



TOWN AND COUNTRY PLANNING ACT 1990

PLANNING STATEMENT

Lithium Hydroxide Monohydrate Refinery

Green Lithium Refining Limited

Kinkerdale Road, Teesport, TS6 6UE

Prepared for:
Green Lithium Refining Limited

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CHAPTER 1 INTRODUCTION



1. INTRODUCTION

- 1.1. Green Lithium Refining Limited (the '*Applicant*' or '*Green Lithium*' hereafter) is seeking Outline Planning approval from Redcar and Cleveland Borough Council (the '*RCBC*') under the provisions of the Town and Country Planning Act 1990 for the development of an integrated lithium production facility for the manufacture of concentrated Lithium Hydroxide Monohydrate (LHM) (the '*Green Lithium Project*' or the '*Proposed Development*').
- 1.2. The Proposed Development site relates to 58 acre former developed and undeveloped brownfield plot, within the PD Ports Teesport complex at Kinkerdale Road, Teesport, located around 4 kilometres west of the centre of Redcar.
- 1.3. A majority of the development plot forms part of PD Ports existing container storage facility and used for the storage of empty containers, vehicles and containerised goods. Under this proposal, the applicant is seeking outline permission to redevelop the site for the construction of a 3-line integrated lithium production facility for the manufacture of concentrated LHM.
- 1.4. The Proposed Development will utilise a phased approach, with the Applicant seeking to develop up to three separate chemical manufacturing and refining lines, with the potential production capacity of up to 75,000 tonnes of LHM per annum.
- 1.5. The outline planning application has considered the potential environmental impacts associated with the full development of the facility and assumes that all three production lines and all six phases will be developed as proposed. The environmental impacts of these proposals is further discussed and displayed in the Environmental Statement (ES) Volume 1 and 2.
- 1.6. This document is the Planning Statement (PS) and is the principal document that describes the proposed development in the context of relevant planning policies in the Local Plan, and other material considerations, such as national planning policy, and is being submitted to Redcar and Cleveland Borough Council (as Local Planning Authority, 'LPA') in support of the Outline Planning Application. This document has been prepared by Sol Environment Ltd on behalf of the Applicant.
- 1.7. The planning submission also comprises a series of drawings that show the location of the site to be developed in relation to the surrounding landscape as well the form and layout of the development proposals.

THE DEVELOPMENT SITE

- 1.8. The Application Site (i.e., the land that comprises all of the property to which this outline planning application relates) is located immediately south of Kinkerdale Road, Teesport, near Redcar, Teesside, TS6 6UE, approximately 8 km northeast of the centre of Middlesbrough and approximately 3.5 km north of the A66.
- 1.9. The centre of the Site is at approximate National Grid reference 455549 , 523469.
- 1.10. The Site is in an area of mixed industrial, chemical and storage uses and is situated directly on the South Bank of the River Tees, with PD Ports Teesport Dock approximately 350m west of the proposed Site.
- 1.11. The Site is situated within the central part of Tees Dock area of Teesworks and comprises largely developed hardstanding with some parts of recovered previously developed grassland.
- 1.12. An overarching description of the application site and surrounding area is provided in Chapter 2 of this Planning Statement.
- 1.13. The development of a lithium refinery at the scale proposed itself has a number of site-specific requirements which necessitate or lend itself its location in Teesside or other similar location namely:
- A site that is available that is in excess of 60 acres;
 - Provides a multi-modal transport and distribution network;
 - Deepsea port location with associated dockside offload and transfer facilities;
 - Access to hydrogen and low carbon infrastructure.
- 1.14. The development site, location choice and associated requirements are discussed and provided in further detail within this Planning Statement and the ES that accompanies this application submission.

THE PROPOSED DEVELOPMENT

- 1.15. Outline Planning permission is being sought for the Proposed Development of a LHM manufacturing plant on the land to the south of Kinkerdale Road, Teesport.
- 1.16. The proposed facility would comprise the following main elements:
- Storage Silos / Building Silos;
 - Loading and Parking;
 - Pyrometallurgy and Rotary Calcination Kilns;

- Analcime Cake Storage Building;
- Bulk Loader;
- Product Drying and Packing area;
- Welfare office;
- Feedstock Storage Buildings;
- Reagent Storage Silos;
- Switchgear and Transformers;
- Boiler House and equipment;
- Cooling towers;
- Existing PD Teesport Buildings;
- Autoclave and conversion plant; and
- Lithium Precipitation and Crystallisation plant.

1.17. The Proposed Development is a low carbon lithium hydroxide refinery which has been designed to extract lithium hydroxide from imported lithium ore (spodumene), and associated dockside reception, handling, storage, and manufacturing activities.

1.18. The Proposed Development will be constructed with 6 overall phases, as per the Project Phasing Plan (Figure 1.1 overleaf), with each phase or group of phases being subject to a separate ‘Reserved Matters’ Application or RMA at the appropriate time.

1.19. To ensure a robust assessment of the anticipated impacts of the Proposed Development, the ES has adopted an approach that assumes that all 6 phases (3 lines) will be constructed. Each respective Reserved Matters Application will provide clarification and further detail as necessary.

1.20. The detailed design and layout of each phase has yet to be determined and will be confirmed at part of the various RMA submissions that will be progressed by the applicant.

1.21. The basic parameters of the development that are being established as part of this outline application assume the following:

- All production and office buildings will have a maximum height that will not exceed 45m;

-
- Building Footprint not to exceed 180,000m² of occupied manufacturing and office space across 3-line production lines; and
 - Total Production capacity not to exceed 75,000 tonnes of lithium product at full capacity.
- 1.22. When completed, the refinery is designed to process approximately between 350,000 to 510,000 tonnes per annum of mineral ore material and undertake an organo-alkali metal production process to manufacture between 50,000 and 75,000 tonnes per annum of Lithium Hydroxide, dependant on number of production lines installed.
- 1.23. The incoming ore is sourced from overseas dependant on quality (Western Australia, China and Africa), where it is upgraded in a metallurgical plant for concentration of the spodumene containing ore.
- 1.24. The refinery will adopt a zero liquid discharge (ZLD) process, removing the need for effluent treatment and discharge of trade effluents to controlled waters and the sewerage network.
- 1.25. The main by-product of the lithium production process is an analcime sand which in itself is a product that can be used within the construction sector as a secondary aggregate and used in the manufacture of cement and concrete products.

