Portland energy recovery facility

Design and access statement

September 2020

262701b-TOR-XX-XX-RP-A-0003
Rev -

Contents

Structure and content of the application

The role of the design and access statement (DAS) is to explain how the design proposals for the site at Balaclava Bay have evolved and have been informed by a thorough understanding of the site's context, constraints and opportunities.

The DAS will describe and justify the proposed Energy Recovery Facility and its key attributes, and explain how this has informed the design that has been submitted as part of this detailed planning application.

STRUCTURE AND CONTENT OF THE APPLICATION

The application seeks approval for the detailed layout and external appearance of the proposed new Energy Recovery Facility. In particular this includes:

- 9,055 sqm GEA Energy Recovery Facility, with fuel store
- 810sqm GIFA Administration office and welfare facilities (included within the 9,055sqm GEA above)
- Reception gatehouse and weighbridge
- On-site substation, silos and LPG fuel store
- Access from Castletown and Main/Incline Road
- Hard landscaping to form new access routes, circulation areas, service yards and car parking
- Soft landscaping areas
- Cabling and onshore power supply to shipping berths within the Port
- Connection route to existing off-site electrical sub-station

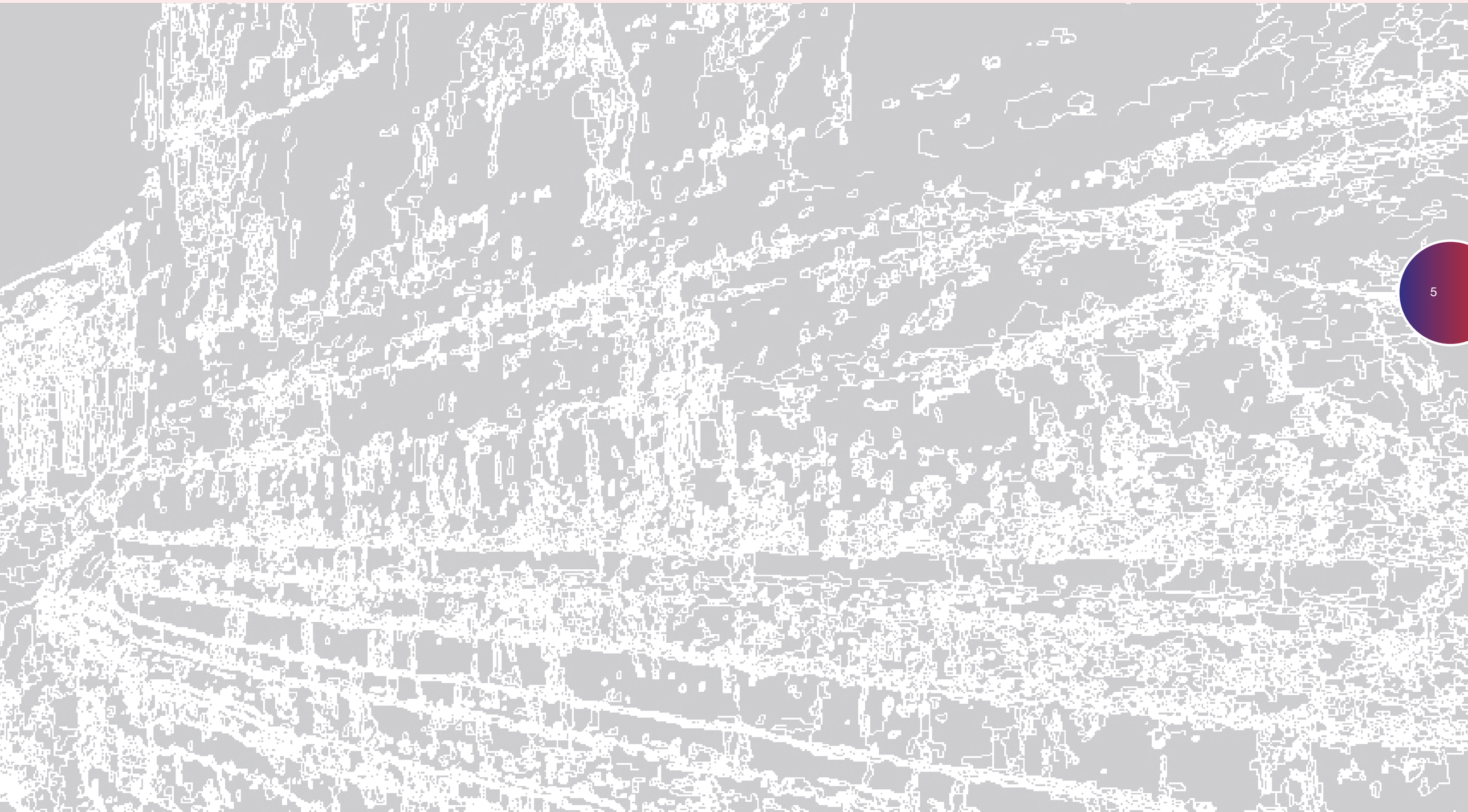
STRUCTURE OF THE DAS

The DAS has been prepared having regard to the Government publication Guidance on Information Requirements and Validation (2010) and guidance published by the Commission for Architecture and the Built Environment (CABE).

This document is compliant with the provisions of Part 3 Article 9 of the Town and Country Planning (Development Management Procedure) (England) Order 2015.

The DAS explains the design principles and concepts that have been applied to the proposed development on land adjacent to Balaclava Bay. It demonstrates the steps taken to understand the local context and how the design of the development takes this into account. It is divided into the following chapters:

- **Chapter 1** – The Site and Context
- **Chapter 2** – Energy Recovery Facility
- **Chapter 3** – Design Development - Massing & Layout
- **Chapter 4** - Building Envelope - Facade Development
- **Chapter 5** – The Final Proposals
- **Chapter 6** – Access & Movement, Parking, Deliveries and Waste Collections
- **Chapter 7** – Landscape Design
- **Chapter 8** – Technical Considerations
- **Chapter 9** – Summary & Conclusions
- **Appendix A** – Planning Application Drawings



Introduction

Powerfuel Portland is a local company with an office in Dorset, whose Directors have extensive experience of delivering large-scale renewable energy facilities. The proposed Energy Recovery Facility (ERF) will have a nominal capacity to process around 183,000 tonnes per annum, but with a maximum treatment capacity of 202,000 tonnes per annum, of Refuse Derived Fuel (RDF).

BENEFITS OF POWERFUEL PORTLAND

The ERF is scaled for Dorset and will deliver the following benefits:

- Deliver a more sustainable form of waste management, reducing landfill and managing waste further up the waste hierarchy (without impacting negatively on Dorset's admirable recycling rates).
- Enable Dorset to manage more of its residual waste in the county reducing the existing reliance upon the export of waste to other facilities in neighbouring waste authority areas, or outside of the UK, and in doing so Dorset's residual waste management system will become better aligned with the self-sufficiency and proximity principles.
- Play an important part in delivering sufficient residual waste management capacity in Dorset to meet the existing and future shortfall.
- Use residual waste to generate around 15.2 MW of low carbon energy for export, making this one of the biggest baseload generators in the county. This improves Dorset's security of supply and supports local and national decarbonisation targets.
- The ERF's "Combined Heat and Power" functionality will (i) provide electricity to the local power network; (ii) supply a shore power facility at Portland Port enabling shipping to turn off their diesel engines when in port (resulting in reductions in greenhouse gases and other emissions), (iii) provide the ability to supply heat, via a local heat network, to local heat customers.
- Reduce carbon emissions compared to current practices and pledge to always operate as a net-zero carbon asset in operation (the plant will always either (a) actually reduce GHG emissions against baseline (in which periods a £100,000 sum will be invested in additional good carbon reducing projects, or (b) have elevated emissions against baseline in which periods it will deliver off-site carbon reductions to achieve carbon neutrality). This, together with efficient use of waste to generate low carbon energy, will contribute towards meeting the UK's net-zero target by 2050 and climate emergencies declared by Portland, Dorset and the UK.
- Will make productive use of brownfield, previously developed industrial land, located within an operational port and which has an extant planning permission for an energy plant.
- Result in around £100m of capital investment in the construction of the Portland ERF, creating significant economic benefits in terms of work for local business, job creation (over 300 during construction and 30-35 during operation as well as around 60 further indirect jobs some of which would benefit Weymouth and Portland and wider Dorset), and training, apprenticeships and education opportunities.
- Shore power supports local tourism by facilitating the retention and growth of the growing cruise liner sector and so will assist Portland's future economic growth. All of these would benefit local communities and help to raise living standards and help address existing pockets of deprivation

PROFESSIONAL TEAM

ARCHITECTS: TERENCE O'ROURKE

Terence O'Rourke is known for transforming places and believes every project deserves a local response to the context, community and opportunities. The practice's residential work reflects a view of design as a process embracing the following principles:

- We create inspiring, sustainable places in which to live, work and relax
- Through close consultation with key stakeholders, we develop imaginative solutions to optimise the potential of any site
- We add value through design
- We formulate evidence-based, creative and viable schemes
- We are responsive and flexible to local policy and guidance
- We bring local understanding and support
- We apply the appropriate strategy for project promotion
- We ensure best fit, to meet client objectives and local needs.

Terence O'Rourke has worked on a number of award-winning masterplans and bespoke architectural building projects of varying scale and complexity. Key projects include the Farnborough International Conference and Exhibition Centre, The Tropical House and Biomass Energy Centre at Marwell Zoo and the local Chesil Beach Visitor Centre.

LANDSCAPE ARCHITECTS: TERENCE O'ROURKE

Terence O'Rourke has considerable understanding and expertise in the design and construction of landscape schemes in a diverse range of fields including residential and mixed-use development, leisure and recreation, education, and corporate headquarters. These have included some of the UK's most successful projects, such as the McLaren Technology and Production Centre in Woking, Jaguar Land Rover in Coventry and the University of Exeter campus.

We are committed to the principle of landscape involvement in the development design process, from planning through to the detailed design. Our interdisciplinary approach allows us to process the landscape, architectural, urban design and planning aspects of the brief at an early stage. This involves considering not only the technical aspects of the brief but also gaining an understanding of the ethos and aspirations of the client and local communities.

PLANNING CONSULTANT: TERENCE O'ROURKE

The Terence O'Rourke planning team has considerable experience of working on strategically important sites, having been involved in a number of high-profile projects over recent years. Examples include Northfields, Stonebridge, Acton Gardens and Dollis Valley. Terence O'Rourke was the lead consultant on these projects and has extensive experience and understanding of key strategic planning issues and recognises the importance of engaging in effective stakeholder consultation to deliver successful developments.

