	72	1	317	140	196	<12 weeks
AREA 7	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	8	9	4.4	72	1	317	104	146	<12 weeks
AREA 8	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	8	4.4	72	1	317	140	196	<12 weeks
AREA 9	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	11	4.4	99	1	436	196	274	<12 weeks
AREA 10	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	11	4.4	99	1	436	196	274	<12 weeks
AREA 11	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	11	4.4	99	1	436	196	274	<12 weeks
AREA 12	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	5	20	4.4	100	1	440	208	291	<12 weeks
AREA 13	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	5	20	4.4	100	1	440	208	291	<12 weeks
AREA 14	Storage of RDF/SDF bales	Bale stack (four high)	Free-standing bale stack	N/A	9	12.6	4.4	95	1	418	192	269	<12 weeks
Conversion factors													
Conversion factors for waste piles are worked out using the following methods set out by The Environment Agency													
The maximum length width pile is based on the largest dimension – the volume of the pile has been calculated using the area x height x relevant conversion factor													
Conversion of 1 for materials stored as waste/bale stacks													
Each bale measures 1.1m (W) x 1.4m (L) and 1.1m (H), 1.54m2 / 1.694m3													

INSET PLAN SHOWING ACCESS ROUTES FROM PORT





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DRAWING TITLE
SITE LAYOUT & FIRE PLAN

CLIENT
Port of Boston Limited

PROJECT/SITE
Port of Boston, St John's Road, Boston, Lincolnshire PE21 6BN

SCALE @ A2	CLIENT NO	JOB NO
1:250	3401	001
DRAWING NUMBER	**REV**	**STATUS**
POB/3401/03	-	Issued
DRAWN BY	**CHECKED**	**DATE**
CP	--	27.02.24

Key:

- Permit boundary
- Waste storage areas
- Quarantine area
- Impermeable concrete surface with sealed drainage
- Surface water drainage fall direction
- ACO / surface water drains & direction
- Potentially contaminated surface water underground drainage
- Clean/treated water
- Catchment pits
- Manholes (contaminated and clean)
- Out-of-hours plant storage
- Location of fire hydrants
- Fire assembly point
- Sandbag (fire water containment) location
- Access route for emergency services
- 0.3m high concrete bund 2wall and 2m high flood barrier locations