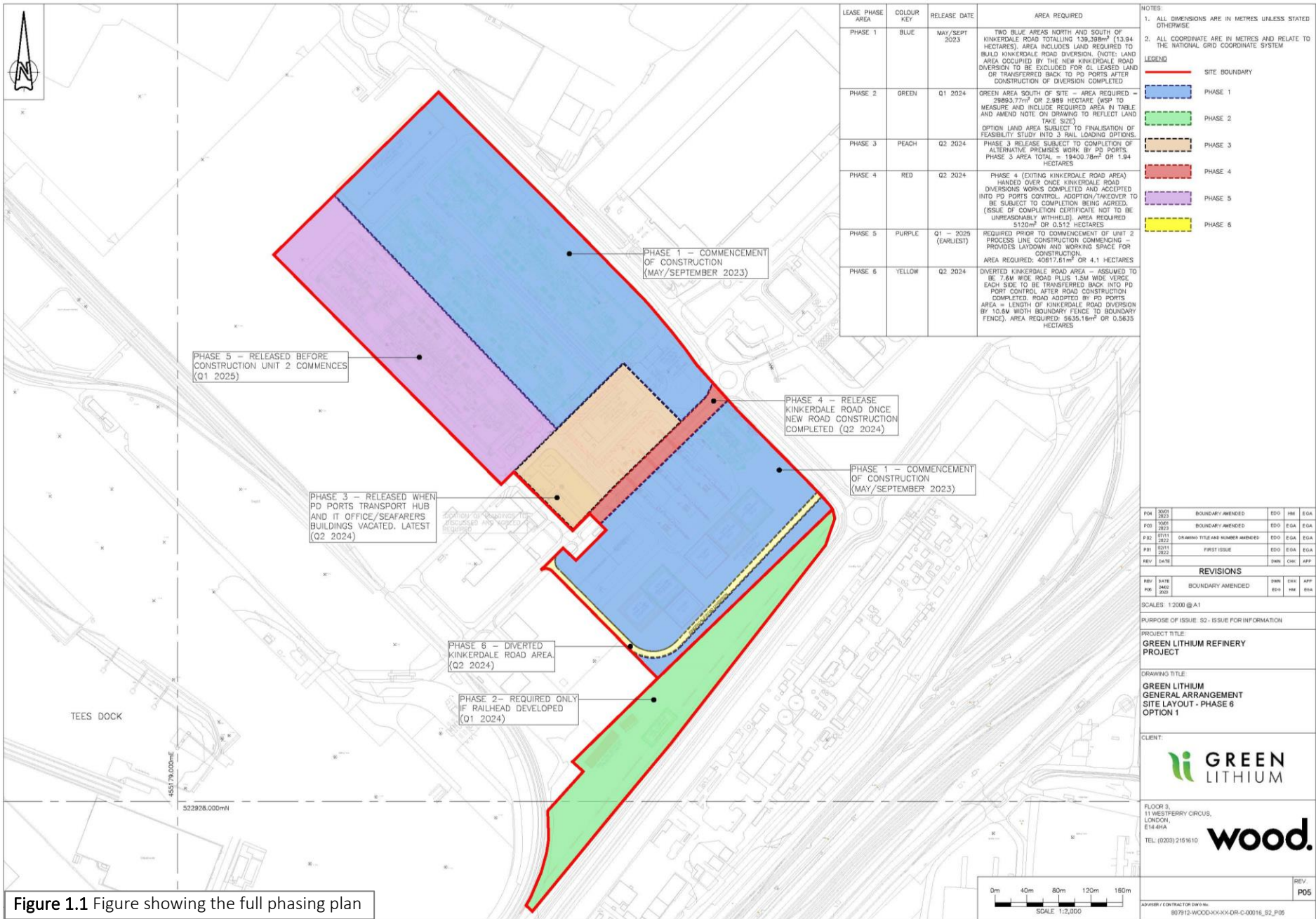


Figure 1.1 Figure showing the full phasing plan

NEED FOR THE DEVELOPMENT

- 1.26. There is an identified national and global demand for lithium, primarily driven by the Government’s net zero strategy and the decarbonisation of the UK transport sector.
- 1.27. Currently the lithium market is predominantly controlled in China, who control approximately 90% of the global lithium supply. The UK/EU currently depend on Chinese refined lithium chemical imports, driving major price/volume uncertainty. Onshore lithium refining is essential to meet the c.800,000 tpa European 2030 demand from EVs, noting further/fast-emerging demand from storage is unbudgeted in forecasts.
- 1.28. Ultimately, without localised supply, European automotive/storage sectors will fail.
- 1.29. The reducing amount of fossil fuels have accounted for alternative solutions to energy needs being considered. In order to limit global temperatures from increasing by 1.5°C the UK has set an agenda to have net-zero emissions by 2050. One of the primary methods of achieving this goal is through the decarbonisation of the transport and power sector with increasing demand and predicted growth for Electric Vehicles (EV) and battery storage technology. Lithium is a key element in battery technology with the demand predicted to grow by 600% over the next decade and beyond.
- 1.30. The ES that supports and accompanies this application pack provides specific detail on the need for the development and provides the necessary detail regarding global lithium market, UK’s forecasted demand and the geopolitical necessity for this facility.
- 1.31. This is discussed in more detail in Chapter 7 of this Planning Statement and within Chapter 5 of the ES.

THE APPLICANT

- 1.32. Green Lithium Refining Limited, founded in 2017, is an innovative technology development company with a vision to become one of Europe’s first manufacturers and suppliers of battery-grade Lithium Hydroxide to EV manufacturing in Europe.
- 1.33. Details about Green Lithium can be found on their corporate website <https://www.greenlithium.co.uk>.

PLANNING AND ENVIRONMENTAL IMPACT ASSESSMENT

- 1.34. The Environmental Impact Assessment Directive¹ (the “EIA Directive”) requires that, before granting ‘*development consent*’ for projects, including development proposals, authorities should carry out a procedure known as environmental impact assessment (or “EIA”) of any project which is likely to have significant effects on the environment.
- 1.35. The aim of the EIA Directive is to ensure that the authority giving consent for a project makes its decision in the knowledge of any likely significant effects on the environment. The current version of the EIA Directive has been adopted by the governments in the UK; the new regulations came into force in England on 16th May 2017 through the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations).
- 1.36. The EIA Regulations specify the types of development for which an EIA is mandatory (Schedule 1 Projects) and those categories of development where an EIA may be required (Schedule 2 Projects). The Proposed Development is within the descriptions for ‘*Schedule 1 EIA developments*’ and so must be considered against this criteria.
- 1.37. The Applicant has sought a Screening Opinion from Redcar and Cleveland Borough Council (‘RCBC’ or the ‘LPA’) to formally ascertain as to whether the development requires an EIA to be provided as part of the planning application process.
- 1.38. A request was made to RCBC on 10th August 2022 and a formal Screening and Scoping Opinion provided by the LPA on the 21st September 2022. The outcome of the Screening and Scoping Opinion was that the proposed facility meets the definition of a Schedule 1 EIA development and therefore requires the provision of an ES.
- 1.39. The scope of the ES contained within this planning application align with the agreed Scoping Opinion provided by LPA and are provided as a separate document within Planning Submission.

¹ Directive 2014/52/EU of The European Parliament And Of The Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0052>

Pre-application Engagement

- 1.40. The Applicant has engaged in pre-application discussions with Planning Officers at RCBC in order to introduce the Proposed Development, identify key planning policies and issues and also agree the scope of the planning application.
- 1.41. A formal pre-application discussion meeting was held with the officers of RCBC on the 17th of January 2023.
- 1.42. The pre-application advice for the development provided by the LPA is summarised below:
- Agreement on the red line boundary of the Proposed Development;
 - Agreement on the alignment of the Proposed Development with the specifications set out in RCBC Policy SD4 ‘*General Development Principles*’;
 - Recommended that a Cultural Heritage desk-based study to determine the likelihood of valued heritage;
 - Extent, nature and relevant parties associated with the public consultation; and
 - A presentation to RCBC members and local councillors describing the nature and timescale of the project is recommended.

THE SUBMISSION AND ITS STRUCTURE

- 1.43. The primary purpose of this Planning Statement (PS) is to demonstrate how the Applicant has taken account of relevant planning policy at local and national level and to set out how the Proposed Development complies with that policy.
- 1.44. Where relevant, the PS draws upon and cross-refers to the other documents that form part of the planning application submission.
- 1.45. This document is organised and presented in the following way:
- Section 2 – Describes the Application Site and its surroundings.
 - Section 3 – Describes the Proposed Development and its main design components and its access arrangements.
 - Section 4 – Sets out the need for the Proposed Development within the context of recent UK energy and climate change policy.

- Section 5 – Provides an overview of the local planning designations and statutory (local) Local Plan policies of relevance to the Application Site and the Proposed Development.
- Section 6 – Provides an assessment of the Proposed Development against relevant local and national planning policy.
- Section 7 – Identifies the key benefits of the Proposed Development as well as any likely significant effects upon the environment.
- Section 8 – Sets out the conclusions of the PS.

SOL ENVIRONMENT LIMITED

1.46. Sol Environment Ltd is an independent environmental consultancy that provides regulatory, permitting, planning and sustainability support across a broad spectrum of sectors with a key focus on Renewable Energy, Built Environment, Low Carbon Technologies.