Terence O'Rourke has been involved in the proposed development from the outset and our role has been to advise on all planning issues, leading pre-application discussions with the council as well as consultation with all statutory and other key stakeholders.

The following professional consultants have also been appointed:

- Energy consultants: ARUP
- Acoustics and noise: ARUP
- Air quality: Fichtner
- Archaeology and heritage: Terence O'Rourke
- Drainage and flood risk: AWP
- Ecology: CGO, LCES & Terence O'Rourke
- Lighting engineering: ARUP
- Mechanical and electrical engineering: ARUP
- Structural engineering: ARUP
- Transport and access : AWP
- Utilities and services: Skyfall
- Carbon: Fitchner
- Economics: ERM
- Geotechnical: ARUP
- Waste: ERM
- Human Health: ERM
- Energy: ARUP
- Geotechnical: ARUP

Executive summary

EXECUTIVE SUMMARY

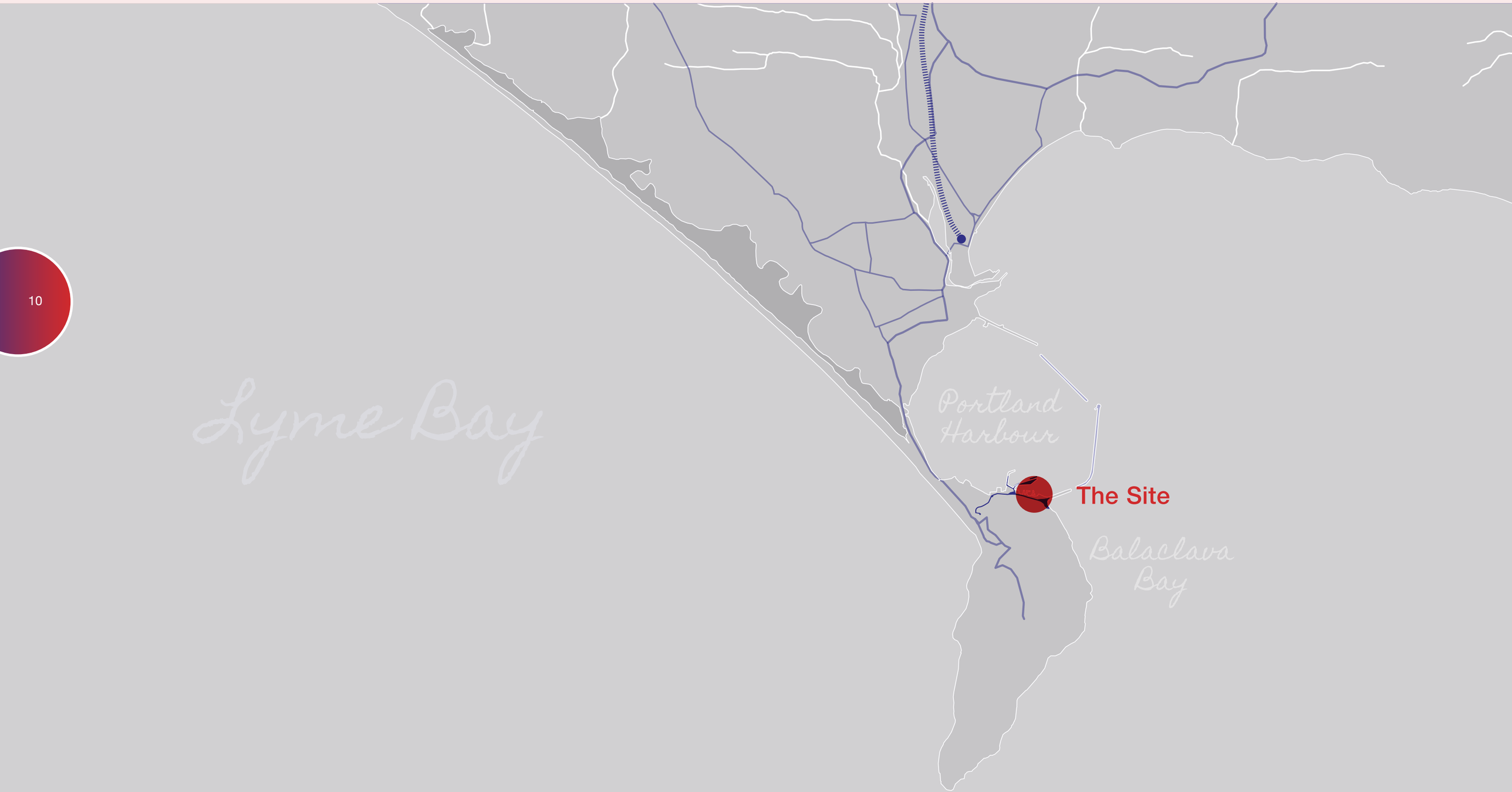
The site of the proposed development is previously developed brownfield land within Portland Port, which accommodates a range of industrial and commercial buildings with hard surfacing and parking. The main site is 2.14 ha in size, located at the junction of the Island of Portland and the Portland Harbour Inner Breakwater.

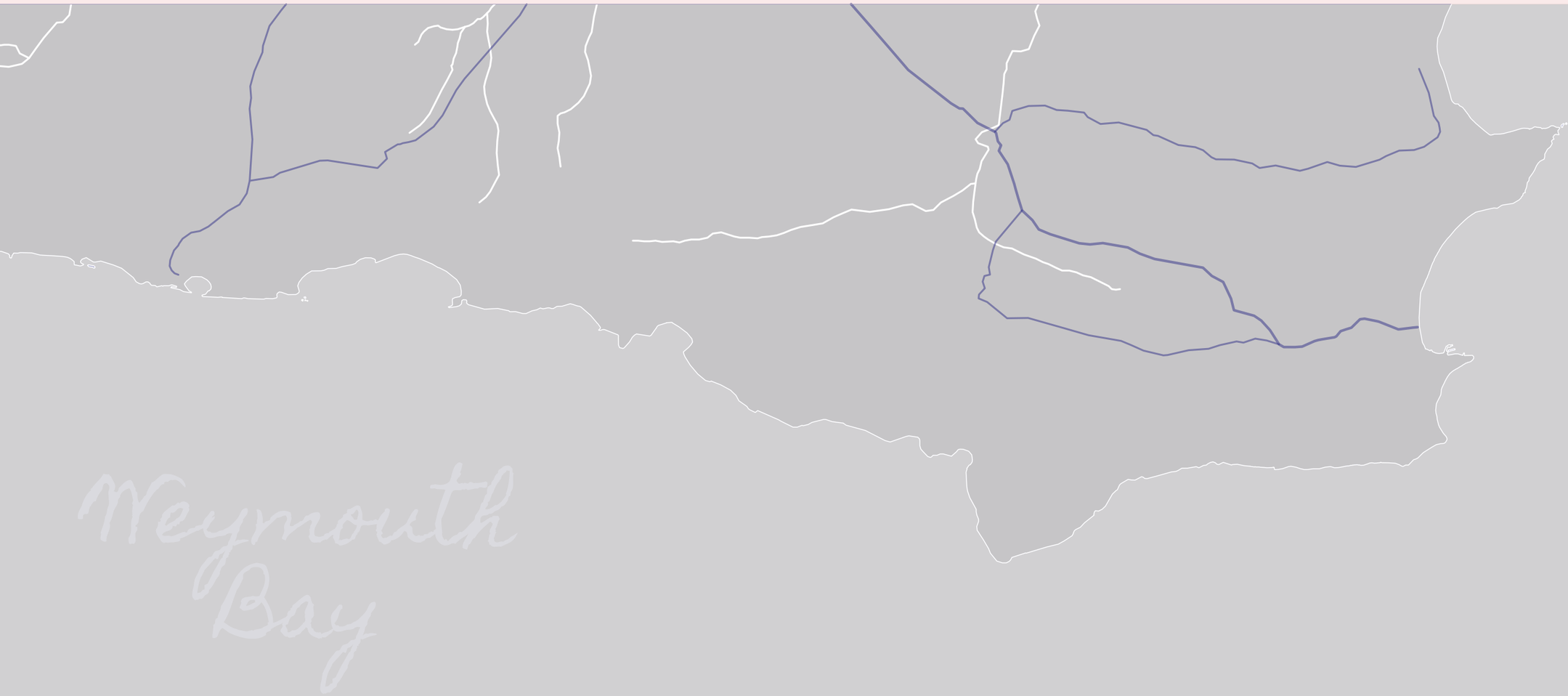
The site forms the southernmost tip of the Man Made Harbour Coastal Character Type, as defined by the Dorset Coast Land & Seascape Character Assessment.

The triangular-shaped site is bounded on three sides by the water of Balaclava Bay to the east, Incline Road to the west and the operational Portland Port to the north, Its position at the southern edge of the port creates the ideal opportunity for Refuse Derived Fuel (RDF) to be delivered by road or sea.

Powerfuel has worked diligently to undertake the necessary technical work, understand the site and its context, and devise a high-quality proposal that will contribute positively to the area. Consultation with the local authority, statutory consultees and advisory groups as well as with the local community has influenced the design evolution, which has developed in response to the views expressed and comments made.

1 The site and context




Weymouth
Bay

THE SITE AND CONTEXT

1.1 SITE LOCATION

THE APPLICATION SITE

1.1.1 The 6.29 ha site lies on the north eastern coast of the Isle of Portland, within Portland Port, approximately 600 m east of the villages of Fortuneswell and Castletown. The site comprises two elements: the 2.14 ha site for the ERF building and 4.15 ha of cable routes to the electricity substation off Lerret Road and to the berths at Queens Pier and Coaling Pier.

1.1.2 The main part of the site is roughly triangular in shape and is largely covered with hard-standing. It has been vacant for several years, although there is a weighbridge towards the western point and vehicles are sometimes parked on parts of the land. It is relatively flat and approximately 5 m above Ordnance datum (AOD). As the site lies within the port, it is not publicly accessible. Vehicular access is from the west, through the main Portland harbour complex, via Castletown, Castle Road, Lerret Road and the A354.

1.1.3 The main part of the site is bordered to the south west by Incline Road, which is a private road within the port that is actively used by port traffic, and a former railway embankment. Cliffs supporting grassland and scrub habitats lie to the south west of the embankment and rise steeply to approximately 146 m AOD. HM Prison The Verne is approximately 430 m to the south west of the site. The eastern site boundary is formed by the shingle shoreline and overland fuel pipes from Portland Bunkers, which are fuel bunkers in the nearby cliffs used for marine bunker fuel supply. Beyond these lies Balaclava Bay. The existing operational port development and Inner Breakwater lie to the north of the site.