NOTES
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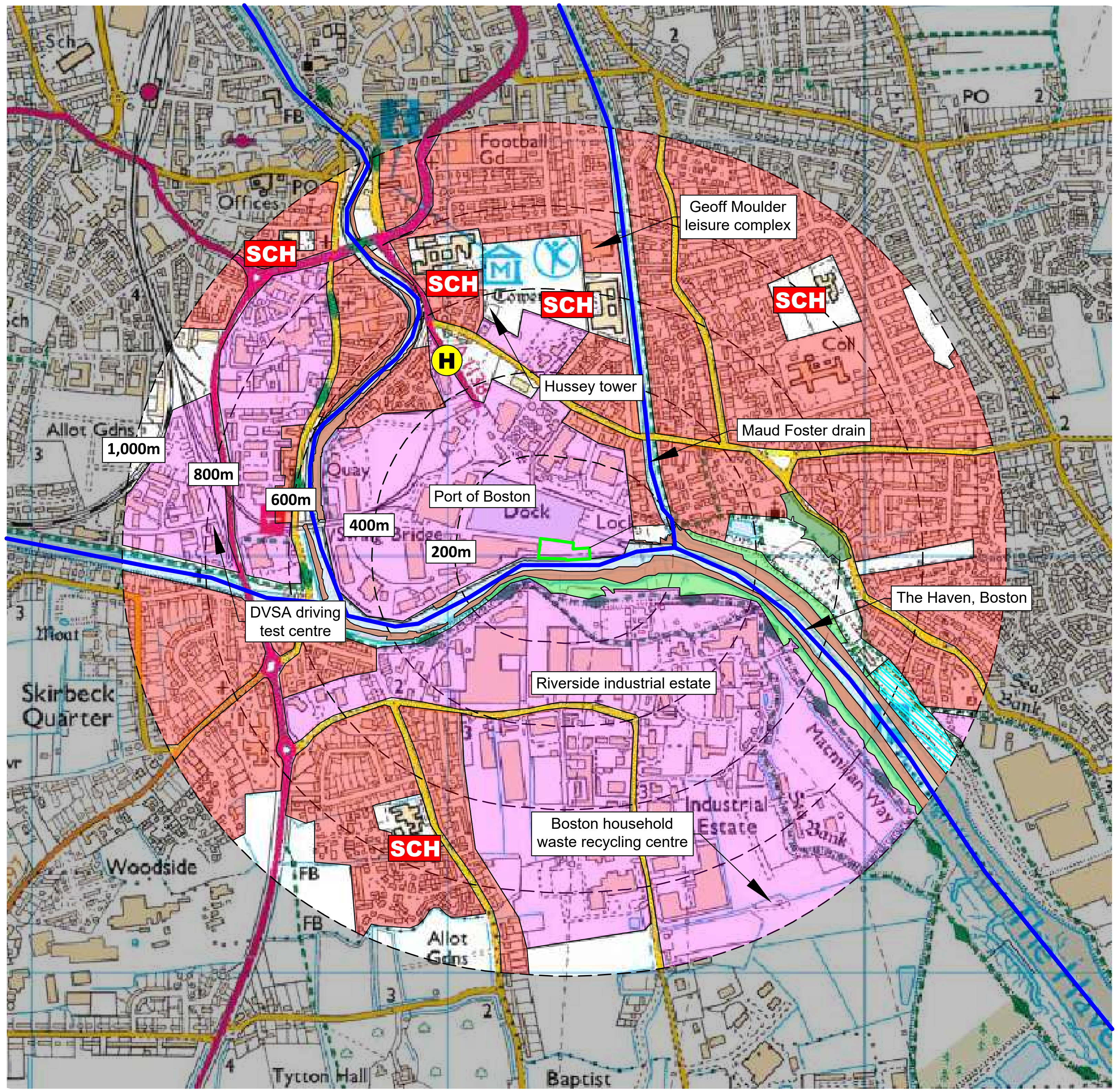
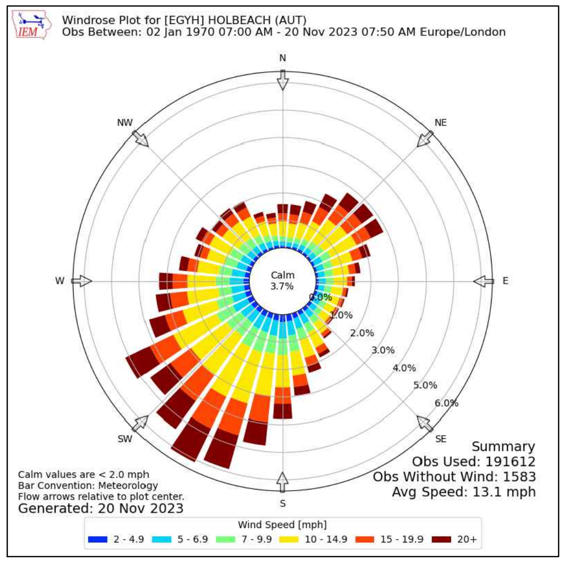
REVISION HISTORY

Rev:	Date:	Init:	Description:
-	28.02.24	CP	Initial drawing

KEY:

- Permit boundary
- Main River
- Surface water body (river / stream / pond / pool / lake)
- Workplaces (includes agriculture industry, commerce and retail)
- Areas with mix of residential, retail and commercial properties
- Residential blocks
- Class A, B, C roads
- Nearest fire hydrant
- Railway line
- School
- Woodland areas
- Priority habitat inventory (deciduous woodland)
- Priority habitat inventory (Mudflats)
- Priority habitat inventory (Coastal Saltmarsh)
- Local nature reserves





Compass Wind Rose for (EGYH) Holbeach (AUT)
Period 1970-2023
- source: Iowa State University

Scale Bar (1:12,500)

0 km 500 m 1 km

NOTES

1. Boundaries are shown indicatively.
2. Wind rose data shows the prevailing wind direction to be from the South-west.

REVISION HISTORY

Rev:	Date:	Init:	Description:
-	28.02.24	JH	Initial drawing

Oaktree Environmental Ltd
Waste, Planning and Environmental Consultants

DRAWING TITLE
RECEPTOR PLAN

CLIENT
Port Of Boston Ltd

PROJECT/SITE
St John's Road, Boston, Lincolnshire PE21 6BN

SCALE @ A3	CLIENT NO	JOB NO
1:12,500	3401	001

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