1.47. Further information on Sol can be found on its corporate website at <http://www.sol-environment.co.uk>

PUBLICATION

1.48. Paper copies of the planning submission can be obtained from Sol Environment Ltd at the following address:

Sol Environment Ltd,

Unit 5.3 Paintworks,

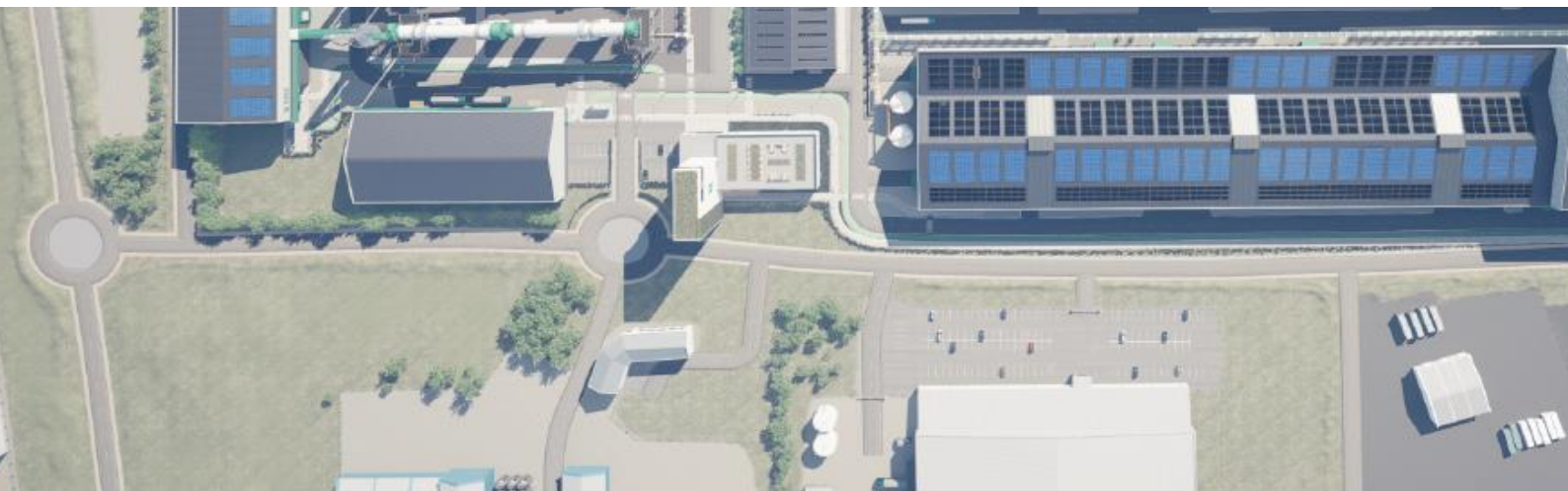
Arnos Vale, Bristol,

BS4 3EH

1.49. The planning submission is available in both paper and CD-ROM format, for which a charge of £150 and £25 is applicable respectively. In addition, an electronic version of the planning application can be downloaded from the Planning Portal and Redcar and Cleveland Council website.



CHAPTER 2 SITE DESCRIPTION



2. SITE DESCRIPTION

INTRODUCTION This section provides a description of the Site and the surrounding area. The environmental characteristics of the Site and surrounding area are described within Chapter 3 of the ES.

LOCATION

- 2.2. The Application Site (the 'Site') is located on land within forming part of the wider Teesport Estate and is located immediately adjacent to, and south of Kinkerdale Road. The area is on the outskirts of the urban areas of Redcar (approx. 3.8km east of the site) and Grangetown (approx. 2.5km southwest of the site). The city of Middlesbrough is located approximately 6.5km southwest of the site.
- 2.3. The Site lies entirely within the administrative boundary of RCBC. The location of the Site is shown in Figure 2.1 overleaf.

SITE DESCRIPTION

Extent and Land Use

- 2.4. The Site comprises a single land parcel as illustrated by Figure 2.3. The Application Site is approximately 58 acres (23.53 ha) and comprises an approximate rectangular parcel, which is partially vegetated with grassland as well as concrete hardstanding utilised for storage of cars and shipping containers.
- 2.5. Figure 2.2 provides an outline of the site extent and Figure 2.3, as well as Figure 2.4 provide an aerial image of the application site provided by Google Satellite.
- 2.6. Photographs of the Site can be seen in Figures 2.6 – 2.8.
- 2.7. The subject site is centred on National Grid Reference NZ 55344 23603.
- 2.8. The site and surrounding areas have a long and layered industrial history. The development site previously formed the site of the Teesport Refinery developed in 1968 by Shell Oil and subsequently mothballed in 1989 and later closed. Since the closure of the refinery, the site has been repurposed by PD and is essentially undeveloped, with the exception of a very large area of secured and purposely constructed hardstanding for the external storage of empty containers, general laydown and vehicles and motor vehicles.



 Planning Red Line Boundary

Figure 2.1 Regional Site Location

- 2.9. Prior to the development of the Shell Petroleum refinery the site was largely undeveloped marshland until the marshes started to be reclaimed during the 1950s. By the early 1960s, large parts of the southern area of the site had been used for railway lines connecting to the wider area, while the northern area of the site was reclaimed by 1965 and being developed for the refinery.
- 2.10. The River Tees is located approximately 500m to the north of the Proposed Development. The site is well defined by existing infrastructure and road corridors such as Dabholm Road and Teesport Road to the north east and south east respectively, railway sidings and the PD Teesport container terminal to the south west.

Topography

- 2.11. The Site is generally flat lying and is at an elevation of around 5.8 m - 6.8m above ordnance datum (AOD).

Access

- 2.12. The site is currently accessed through Tees Dock Road, Tees Dock Road further connects to the A66, which develops into the A66(M), linking Teesworks to other hubs of northeast of England.