1.1.4 The original naval port at Portland was constructed between 1837 and 1890 to provide a Harbour of Refuge and coaling station for the steam navy. Portland and its harbour were designated as HM Naval Base Portland in 1923 and the base played prominent roles in both World Wars and the Cold War. From 1958, Portland was home to Flag Officer Sea Training. During this time, the site area was dominated by a weapons research establishment building in the south east, with other buildings dedicated to mechanical repair facilities for military vehicles. The naval base and two major weapons research establishments were closed in 1995/96 and Portland Port Ltd began the transformation of the harbour into a commercial port.

1.1.5 After privatisation, the buildings on site were progressively demolished to create cargo storage space when they were not used by tenants. The last vacated buildings, used by UMC, Portland Shellfish and Permavent, were demolished in 2014 and 2017. In 2016/17, the main road leading to Incline Hill was realigned along the base of the hill / scree, creating the open development area on site. The last of the demolition rubble was cleared from the site in 2018.

FIG 1.1 SITE LOCATION PLAN

1. Site
2. Portland Port
3. Balaclava Bay
4. Inner Breakwater
5. Portland Harbour
6. Ocean Views
7. Weymouth & Portland National Sailing Academy
8. Chesil Beach
9. Fortuneswell
10. Upper Osprey Glencore
11. Portland Quarry
12. HMP/YOI Portland
13. Easton
14. Weston
15. Southwell
16. HMP The Verne
17. East Weare Battery

FIG 1.1
EXISTING 3D AERIAL VIEW

FIG 1.2
SITE LOCATION PLAN

FIG 1.3 AERIAL VIEW OF SITE

THE SITE AND CONTEXT

1.3 THE SITE

Port Entrance and Gatehouse

50T crane birth and arches of the Inner Breakwater (private view)

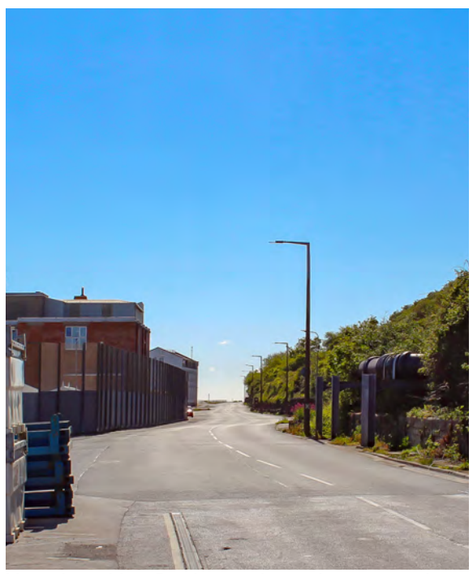
View towards the site from the Outer Coaling Pier (private view)

FIG 1.4
SITE PHOTOS

Panoramic view of the site looking south on Canteen Road (private view)

View from the start of the Inner Breakwater showing the fuel pipe, disused railway viaduct and East Weare (private view)

View down Incline Road towards site (private view)



View down Main Road towards site (private view)

THE SITE AND CONTEXT

1.3 VISIBILITY AND SENSITIVITIES

1.3.1 The site is located outside of the Dorset Area of Outstanding Natural Beauty (AONB) and outside the Dorset and East Devon Coast World Heritage Site. The site lies within a key employment site identified in the local plan and the 'northern arc' identified in the neighbourhood plan as a vital employment zone.

1.3.2 The site provides the opportunity to create a distinctive building that announces the arrival, and helps promote the economic growth, at Portland Port, a key employment site.

1.3.3 Views from the wider landscape and seascape can be grouped into three broad categories, as outlined below:

1.3.4 Inner Harbour North (VP 8 & 9): When viewed from the northern edge of the harbour the site will be visible to the side of the eastern cliff faces of the Isle of Portland. It will be important to consider how the building will be read against the sky when viewed from these areas.

1.3.5 Town centre to Overcombe (VP 4 / 5 / 6 / 10 & 13): Views of the site from these viewports will be from the north across Weymouth Bay and Portland Harbour, its breakwater and the ships and yachts in the port and marina. The change in angle means that these viewpoints will now read the proposed building against the white limestone cliffs and scrub planting lining the eastern cliffs of the Isle of Portland.

1.3.6 Long Distance Views from the AONB (VP 7 / 11 / 12 & 14): Whilst the building will only comprise a small element of these much longer distance views across Weymouth Bay, the orientation and shape of the site will result in the full length and height of any building being potentially visible from these views. Read against the backdrop of white limestone cliffs and scrub planting, the design of the building will need to ensure careful articulation and material selection to address these viewpoints.

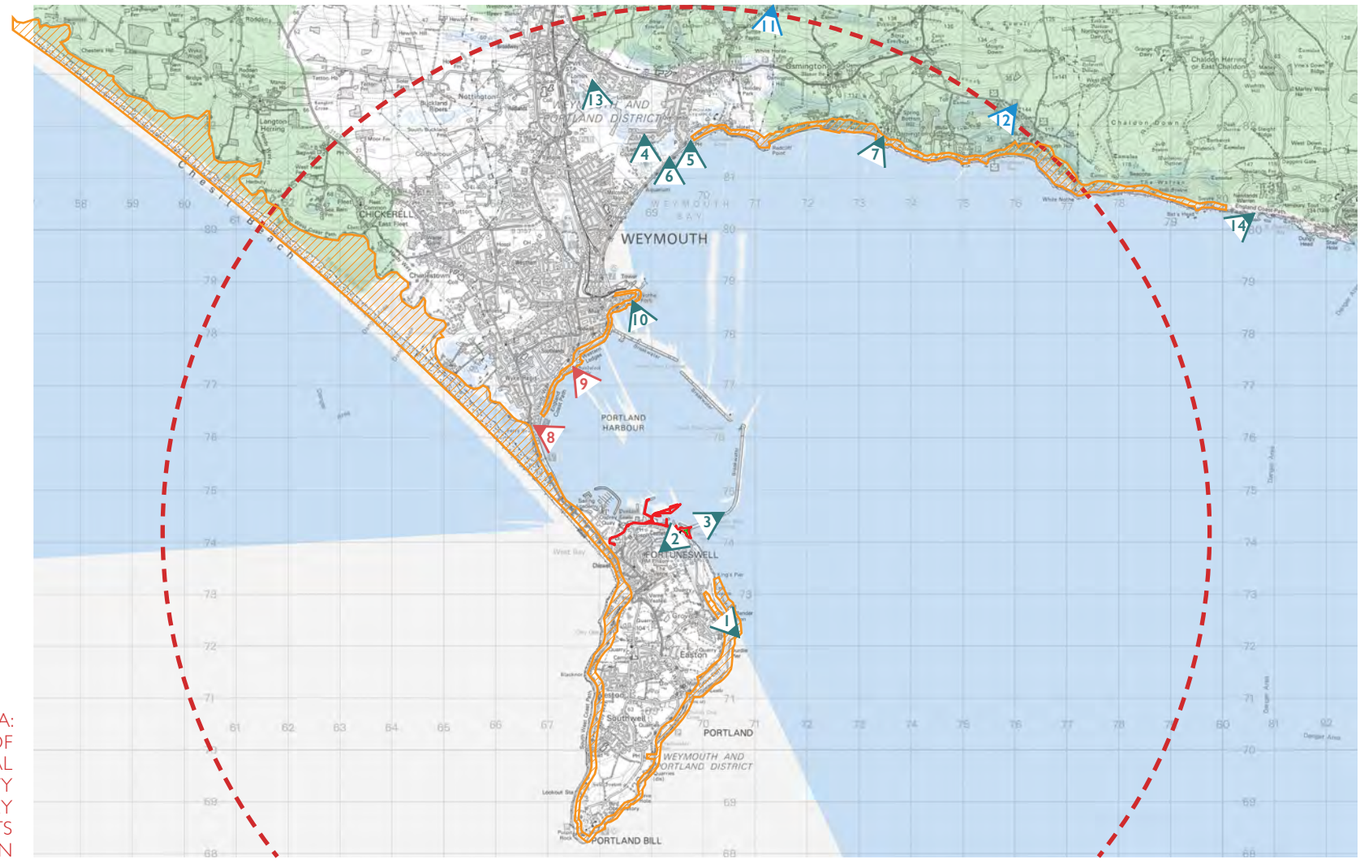
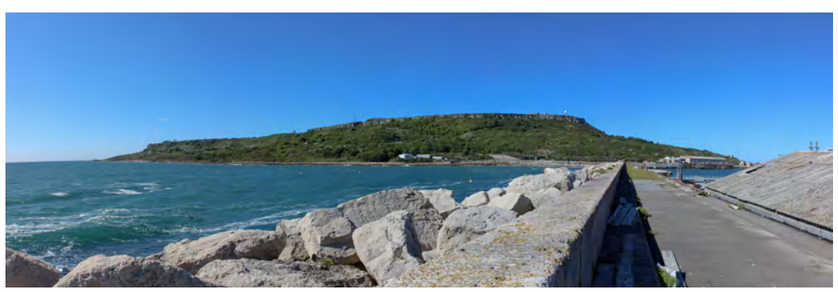


FIG 1.5 LVIA: ZONE OF THEORETICAL VISIBILITY (ZTV) AND KEY VIEW POINTS LOCATION PLAN



VP 3: View from Portland Harbour Inner Breakwater (south)

FIG 1.6
VIEW FROM EASTERN END OF THE INNER BREAKWATER

Indicative VP 8: View from Ferrybridge Inn (refer to LVIA Chapter 9 of the Environmental Statement for verified view)

Indicative VP 10: View from Nothe Fort (refer to LVIA Chapter 9 of the Environmental Statement for verified view)

Indicative VP 11: View from Osmington White Horse (refer to LVIA Chapter 9 of the Environmental Statement for verified view)

FIG 1.7
LONG DISTANCE VIEWS OF THE SITE

THE SITE AND CONTEXT

1.4 SITE DESIGNATIONS

1.4.1 It is understood that the site itself is not subject to any statutory designations and is a key employment site within the defined development boundary.

1.4.2 However, the surrounding areas are subject to a number of different designations which will be a material consideration in the design and determination of any planning application on this site. These designations are as follows:

- UNESCO World Heritage Sites (WHS): seek to encourage the protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity.
- Area of Outstanding Natural Beauty (AONB): are designated for their landscape and scenic beauty and have the same level of protection as National Parks.
- Sites of Special Scientific Interest (SSSI): provide statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features.
- Ramsar Sites: are wetlands of international importance designated under the Ramsar Convention.
- Special Areas of Conservation (SACs): are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive.
- Special Protections Areas (SPAs): are classified for rare and vulnerable and for regularly occurring migratory species.
- The port and East Weare undercliff includes a number of listed buildings and scheduled monuments, as identified in Figure 1.11.

1.4.3 The location of these various designated areas are indicated on the plans to the right.

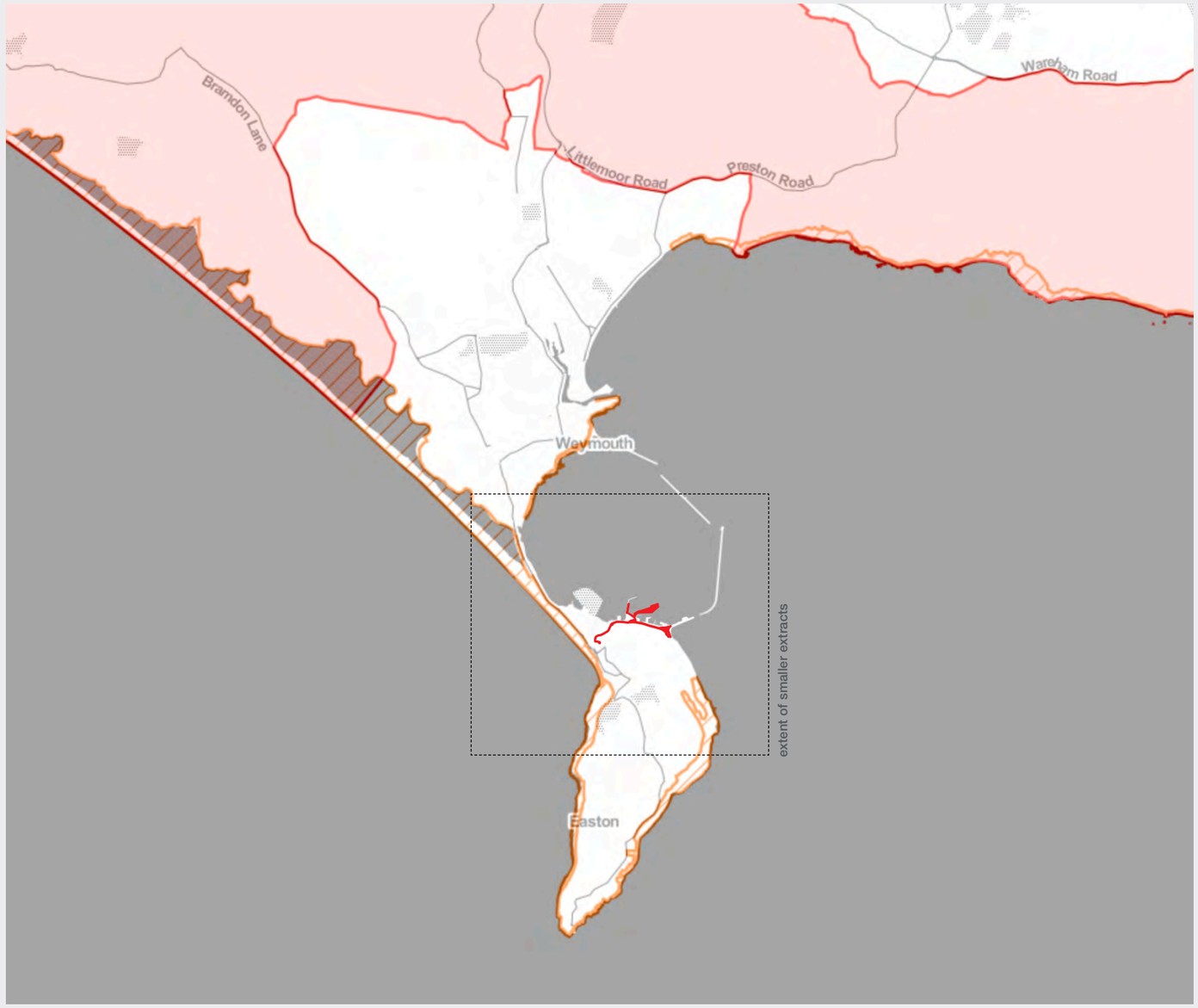


FIG 1.8 SITE AND ADJACENT AREA PLANNING DESIGNATIONS

Application boundary

SSSI

SPAs

SNCI and DWT sites

Ramsar Sites

SACs

Employment sites

THE SITE AND CONTEXT

1.5 HISTORY AND HERITAGE

1.5.1 Portland Harbour has been created through both the natural geological phenomenon of Chesil Beach and a 1849 parliamentary approval to grant the creation of the two southern breakwaters. As of 2020 the Harbour remains the fourth largest man-made port in the world.

1.5.2 During the construction of the breakwater the Admiralty Incline Railway was created to transfer stone down from the cliff top quarry to the breakwater. This has now become Incline Road which, following some recent realignment, bounds the western boundary of the site.

1.5.3 The earliest Ordnance Survey maps published in 1891 show a small number of boat sheds occupying the site, with the Royal Naval Hospital occupying an area of the port where Main Road transitions into Incline Road today.

1.5.4 The Admiralty slaughter house is visible on Ordnance Survey maps published in 1903 and visible on the water's edge in the historic photo of the site and Balaclava Bay to the right.

1.5.5 Following the port's designation as HM Naval Base (HMNB) Portland in 1923 the HM Underwater Detection Establishment (HMUDE), an Admiralty research establishment, was established on the site using the slaughter house briefly as Navy workshops and testing facilities.

1.5.6 Known as the ASDIC Research and Development Unit of HMS Osprey from 1927 to 1940, it became HM Underwater Detection Establishment in 1947, which remains known for its infiltration by the Portland Spy Ring.

1.5.7 The establishment of the ASDIC Research and Development Unit saw the extension, modification and conversion of these buildings in the 1930's to provide permanent modern laboratories and workshops that housed 200 civilian staff.

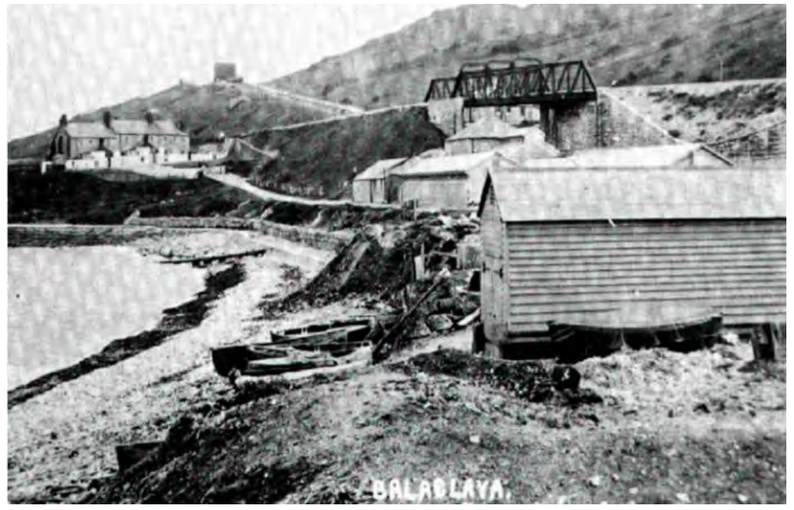
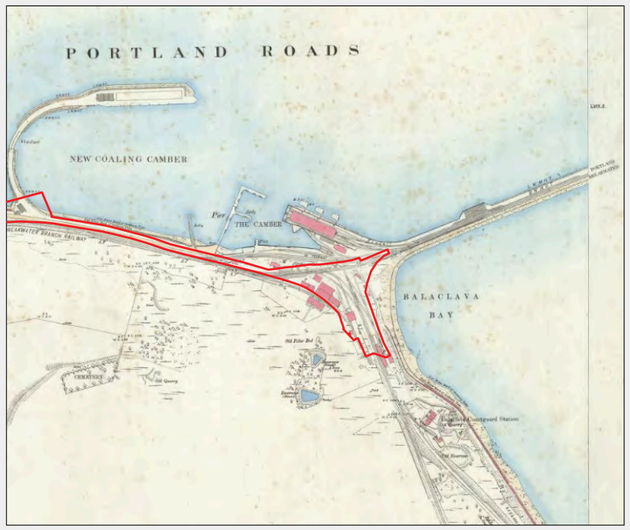
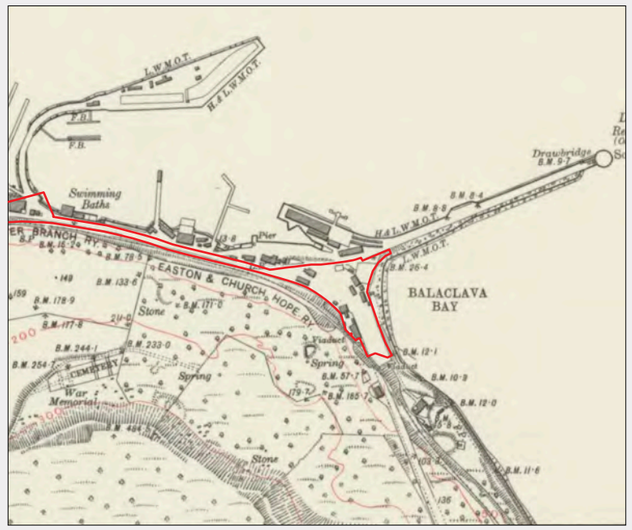