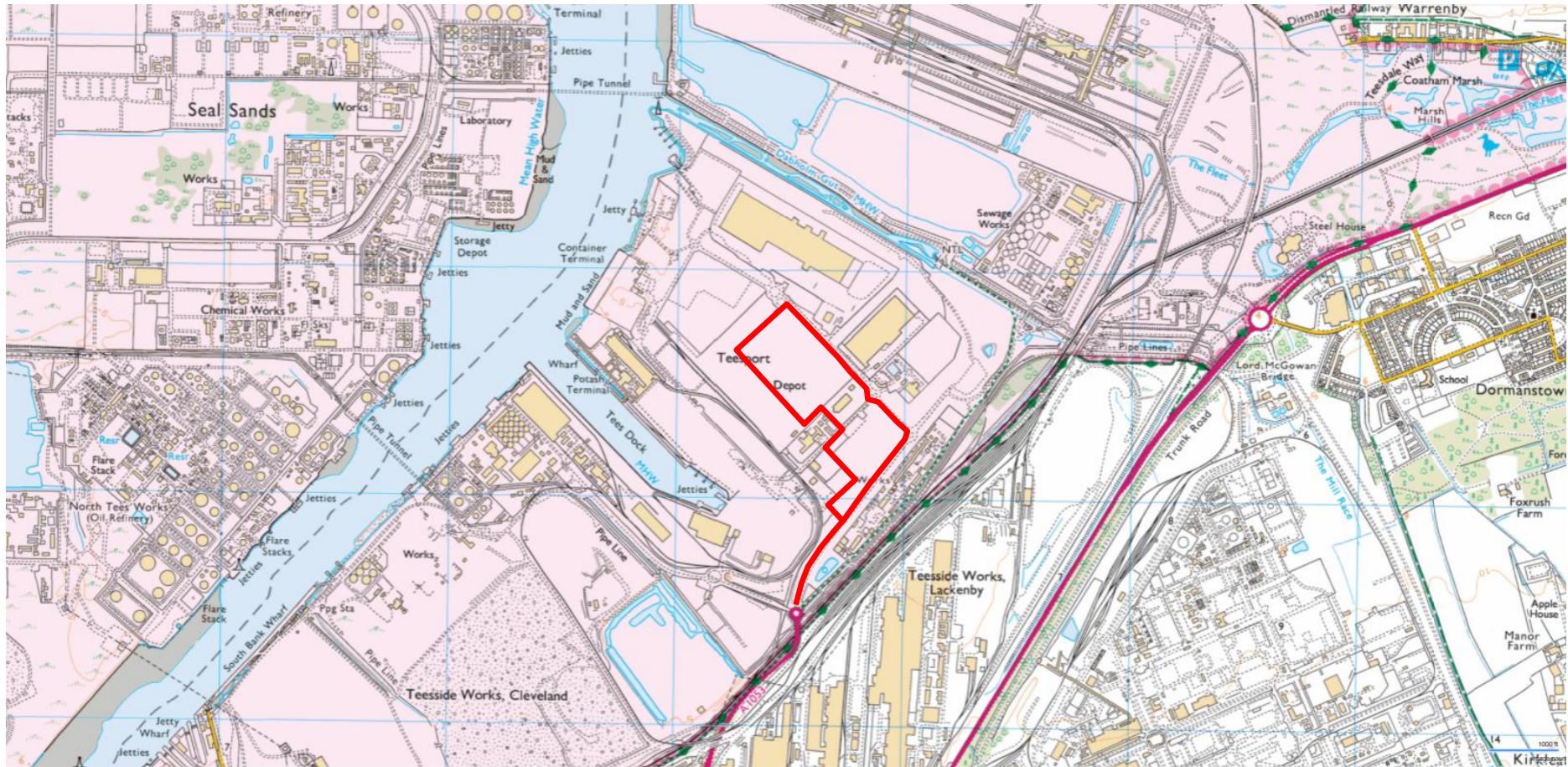


Figure 2.2 Site Location and Boundary



Figure 2.3 Site Location and Boundary (aerial view)



Figure 2.4 Rendered Aerial Image of site showing Proposed Development, with the third line transparent



Figure 2.5 Site Photograph at rear of Proposed Development looking south toward BOC



Figure 2.6 Site Photograph mid site looking north towards River Tees



Figure 2.7 Site Photograph of neighbouring PD Teesport dockside loading facilities to south site



Figure 2.8 Site Photograph of neighbouring PD Teesport rail freight connection

PREVIOUS DEVELOPMENT

- 2.13. The site and surrounding areas have a long and layered industrial history. Recent aerial photography and historical Ordnance Survey maps have been reviewed and consulted to provide a chronological history of the site.
- 2.14. The earliest historical mapping indicates that the site was initially entirely below the high water mark within an area of tidal mud flats and sand of the River Tees estuary. By the 1893 mapping a sea wall or defence is shown to have been constructed through the centre of the site and reclamation of the River Tees estuary commences. The northern half of site remains below the high water mark as shown in imagery from the Britain from Above website until sometime between 1955 and 1965 when the River Tees estuary is reclaimed to its current limits. Following the construction of the sea wall/defence in the 1890's the southern part of the site is located above the high water mark and is shown to contain marshes, ponds and earthworks/embankments. A railway line connecting the site to the adjacent Lackenby Slag Breaking Plant was added to the southern half of the site during the 1950's.
- 2.15. By 1965 the entire site and land beyond the northwest and northeast had been reclaimed from the River Tees. By this time the southern half of the site had been developed with a marshalling yard, but the remainder of the site appears disused. During the late 1960's to early 1970's the Teesport Refinery was developed onsite and dominates the land use of the northern half through to the late 1980's. The refinery included tanks, chimneys, pipelines a fire station and other ancillary structures. The refinery covered an area larger than the site extending beyond the site to the west and north.
- 2.16. By the early 1990's the Teesport Refinery had been demolished and the northern half of the site is annotated as a depot. The historical aerial imagery indicates that the site was initially used to store vehicles but by 2015 the site changed to a container storage depot associated with the nearby Teesport. The southern half of the site remains open disused land from around 1999 to the present day.
- 2.17. In the wider area the earliest mapping indicates that industrialisation of the site surroundings commenced from around the 1890's. This starts with the construction of the Lackenby Iron Works and the Tees Slag Wool Works to the south and the formation of slag heaps to the southwest of the site. The Lackenby Slag Break Plant is constructed approximately 250 metres southwest of the site in the early 1900's and historical mapping identifies the slow development of earthworks to the south of the site through to the 1960's. During the 1960's and early 1970's significant industrial development is identified to the south and west and the River Tees estuary is reclaimed to its current limits. This includes the

development of the South Teesside Works Lackenby, Teesport Refinery, Lackenby Tank Farm, works (unspecified), warehouses, marshalling yards, electrical sub-stations, and an oil supply terminal.

- 2.18. By the early 1990’s industry in the areas starts to decline with the removal of the Teesport Refinery to the immediate west as well as the oil terminal and Lackenby Tank Farm to the south. The Teesport to the west of the site continues through the 2000’s to the present day and to the immediate northeast unannotated commercial/industrial buildings are added.
- 2.19. Detailed site history, contamination investigation and ground condition assessment is provided within the ES Volume 1 and 2.
- 2.20. Table 2.1 below provides a brief summary of the site historic mapping.

Table 2.1: Site Development History		
Map/ Aerial	On-Site	Off-Site
1855, 1857	Nothing shown.	Fields shown to the south east of the site boundary, with the possibility of being used for agricultural purposes.
1893	The north area of the Site is shown as an offshore tidal estuary, with the high water mark splitting the site in two. The south area of the site was known as ‘the marshes. The southern area of the site contained various small watercourses, pond and crossed by footpaths to the shoreline.	To the north of the site is further estuarine environments, with Dabholm Gut approximately 300m northeast. The southern extent of the mapping shows farmable land however no farms are shown to be in place.
1896, 1897	Nothing shown.	No significant change.
1913, 1914	Nothing shown.	To the southwest of the site sees creation of a slag breaking plant as well as Tee Slay Wool Works approximately 500m from site.
1920	Nothing shown.	No significant change.
1923, 1927	No significant change.	No significant change.
1927, 1930	Nothing shown.	Lackenby Works is shown on the map approximately 750m southwest of the site.
1938, 1940	No significant change.	No significant change.
1950	Nothing shown.	No significant change.
1952, 1955	The site remains largely unchanged aside from the marshes beginning to become reclaimed. The southern area of the site has seen to be used for railway lines connecting to Teesworks.	No significant change.

1965	The northern area of the site shows full reclamation and is being prepared for development.	No significant change.
1974, 1988	The northern area of the site is seen to be used as part of Teesport Refinery, with a variety of tanks and buildings as well as an electrical substation. The southern area of the site gained another set of railway lines running through it as well as a fire station present on site to serve the refinery.	The surroundings of the site sees massive changes for the area, with a multi-track railway directly south of the site running ne-sw. Lackenby Works sees large growth, encompassing the surrounding agricultural land. A large proportion of area apart from the north western most extent is found to be reclaimed from the estuarine environment. Tees Dock also sees formation, with subsequent warehousing and terminal developments. Dabholm Gut is seen to be managed and have alterations.
1991, 1992	Maps from 1991 show the tanks have largely been cleared by this point, with the only infrastructure remaining on site being the railway lines across the southern area of the site and some small roads. The large areas that formerly held tanks were now designated as depots.	The tanks surrounding the site have also been cleared, as well as the tanks associated with Lackenby Works, 750 to the southwest.
2001	By 2001, the PD Teesport office building had been constructed on site, but the rest of the site remained vacant, with aerial photos from 1999 showing the site largely as it is at present.	No significant change.
2010	No significant change.	Construction of warehouse bounding the east of the site is found. Further industrial development is also present further north east.
2022	No significant change.	Large warehouse found north east of the site.

Identified Site Contamination

2.21. The site has been subject to numerous phases of contamination investigation and risk assessment. The key historical pollution source and associated activity relates to the development and use of the site as an oil refinery.

2.22. The historical sources of contamination at the Site include:

- Made Ground;
- Contamination associated with Lackenby works, south west of the site;
- Oil supply terminal southwest of the site;
- Previous contamination associated with the Teesport Refinery tanks; and
- Railway lines previously present on site.