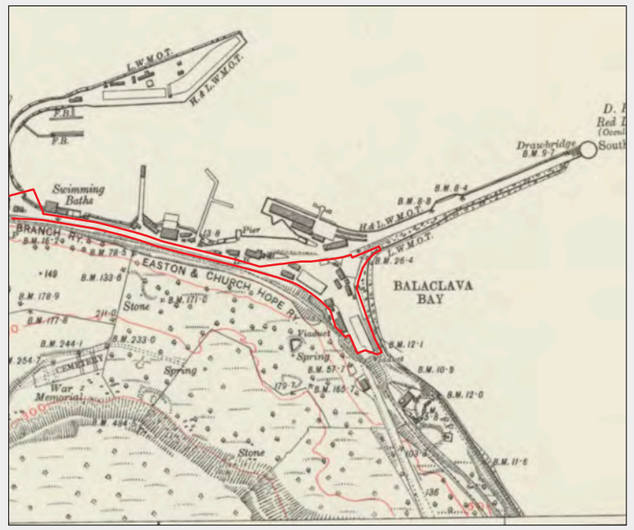
FIG 1.9 HISTORIC PHOTO: THE SITE ADJACENT TO BALACLAVA BAY PRIOR TO THE 1950'S



Ordnance Survey 1:10,500 historic mapping: 1903

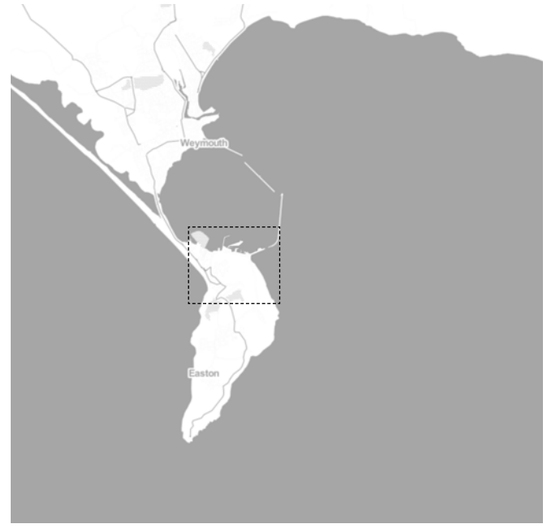


Ordnance Survey 1:10,500 historic mapping: 1930



Ordnance Survey 1:10,500 historic mapping: 1944

FIG 1.10
HISTORIC MAPS



Application boundary

Scheduled monuments

Conservation area

Listed building

FIG 1.11
HERITAGE AND CONSERVATION DESIGNATIONS

1.5 THE SITE AND CONTEXT / HISTORY AND HERITAGE

1.5.8 Suffering fire damage in a Luftwaffe air raid in July 1940, the building was abandoned until the late 1940s when the fire damaged sections of the Portland establishment were rebuilt and repaired with the western wing of the building being modified with an additional storey and loft space.

1.5.9 The establishment was incorporated into the Admiralty Underwater Weapons Establishment in 1960 and remained operational up until the closure of the naval base in 1995.

1.5.10 The naval buildings that occupied the site were later demolished in 2005-06.

1.5.11 The last remaining navy buildings on site were closed and demolished in the period through to 2017, some of which work implemented of the 2010/13 planning approvals for an energy plant fuelled by oil or waste tyres.

1917
Listening school and experimental station established to train personnel in the use of hydrophone and carry out experiments and trail work.

1928
Inshore ASDIC station constructed on the inner breakwater arm.

1930's
ARDU continues to grow becoming the primary establishment for ASDIC research. ARDU expanded in late 1930's with plans for a second storey to be added in 1936.

1946
Following relocation and fire damage during WWII the newly established HM Underwater Detection Establishment (HMUDE) was located at Portland with the fire-damaged sections being rebuilt, an additional storey and loft space added to the western part of the complex and a new South Block being constructed a short distance from the complex in 1952.

1995
Both "North" and "South" buildings vacated and HMNB Portland and the Harbour sold to Portland Port Ltd.

2005
Both "North" and "South" buildings demolished.

Aerial view from the south showing the HM Underwater Detection Establishment "North" and "South" buildings that were demolished in 2005.

HM Underwater Detection Establishment "North" building viewed from HMP The Verne to the west prior to demolition in 2005.

HM Underwater Detection Establishment "North" building viewed from the north on Incline Road prior to demolition in 2005.

FIG 1.12
CHRONOLOGICAL TIMELINE OF THE SITE AND PHOTOS FROM 2005

Information on the history of ARDU/HMUDE sourced from the Encyclopaedia of Portland History (www.portlandhistory.co.uk)

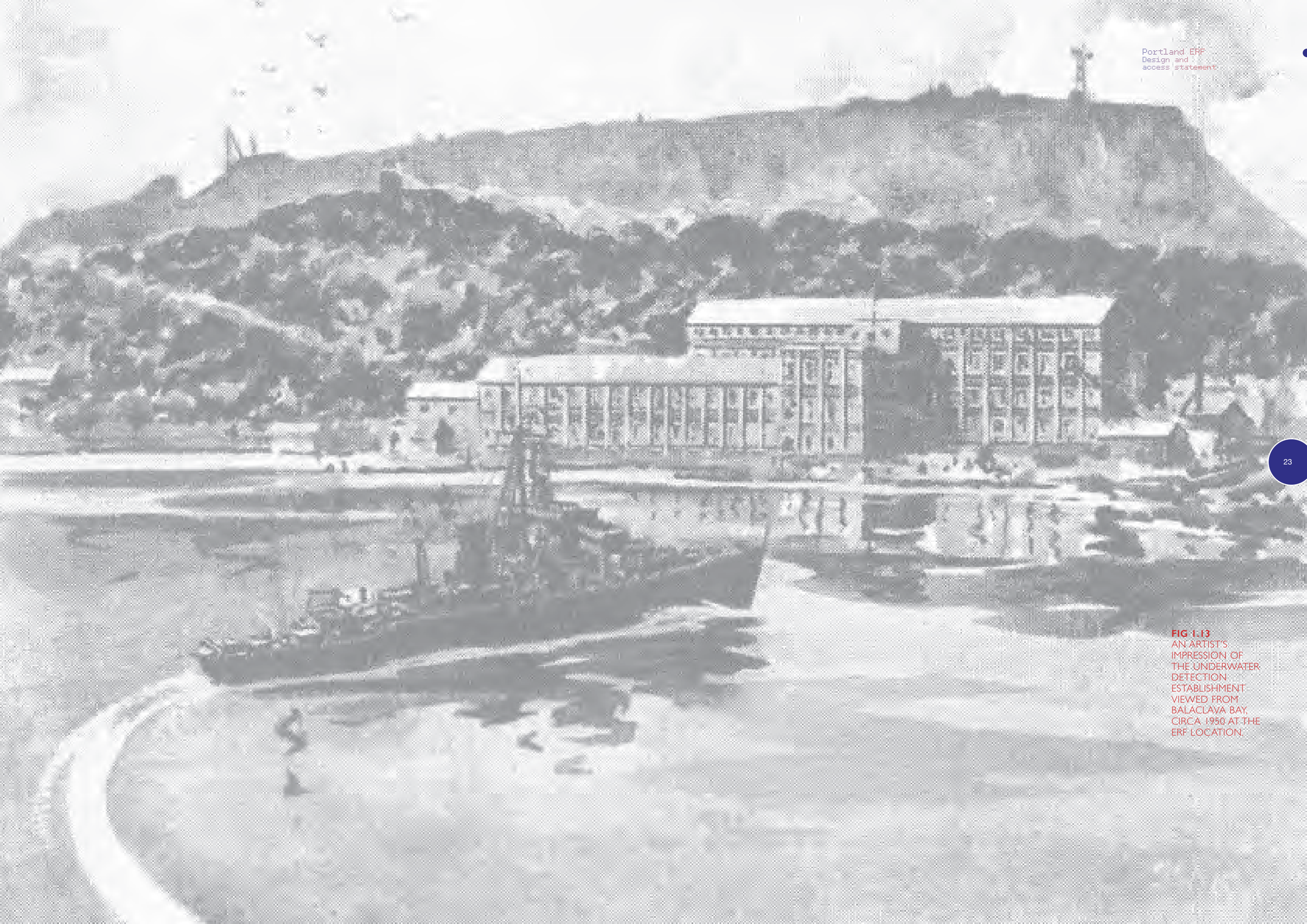


FIG 1.13
AN ARTIST'S IMPRESSION OF THE UNDERWATER DETECTION ESTABLISHMENT VIEWED FROM BALACLAVA BAY, CIRCA 1950 AT THE ERF LOCATION.

1.6 THE SITE AND CONTEXT
PLANNING HISTORY

1.6.1 Of relevance to this application is the former Weymouth and Portland Borough Council's decision to grant full planning permission in early 2010 to develop land within Portland Port for an energy plant (application reference: 09/00646/FULES and 09/00648/LBC).

1.6.2 This scheme comprised 1,337 sq m of new built development (1,154 sq m industrial space and 183 sq m office space). The process essentially involved the pre-treatment of imported vegetable oils (including waste oils) in order to create a fuel, by means of a power oil production plant, which would then be combusted using two 8.9MWe engines.

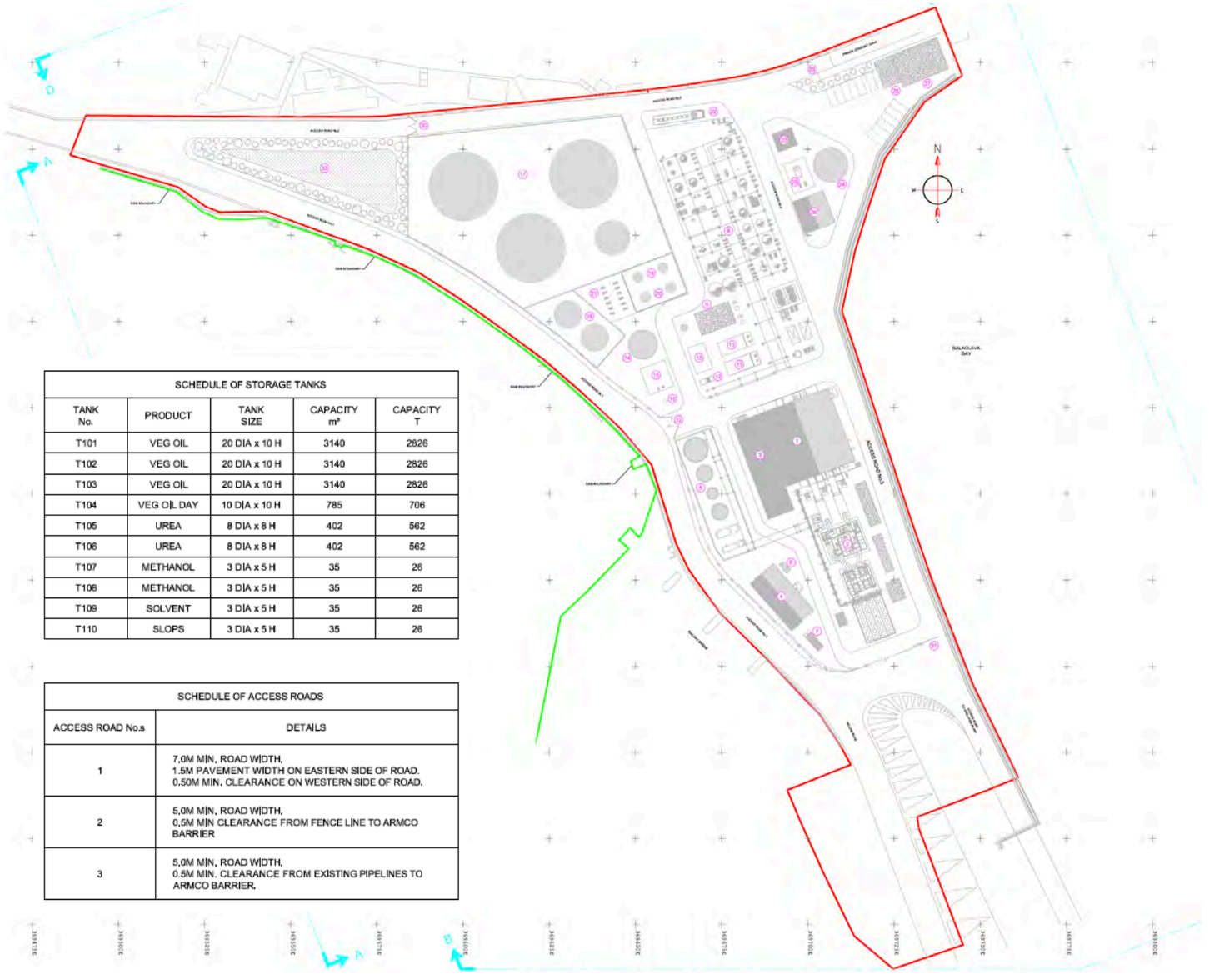
1.6.3 The approved plant had a designed output capacity of 17.8MW, which would have been exported to the National Grid.