- 2.23. The preliminary risk assessment identifies risks associated with onsite sources that are currently classified as Moderate and are associated with future site users, onsite buildings, controlled waters and ecologically designated sites. These risks relate to contamination in Made Ground that is related to the site historical use as a refinery and reclamation of the River Tees estuary.
- 2.24. The Made Ground underlying the site has the potential to be a source of asbestos, heavy metals and hydrocarbon. In addition, previous investigations of the site have identified areas of free phase hydrocarbon contamination.
- 2.25. There is also the potential for the Made Ground to be significant source of ground gas, which was identified in previous investigations of the site.
- 2.26. An investigation and remediation strategy will be developed as part of the construction programme and delivered to the full satisfaction of the planning authority and Environment Agency as part of the pre-commencement works associated with the development and construction of the site.
- 2.27. Further information relating to the contaminated land impacts is provided within the ES that accompanies this application.
- 2.28. At the time of writing, the entire site has been remediated and validated to the satisfaction of the Environment Agency. The site is now considered to have been remediated and returned to a standard that is considered to be suitable for ongoing commercial use.

SURROUNDING AREA

- 2.29. A number of heavy industrial businesses are located surrounding the Teesport site, comprising British Steel, BOC and the wider Teesworks development area. To the north of the site beyond the River Tees are further industrial estates of North Tees involving both the Navigator Terminal and other significant industrial infrastructure.
- 2.30. The land uses around the Site can generally be summarised as follows:
- *North:* Bounding to the northern Site boundary is further tarmac hardstanding, owned by PD Ports and used as an automobile storage site. At approximately 100m from the site a rectangular area of brownfield site is present, ending at Dabholm Road. After this a large industrial warehouse development used by Tesco can be found, 340m from the northern site boundary. Past this Dabholm Gut of the River Tees is found approximately 500m north, this is bounded (north east side) by the Redcar Bulk Terminal aggregate importation and storage terminal, found approximately 1.2km north and extending past 2km.

- *East:* Adjacent to the eastern boundary lies Dabholm Road, which serves a further PD Ports Ro-Ro Terminal, and the wider Teesport Estate. The area includes an Asda Importation Warehouse and Kimera Chemical. The vacant land to the east up to the Dabholm Gut forms part of the wider Teesport Northern Gateway development area found approximately 600m from the site. Northumbrian Water is found approximately 1.1km east of the site boundary.
- *South:* The south side of the site is bounded by the main site Teesport Estate access road (Teesport Road), immediately to the south of the road lies the BOC Teesport industrial gas production facility. Beyond this lies the main Network Rail line from Saltend to Darlington, the Lakenby Steel Works (now part of the wider Teesworks Development area) then the main A1085 road from Middlesbrough to Redcar and beyond. Past this are a number of smaller industrial sites including Suez recycling and recovery and Telcoss, found approximately 1.4km from the development boundary.
- *West:* Adjacent to the western boundary of the Site is PD Teesport primary container terminal and port operations, with Cleveland Potash Marina also present. After crossing the port, the industrial estate continues, with MGT TeesREP Biomass Power Station and the Highfield Environmental Landfill site. Beyond this is the wider Teeworks Development area of Southbank and the SeAH Wind Turbine manufacturing construction site.

2.31. Figure 2.9 overleaf shows the Site in context of the neighbouring commercial developments.

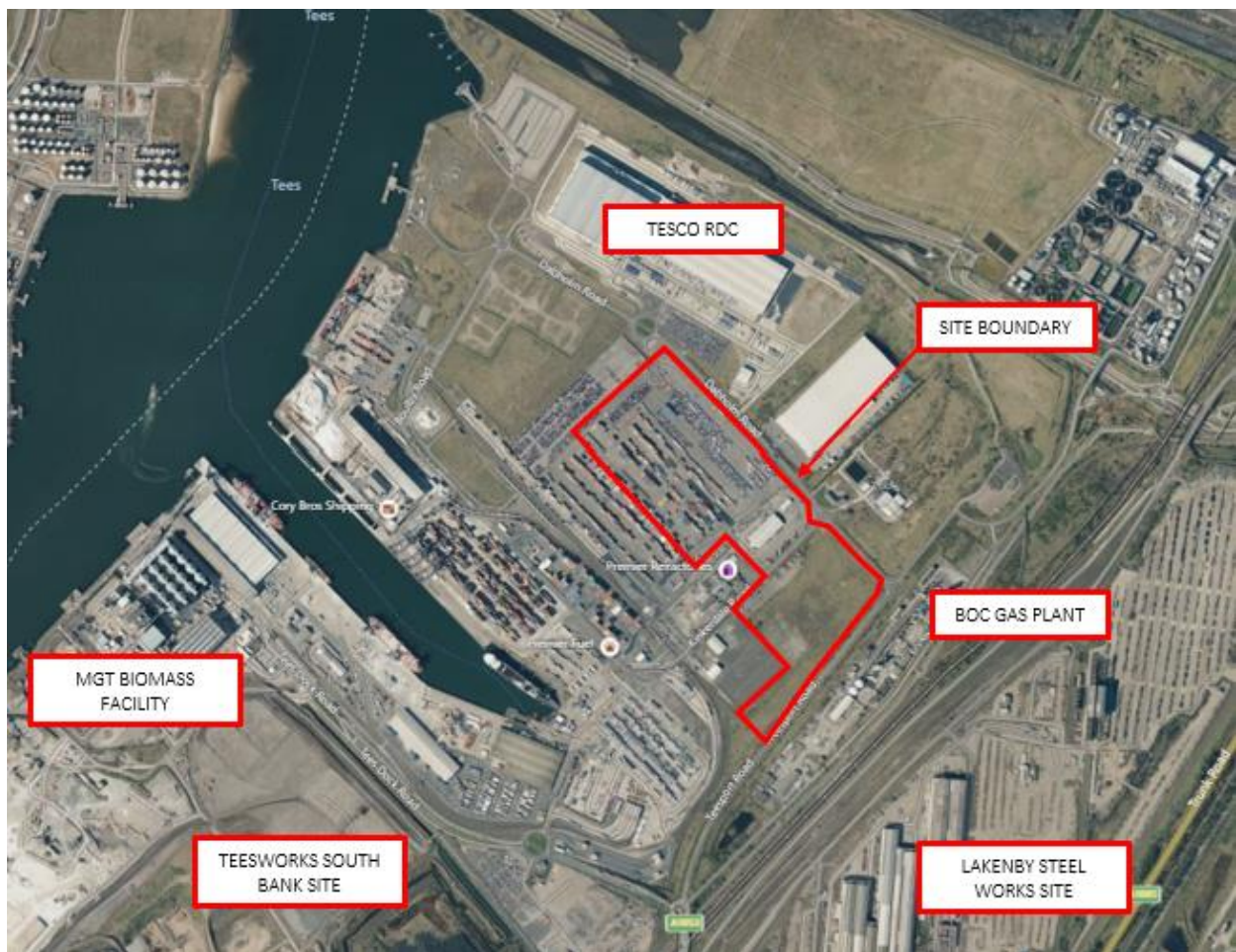


Figure 2.9 Aerial Photograph of neighbouring commercial developments



CHAPTER 3 THE DEVELOPMENT



3. THE PROPOSED DEVELOPMENT

INTRODUCTION

- 3.1. This section provides details of the Proposed Development. In this respect it describes the physical form of buildings and structures to be erected, the ancillary infrastructure and the quantity of mineral spodumene to be processed.
- 3.2. It should be noted that the detailed engineering and technical detailing of the proposed facility would only be finalised on the award of construction contracts and would be dependent upon the equipment and contractors used.

OVERVIEW OF THE DEVELOPMENT PROPOSALS

- 3.3. Outline Planning Permission is being sought for the establishment of a 3 line (75,000 TPA) LHM production plant utilising spodumene concentrate.
- 3.4. The primary raw material of the Lithium Hydroxide plant is spodumene concentrate with an option to also feed Technical Grade Lithium Carbonate to the process. The final product is Battery Grade LHM.
- 3.5. The Process can be broken down broadly into three key stages:
 - Calcination;
 - Hydrometallurgy; and
 - Crystallisation.

CALCINATION

- 3.6. The Calcination process breaks down the raw materials (also known as spodumene concentrate) by heating the material using natural gas combustion within a large calcine rotary kiln, reaching elevated temperatures in excess of 1000°C. Once the material passes through the rotary kiln, it then passes into a rotary cooler to reduce the temperature, allowing for safe handling of the material as it is prepared for the next stage.

HYDROMETALLURAGY

- 3.7. The Hydrometallurgy process starts with grinding and pulping process, where calcinated material is wet ground and pulped into a slurry using recovered process water. This slurry is then passed into the autoclave unit where the alkali-leaching process (soda pressure leaching) takes place, using high pressure, high temperature steam and air. The resultant post leach slurry (comprising a lithium

carbonate and analcime solid solution) is then transferred to the soda leach separation/filtration unit where the material is washed and dried. The dried leach residue filter cake is then transferred to a two stage conversion process, where the cake is further broken down, repulped with recycled wash filtrates, mixed with calcium hydroxide and then passed through conversion reactor tanks. A further filtration process separates solids and liquids, with the resultant liquids being feed to the second stage conversion process. The second stage conversion removes unwanted impurities that may contaminate the final product. Filtrate from both stages of the conversion process is then filtered, polished and cleaned before being passed to the Ion Exchange units where any remaining impurities are removed from the solution prior to the crystallisation stage.

CRYSTALLISATION

- 3.8. A two stage Crystallisation Process will be provided to ensure product quality. The dilute lithium hydroxide liquor received from the Hydrometallurgy is essentially heated to evaporate the liquids producing crude lithium hydroxide crystals that are then further filtered and dried to ensure all impurities are removed.
- 3.9. The output of this stage is then forwarded to the product storage and packing area for distribution to the supply chain.
- 3.10. The design output of the plant is to produce 75,000 tons per annum of battery-grade lithium hydroxide, assuming that all 3 process lines are constructed. At this stage it is not known whether all 3 process lines will be developed, however this will be confirmed once the first two lines are operational and in a steady state of operations.
- 3.11. Throughout the process above, the plant re-uses excess liquids and heat by re-introducing them at various stages to ensure we not only reduce our waste but also our carbon footprint.

TECHONOLOGY DESCRIPTION

- 3.12. The hydrometallurgical lithium refinery plant will be based on Metso Outotec's proprietary technologies which include grinding and pulping before pressure leaching, conversion and ion exchange process stages. Partners have provided data of the lithium hydroxide crystallization plant to produce battery grade LHM.

The proposed facility would comprise the following main elements:

- Storage Silos / Building Silos;
- Loading and Parking;

- Pyrometallurgy and Rotary Calcination Kilns;
- Analcime Cake Storage Building;
- Bulk Loader;
- Product Drying and Packing area;
- Welfare office;
- Feedstock Storage Buildings;
- Reagent Storage Silos;
- Switchgear and Transformers;
- Boiler House and equipment;
- Cooling towers;
- Existing PD Teesport Buildings;
- Autoclave and conversion plant; and
- Lithium Precipitation and Crystallisation plant.

3.13. The spodumene feedstock, which contains the recoverable lithium that will be imported from overseas (Europe, Africa, Australia and South America) directly into the nearby PD Tees Dock facility.

3.14. The spodumene feedstock will be internally transferred the short distance from the offloading quay to the onsite feedstock storage buildings by the internal PD Teesport private road network by the port operator.

3.15. The Lithium Hydroxide plant process consists of following process stages:

- Calcination of α -spodumene to β -spodumene within the Rotary Kilns and coolers;
- Grinding of the β -spodumene calcine;
- Pressurized autoclave leaching of the β -spodumene within the Soda Leaching Plant that includes;
 - Solid/liquid separation of the pressure leach slurry;
 - Conversion of the autoclave residue;
 - Leach residue filtering and handling;

- Ion exchange and solution polishing;
 - Crystallization of lithium hydroxide and product handling;
 - Crystallization mother liquor bleed distribution and carbonation;
 - Effluent treatment within the 'Zero Liquid Discharge Plant'.
- 3.16. It is anticipated that the Lithium plant will operate continuously, 24 hours a day (7 days a week, 365 days a year), subject to planned shutdowns and maintenance. The process lines have been designed for zero waste products. The majority of non-Lithium Hydroxide outputs will be sold onto other businesses or recycled back into the process.
- 3.17. The Proposed Development will include zero liquid discharge (ZLD). All water discharges from the process will be routed to the ZLD plant where the process will neutralise the influent before recovering all water via an evaporation/cooling process returning recovered water to the overall lithium production process. The resultant salts arising are recovered and will be sold or reused. This will remove the need for any effluent discharge.
- 3.18. The Lithium Hydroxide produced at the Site will be exported by either road or rail to supply UK demand and also utilise the Teesside Freeport network to supply wider European consumers.
- 3.19. A new connection to the Northern Power Grid is required and will involve laying approximately 1200m of new 66kV supply cable from an overhead 66kV tower adjacent to Tees Dock Road to the site. A new 66/11kV substation will be constructed on site to facilitate on site power distribution.
- 3.20. It is proposed to install an array of high efficiency solar panels on proposed building roofs to offset the need to import green energy through the grid system.
- 3.21. It is proposed that the Proposed Development will be powered through the import of 100% certified renewable electricity contracted through a dedicated 'sleeved' contract with existing local suppliers, set up during construction and operation.
- 3.22. It is estimated that during the construction phase of the project 1000 workers will be employed for the 3-year construction duration. Based on three lithium production lines being developed, up to 250 full time staff are expected to be employed at the plant. It is anticipated that the construction phase of the development will begin Q1 of 2024 and finish in 2026 with processing operations commencing shortly after.
- 3.23. Further information regarding the construction and operation of the Proposed Development can be found in in Chapter 4 and 5 of the ES Volume 1.

- 3.24. In order to demonstrate the acceptability of the development proposals, a comprehensive development scheme has been prepared and is described in this chapter. The scheme addresses the construction and operation of the facility and ancillary infrastructure; it describes the physical nature of the buildings and infrastructure to be constructed within the site, and the processes to be undertaken once the facility is commissioned.
- 3.25. This Planning Statement should be read in conjunction with the following drawings which provide the necessary plan layouts, site elevations and cross sections of the Proposed Development:

Table 3.1 Drawings	
Plan Title	Doc Reference
Site Location Plan	GLR_PDTP_001
GA Site Red Line Boundary	807912-WOOD-XX-XX-DR-C-00005_S2_P05
Topographical surveys	MG49340-T-01, MG49340-T-02, MG49340-T-03, MG49340-T-04
Site Layout – Phase 1	807912-WOOD-XX-XX-DR-C-00007_S2_P07
Site Layout – Phase 2	807912-WOOD-XX-XX-DR-C-00008_S2_P07
Site Layout – Phase 3	807912-WOOD-XX-XX-DR-C-00009_S2_P07
Site Layout – Phase 4	807912-WOOD-XX-XX-DR-C-00010_S2_P07
Site Layout – Phase 5	807912-WOOD-XX-XX-DR-C-00011_S2_P07
Site Layout – Phase 6	807912-WOOD-XX-XX-DR-C-00016_S2_P05
Proposed Site Plan	215005-00740-CI-DAL-0001-B
Proposed Administration Building Plan	215005-00740-AR-DAL-0001
Proposed Gate House Plan	215005-00740-AR-DAL-0002
Proposed Site Sections	215005-00740-CI-DAL-0011-B
Proposed Site East Elevation	215005-00740-CI-DAL-0011-B
Proposed Site West Elevation	215005-00740-CI-DAL-0011-B
Proposed Site South Elevation	215005-00740-CI-DAL-0011-B

Proposed Site North Elevation	215005-00740-CI-DAL-0011-B
Proposed Elevations – Occupied Buildings	215005-00740-CI-DAL-0011-B
Proposed Elevations – Materials / Products Stores and Gate House	215005-00740-CI-DAL-0011-B
Proposed Elevations – Main production buildings	215005-00740-CI-DAL-0011-B
Proposed Emission Plan	807912-WOOD-XX-XX-DR-C-00017_S2_P01
Proposed Drainage Plan	215005-00740-CI-DAL-0021
Constraints plan (major services etc)	MGS49340-U-All-01, MGS49340-U-All-02, MGS49340-U-All-03, MGS49340-U-All-04, MGS49340-U-All-05

GENERAL ARRANGEMENT

3.26. Drawing 215005-00740-00-ME-DAL-0001 illustrates the layout of the proposed facility, identifying a number of different buildings and structures. Drawing 215005-00740-CI-DAL-0011-B illustrates the elevation of the various buildings and structures within the site.