1.6.4 The exhaust gases produced by the power generation plant would be discharged via two 27 m tall stacks.

1.6.5 **The permission was implemented by works on site, but the project was not fully built out.**

1.6.6 In 2013, the conditions of planning permission 09/00646/FULES were varied through a section 73 application to enable waste rubber crumb from end-of-life tyres to be used as an alternative fuel source under application 13/00262/VOC.

1.6.7 The permission remains capable of implementation



SCHEDULE OF STORAGE TANKS				
TANK No.	PRODUCT	TANK SIZE	CAPACITY m³	CAPACITY T
T101	VEG OIL	20 DIA x 10 H	3140	2826
T102	VEG OIL	20 DIA x 10 H	3140	2826
T103	VEG OIL	20 DIA x 10 H	3140	2826
T104	VEG OIL DAY	10 DIA x 10 H	785	706
T105	UREA	8 DIA x 8 H	402	562
T106	UREA	8 DIA x 8 H	402	562
T107	METHANOL	3 DIA x 5 H	35	26
T108	METHANOL	3 DIA x 5 H	35	26
T109	SOLVENT	3 DIA x 5 H	35	26
T110	SLOPS	3 DIA x 5 H	35	26

SCHEDULE OF ACCESS ROADS	
ACCESS ROAD No.s	DETAILS
1	7.0M MIN. ROAD WIDTH, 1.5M PAVEMENT WIDTH ON EASTERN SIDE OF ROAD. 0.50M MIN. CLEARANCE ON WESTERN SIDE OF ROAD.
2	5.0M MIN. ROAD WIDTH, 0.5M MIN CLEARANCE FROM FENCE LINE TO ARMCO BARRIER
3	5.0M MIN. ROAD WIDTH, 0.5M MIN. CLEARANCE FROM EXISTING PIPELINES TO ARMCO BARRIER.

FIG 1.14
APPROVED SITE PLAN - RUBBER CRUMB WASTE PLANT APPLICATION

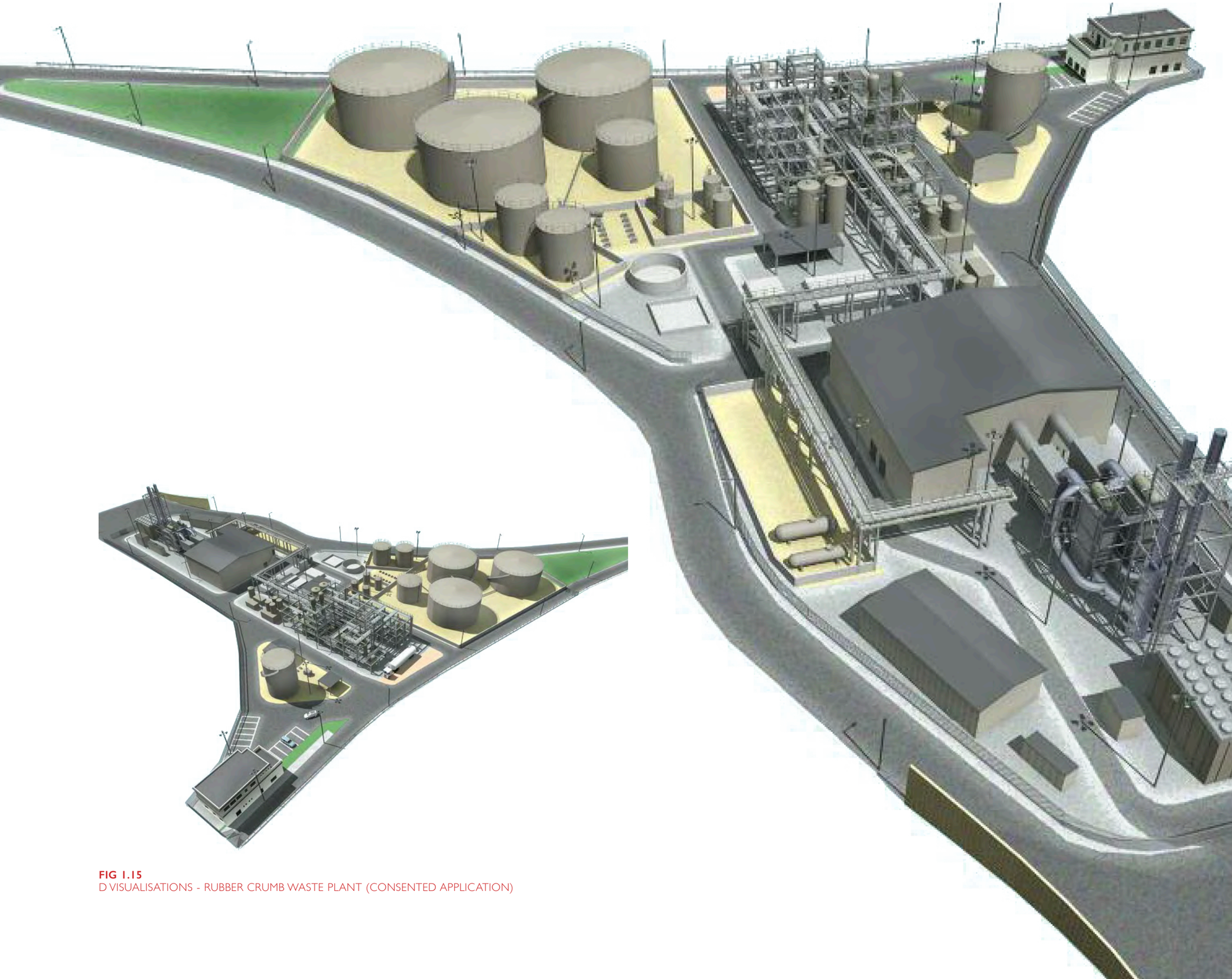


FIG 1.15
D VISUALISATIONS - RUBBER CRUMB WASTE PLANT (CONSENTED APPLICATION)

THE SITE AND CONTEXT

1.7 CONSIDERATIONS AND OPPORTUNITIES

ACCESS

1.7.1 Access to the port by road is provided along the A354, Portland Beach Road and then access controlled Port Entrance on Castletown. Once in the port Castletown and Main Road follow the bottom of the East Weare embankment to the site at the bottom of Incline Road.

1.7.2 The site will also benefit from the opportunity for shipping deliveries to the 50T berth, on Inner Breakwater Road, and other berths located within the port.

SITE LEVELS

1.7.3 Along Incline Road on the site's western boundary there is a 4m fall from circa +10.74 AOD in the south to +6.83m AOD in the north.

1.7.4 Site levels along Canteen Road and Balaclava Road on the north and eastern boundaries remain relatively consistently around +7.00m AOD.

1.7.5 Following the demolition of the buildings that previously occupied the site the levels have been gently graded from the bounding road to the site's highest point in the south western corner.

1.7.6 As the proposed building's footprint will occupy the full width of the site and will operationally require a flat, continuous slab over the entirety of the ground floor, careful consideration has been given to the building entrances to allow the proposals to tie in with the existing ground levels around the perimeter of the site.

1.7.7 This is likely to result in the south western corner of the building being slightly dug into the site with low level retaining structures.

VIEWS AND VISIBILITY

1.7.8 Elevated slightly on the water's edge of Balaclava Bay, the site benefits from views out to sea and long distance views across Weymouth Bay back towards Osmington Mills and Durdle Door on the Jurassic Coast.

1.7.9 Whilst this position provides long ranging views it also means the site is visible from the Dorset Area of Outstanding Natural Beauty and World Heritage Site to the east of Weymouth Bay. The sensitivity of these views are discussed further on pages 16 and 17 of this document and in the detailed Landscape Visual Impact Assessment (LVIA) submitted as part of this application.

LISTED BUILDINGS

1.7.10 The Inner Breakwater, Dockyard Offices and Coaling Shed are all within 100 metres of the site and were first constructed between the 1840s and 1870s.

1.7.11 These historic buildings and structures are now listed grade II.

1.7.12 To the south west the East Weare Battery, one of a number along the eastern cliff face, sits 55 metres above the site in the shadow of The Citadel, The Verne that sits atop the East Weare escarpment 146 metres above ordnance datum.

1.7.13 Both the East Weare Battery and The Citadel are scheduled monuments.

1.7.14 The breakwater continues in use as part of the port operations, and the interest of the activity of the range of shipping using the port is a valuable part of its setting. The site area was formerly occupied by buildings throughout the use by the Royal Navy and until recently by the port, so its current vacant appearance is very different from the historic setting of the listed buildings. The effects of the development on the setting and historic character of the listed structures have been minimised through the layout of the site and the design of the proposed buildings.