3.27. The site layout is split into two main areas operational areas as follows:

- The northern approximate two thirds of the site accommodating the main hydrometallurgy processing area and
- The southern area (identified as the area immediately to the south of the existing Kinkerdale Road which accommodates the main Pyrometallurgy (calcination plant), feedstock storage buildings, reagent silos and mixing facility, analcime sand storage building , boiler plant, cooling towers and associated ancillary equipment,

3.28. The northern area of the site is primarily occupied by the Hydrometallurgy Process Plant and associated buildings. These will be three identical structures with a slight offset to the third line due land boundary constraints at the southern boundary. These house three identical lines of process equipment including Beta spodumene storage silos, Grinding equipment, slurry and mixing tanks, Soda Pressure Leaching autoclave, Lithium Precipitation and Crystallisation Plant. The furthest northern part of this building sees Hydrometallurgy building houses the Drying and Packing Plant with Product Storage Warehouses.

3.29. An illustration of the proposed Site Layout showing two lines can be seen overleaf in Figure 3.1, it is noted that this does not show the full phase of the development.

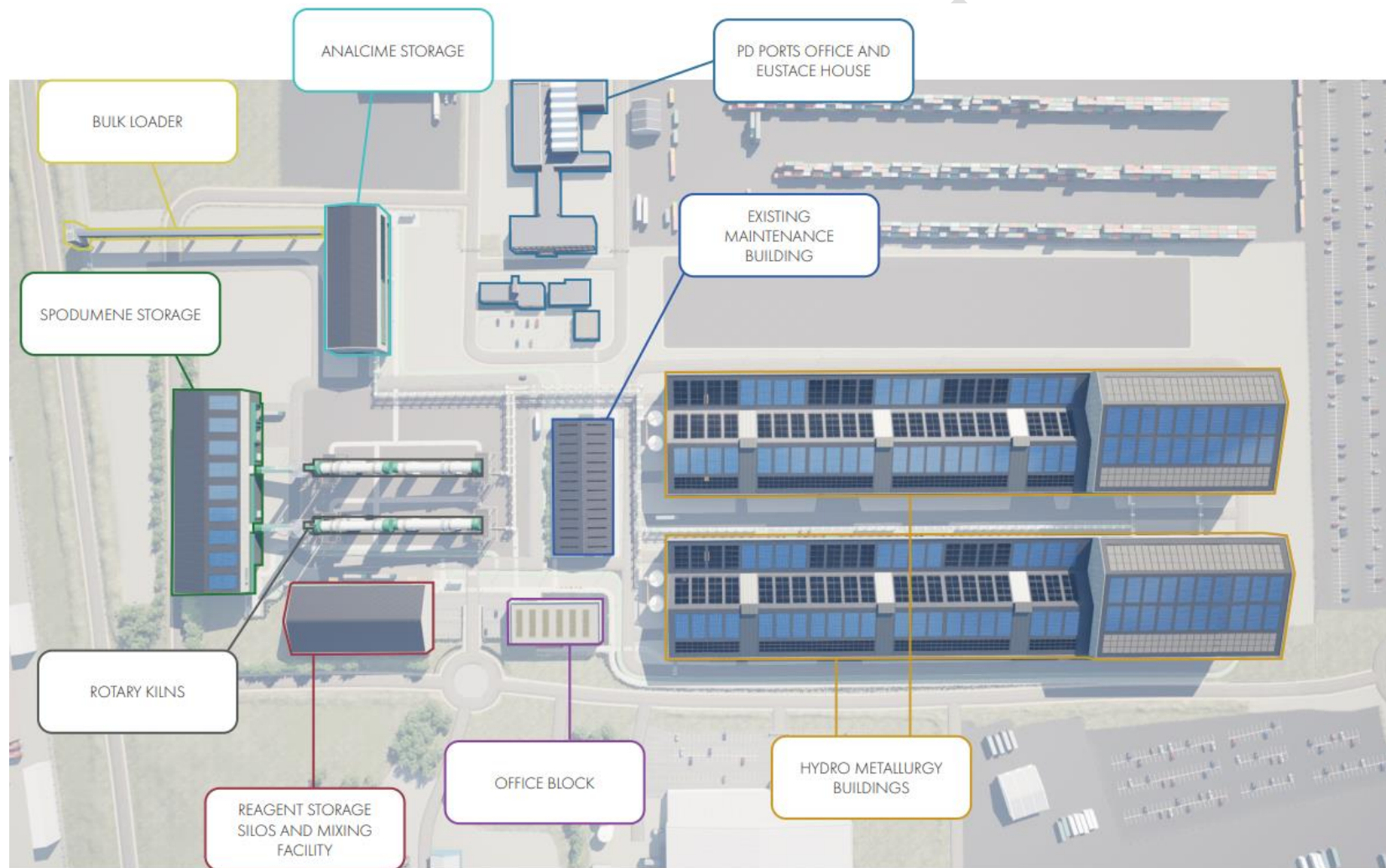


Figure 3.1 Illustration of Site Layout

- 3.30. The southern area of the site sees multiple storage buildings, with concrete pushwalls 7-8m high, for unprocessed spodumene as well as processed spodumene and analcime storage. This area of the site is also home to the analcime cake stockpile and rotary kilns, the start of the production process.
- 3.31. The main site entrance is in the east of the site with the office building and associated car parking surrounding this.
- 3.32. Between the buildings and various items of plant is a network of pipe rack structures and conveyor systems.

PROCESSING PLANT AND BUILDINGS

Bulk Unloading, Spodumene and Analcime Storage and Handling

- 3.33. Bulk unloading of spodumene rich ore will occur at PD Ports Tees Dock using existing grab cranes. Loading will then take place onto HGV's, which will then be delivered directly to the Site. When the material then arrives at the site it will be offloaded directly to the relevant storage area, all primary storage areas are located at the southern end of the site, with analcime, spodumene feedstock and processed spodumene separate storage areas found here.
- 3.34. Large storage sheds for the primary raw material feedstock (lithium-bearing ore spodumene) and the co-product (analcime sand) will be constructed with modularised internal reinforced concrete push walls to enable the feedstock to be stored safely and to mitigate against the risk of dust diffusion.
- 3.35. All storage buildings will be designed to ensure dust that may arise during material handling operations are abated using bag filters and prevented from being emitted into the environment in accordance with industry best practise standards.
- 3.36. The internal transport route is yet to be established; this will be agreed as part of the relevant Reserved Matters Application.

Calcination

- 3.37. The calcination plant receives and converts α -spodumene concentrate to create recoverable lithium. Fresh α -spodumene concentrate is fed to the calcination rotary kiln where it is heated to a temperature of approximately 1050°C using a natural gas firing system. At these temperatures the α -spodumene in the concentrate converts to β -spodumene. The process gases flow counter-flow to the material using an induced draft exhaust fan (I.D. fan).