FLOOD RISK

1.7.15 The elevated position of the building ensures the main site sits within Flood Zone 1, as indicated by the Environment Agency's Flood Risk Mapping for Rivers and Sea (page 124), meaning the site has a less than 1 in 1,000 annual probability of river or sea flooding.

Portland Harbour

Balaclava Bay

Durdle Door &
Jurassic Coast

View out to sea

Application boundary
Existing Building
Listed Building
Scheduled monument
Contour Line (1m)
Steep lower banks of East Weare escarpment
Flood Zone 2
Flood Zone 3
Main Vehicular Access
Opportunities for additional access points
Views from Site

FIG 1.1
CONSTRAINTS AND OPPORTUNITIES

2 Energy recovery facility


CASTLETOWN

ENERGY RECOVERY FACILITY

2.1 THE PROCESS & TECHNICAL RELATIONSHIPS

4.14.1 The proposed Energy Recovery Facility (ERF) will have the capacity to process around 183,000 tonnes, but with a maximum treatment capacity of 202,000 tonnes, of Refuse Derived Fuel (RDF) per year, providing **a more sustainable form of waste management, reducing landfill and managing waste further up the waste hierarchy (without impacting negatively on Dorset's admirable recycling rates).**

2.1.2 RDF consists largely of combustible components of municipal solid waste comprising household, commercial and skip waste after recyclable materials such as glass, plastics and metals have been removed. The ERF will not treat hazardous or clinical waste. The bottom ash can be recycled and used as aggregate in infrastructure projects.

2.1.3 The ERF will use tried and tested technology, with many similar plants operating in the UK and there are many more across Europe. As the site is at the Port, the refined fuel can arrive either by road or sea. Deliveries by sea will be wrapped and baled, while road deliveries will be either baled or in sealed vehicles.

2.1.4 Once inside the facility, the fuel will be de-baled (if required) and shredded before being used for combustion. The RDF will pass over a grate producing heat in a boiler to generate superheated steam, which will generate electricity in a steam turbine. Around 15MW of power will be exported to the National Grid or used locally.

2.1.5 Modern ERFs are strictly monitored by the Environment Agency and must comply with all applicable legislation including the control of emissions. A large proportion of the plant is devoted to cleaning emissions.

2.1.6 The flue gas cleaning system will be an SNCR system, using ammonia as the reagent. There will also be a secondary SCR system which will be used to polish the gasses to the levels required under by the Environmental Permit.

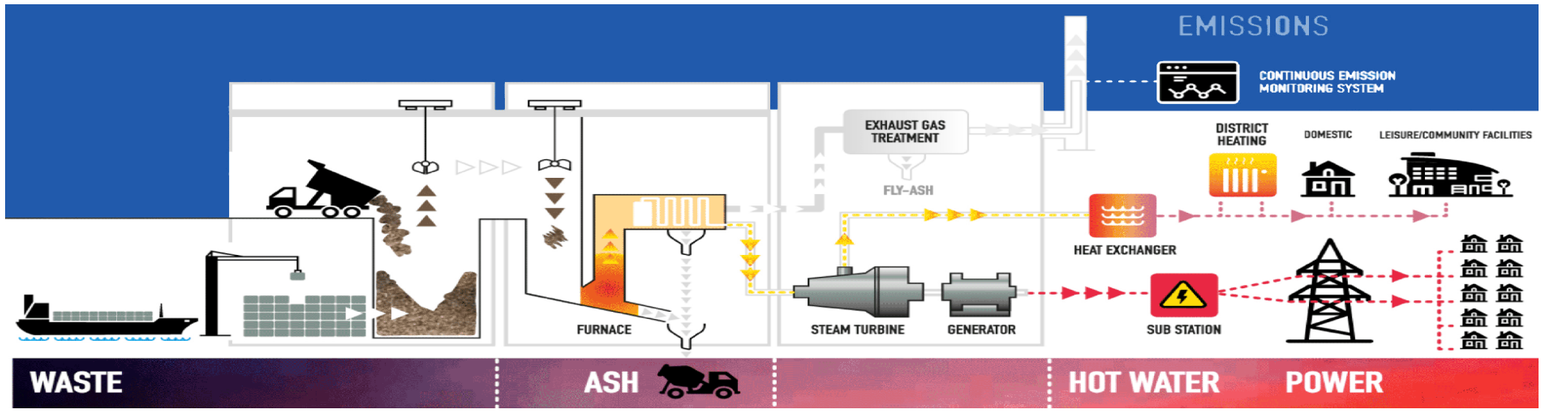
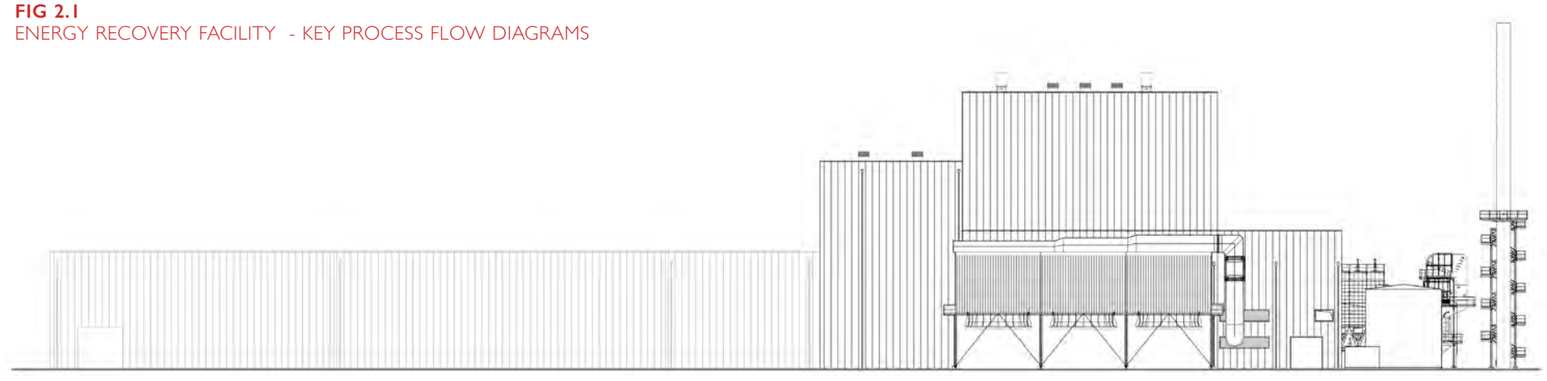
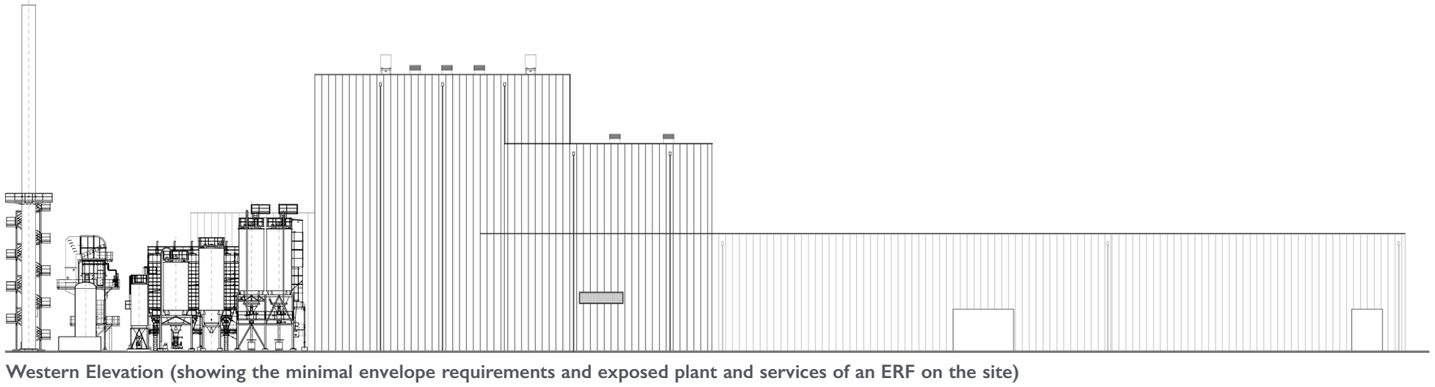


FIG 2.1
ENERGY RECOVERY FACILITY - KEY PROCESS FLOW DIAGRAMS



Eastern Elevation (showing the minimal envelope requirements and exposed plant and services of an ERF on the site)



Western Elevation (showing the minimal envelope requirements and exposed plant and services of an ERF on the site)

FIG 2.2
ENERGY RECOVERY FACILITY - BASELINE TECHNICAL MODEL ELEVATIONS

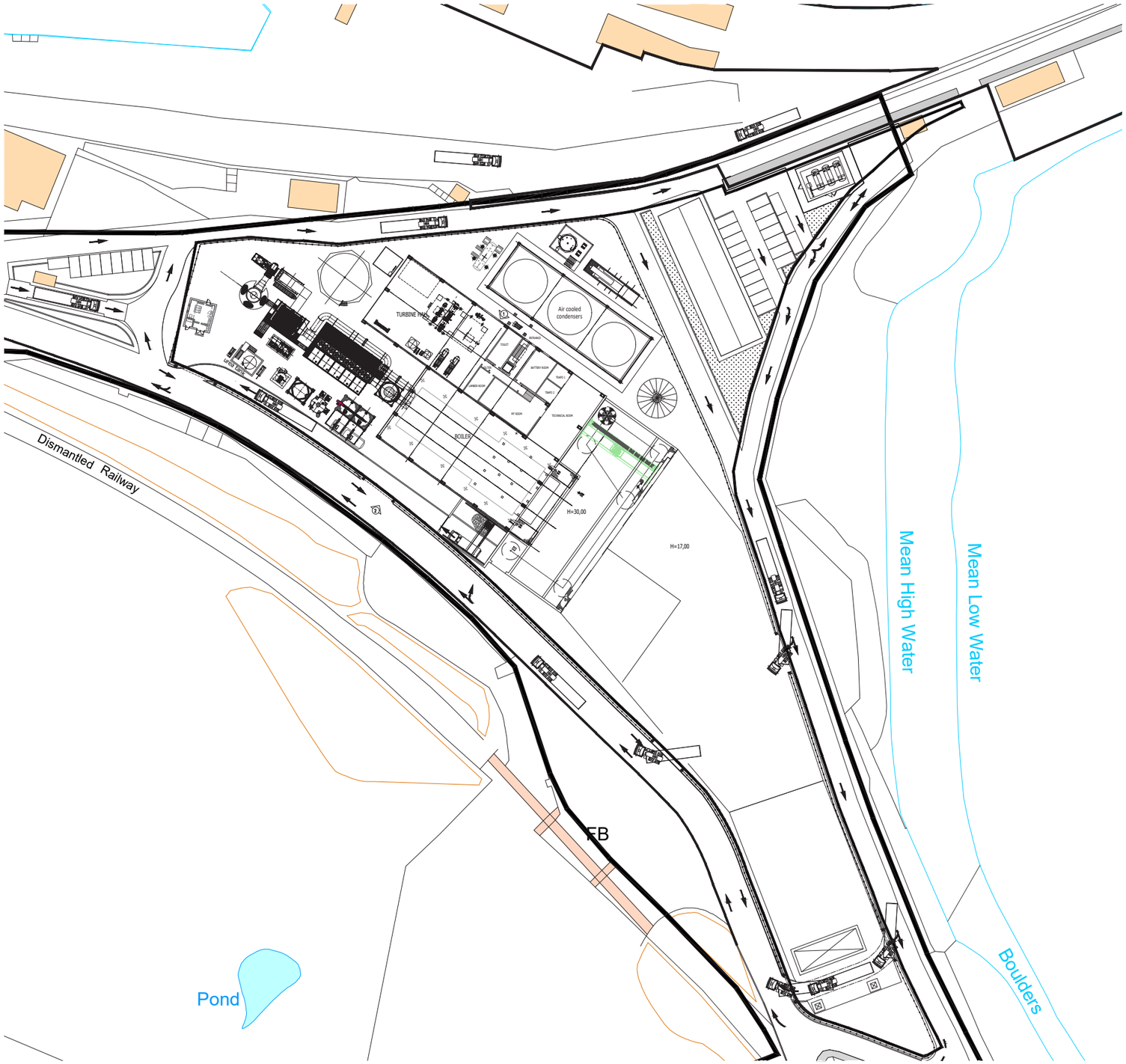


FIG 2.3
ENERGY RECOVERY FACILITY - BASELINE TECHNICAL MODEL PLANS

2.1.7 ERFs can only operate with an Environmental Permit from the Environment Agency (EA) under the Pollution Prevention and Control regulations and operators must monitor and report emissions from the plant.

2.1.8 The layout and elevations to the left demonstrate the Baseline Technical Model which identifies the optimum layout of an ERF to ensure the desired relationships of the specialist equipment. This arrangement will provide the maximum efficiency in the use of land whilst ensuring maximum energy output.

2.1.9 The scale of the internal plant and size/ shape of the site provides a limited number of possibilities for the configuration of the floor plan.

2.1.10 This indicative layout is challenged later in this document to ensure that the design of the building's massing and materials address the site and its context.

ENERGY RECOVERY FACILITY

2.2 POSITIONING THE ERF PLANT ON SITE

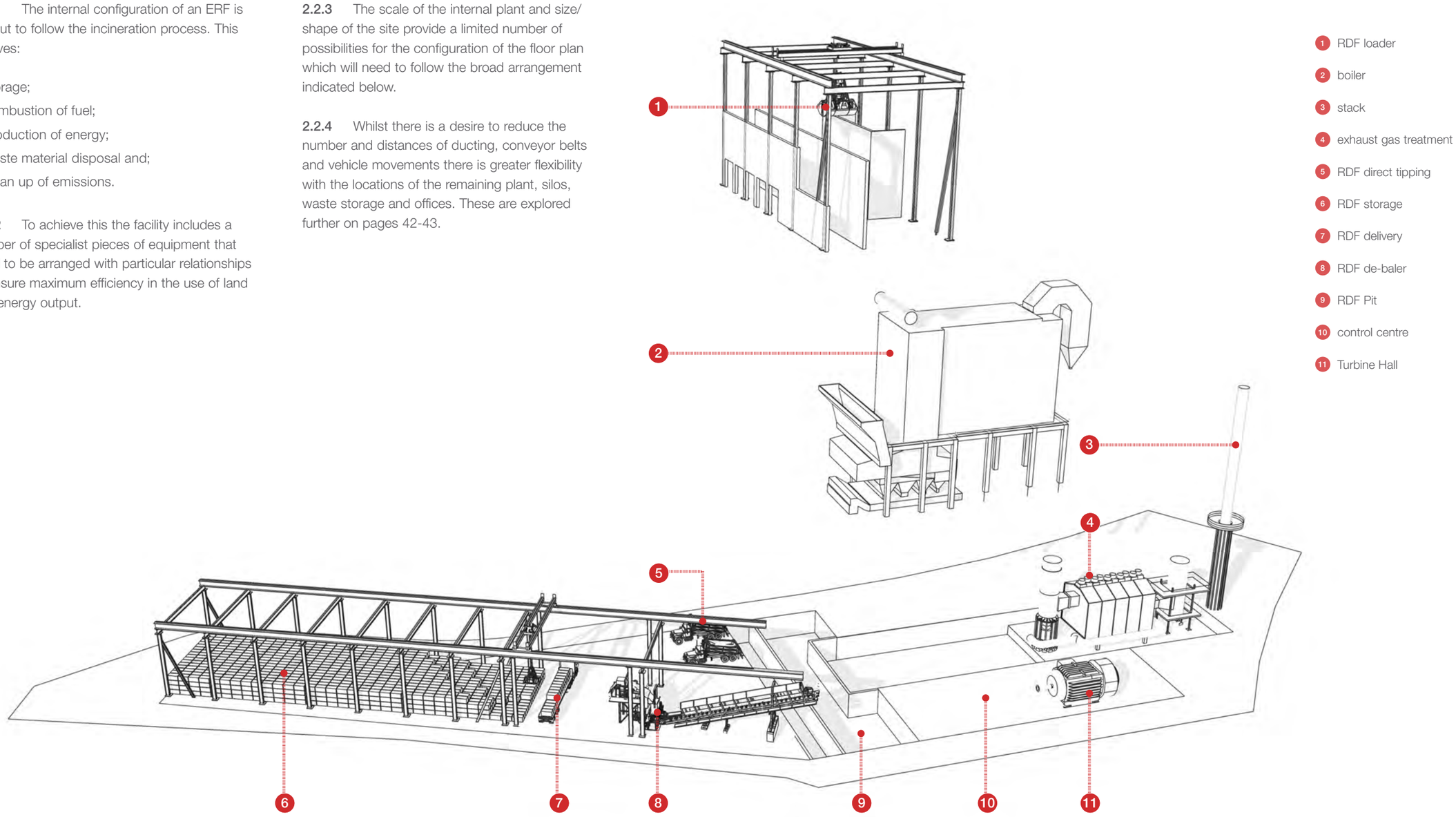
2.2.1 The internal configuration of an ERF is set out to follow the incineration process. This involves:

- storage;
- combustion of fuel;
- production of energy;
- waste material disposal and;
- clean up of emissions.

2.2.2 To achieve this the facility includes a number of specialist pieces of equipment that need to be arranged with particular relationships to ensure maximum efficiency in the use of land and energy output.

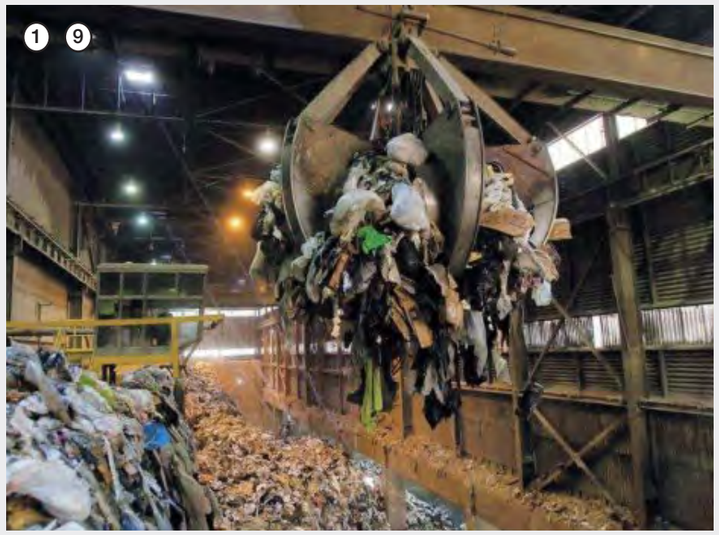
2.2.3 The scale of the internal plant and size/ shape of the site provide a limited number of possibilities for the configuration of the floor plan which will need to follow the broad arrangement indicated below.

2.2.4 Whilst there is a desire to reduce the number and distances of ducting, conveyor belts and vehicle movements there is greater flexibility with the locations of the remaining plant, silos, waste storage and offices. These are explored further on pages 42-43.



1 RDF loader
2 boiler
3 stack
4 exhaust gas treatment
5 RDF direct tipping
6 RDF storage
7 RDF delivery
8 RDF de-baler
9 RDF Pit
10 control centre
11 Turbine Hall

FIG 2.4
SITE LAYOUT - TECHNICAL RELATIONSHIPS



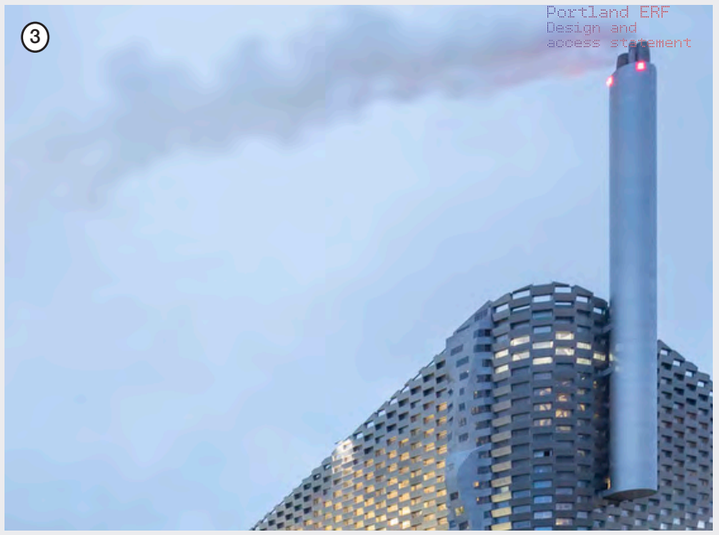


FIG 2.5 PRECEDENT IMAGERY - TECHNICAL COMPONENTS