- 3.38. Each calcining line has been designed to process a nominal wet feed rate of 28.55 TPH (assuming 7% feed moisture) on a continuous basis.
- 3.39. The calcine rotary kiln has an approximately internal diameter of 4 metres and is about 60 metres in length. During operation the calcination plant rotates slowly (1.25 rpm) and tilts at a slight angle to enable the material to flow through the process.
- 3.40. Under normal production conditions the retention spodumene takes approximately 2 hours to pass through the kiln plant.
- 3.41. The plant will also be Carbon Capture ready to enable the residual CO₂ emitted from calcination process even when fired on hydrogen to be captured.
- 3.42. The I.D. fan pulls the process gases to the gas cleaning system to remove fugitive dust, acid gas and other combustion emissions. Recovered dust is recycled back to the calcination process in order to minimise waste. The abated combustion emissions are subsequently discharged to atmosphere via a dedicated flue / chimney.
- 3.43. The material discharges from the calciner rotary kiln and enters the rotary cooler. The rotary cooler cools the hot calcine from approximately 1000°C to a product temperature of 80°C. This cooling is performed indirectly by applying cooling water to the shell of the rotary cooler. All heat from the process is recovered to maximise the energy efficiency for the process. The cooled material discharges the rotary cooler and is conveyed downstream for further processing.
- 3.44. The overall dimensions of the calcine cooler dimensions approximately 4 metres (internal diameter) x 36.0 metres (long).
- 3.45. In similarity with the calcining kiln, the cooler rotates slowly and is tilted at a shallow angle, resulting in a material retention time in the calcine cooler of approximately 50 minutes.
- 3.46. All fugitive emissions associated with the cooler are extracted and captured using a dedicated filtration system and collected and re-introduced into the process.
- 3.47. This process can be seen in the schematic representation in Figure 3.2 below.

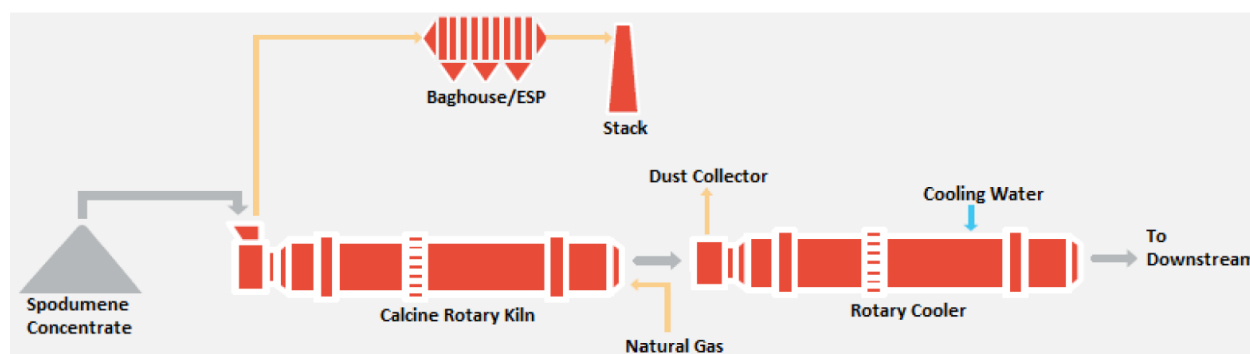


Figure 3.2 Schematic Representation of the Calcination Plant

Hydrometallurgy

- 3.48. All aspects of the Hydrometallurgy (soda leach) process are carried out within dedicated processing buildings that are purpose-built, insulated and noise-attenuated, double-skinned and fully enclosed, resembling large modern Industrial buildings, approximately 380 metres long by 85 metres wide.
- 3.49. Heights will vary depending on process area with maximum building heights in the range of 35 metres to 45 metres.
- 3.50. The soda leach process is a high-pressure autoclave process which is carried out at elevated temperature to create a reaction with the Beta-spodumene to form lithium carbonate and analcime solids.
- 3.51. The operating temperature in the soda pressure leaching is a maximum of 220°C, which is achieved through the direct injection of high-pressure steam injection. The total pressure in the autoclave is approx. 28 bar(g).
- 3.52. After soda pressure leaching, the slurry is cooled down to 80°C and separated through pressure filter to separate into a filter cake and lithium carbonate mineral slurry and converted to lithium hydroxide through the addition and reaction with calcium hydroxide.
- 3.53. A schematic representation of this can be seen in Figure 3.3 below.

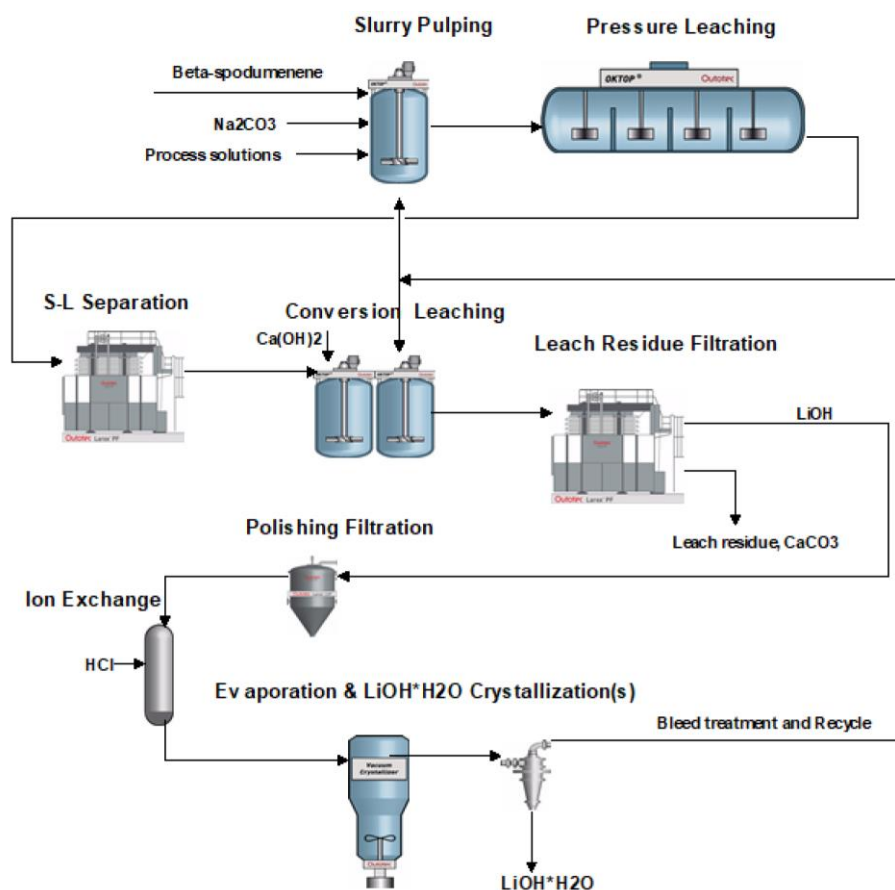


Figure 3.3 Schematic Representation of the hydrometallurgy process

CO₂ Off-gas Scrubber

3.54. Carbonation off-gases and the CO₂ off-gases from effluent storage, pre-treatment and acidification reactors are combined to the same gas scrubber and removed. The separation of the CO₂ gases from the process allow the transfer to the wider Teesside CCUS system when it becomes available.

Crystallisation

3.55. The crystallisation stage comprises a two-stage process designed to operate under vacuum to maintain a liquor temperature of 80°C to ensure production of the monohydrate crystal.

3.56. Concentrated liquor from the evaporators are fed into tanks and recirculated and evaporated until supersaturated until the optimum conditions for crystal growth are achieved.

3.57. Both stages of the crystallisation process are similar, with the latter stage producing a high purity battery grade Lithium Hydroxide.

Ancillary Aspects

3.58. The ancillary aspects of the plant include the following key plant and equipment:

- Effluent treatment: Including lithium phosphate recovery & precipitation, acidification and neutralisation, Zero Liquid Discharge (ZLD) effluent crystalliser, solids de-watering and non-condensables removal.
- Silo/Storage tank areas for storage of NaOH, HCl and H₂SO₄ solutions;
- Reagent, lime slaking and lime milk solution preparation packages;
- Compressed air distribution systems;
- Autoclave / boiler steam plant for autoclaves;
- Cooling water supply and return including cooling towers;
- Nitrogen distribution;
- High and medium/ low pressure steam system and distribution; and
- Potable water distribution to emergency showers.

Office and Maintenance Buildings

3.59. The office building will be located in the eastern centre part of the site and measure 40 metres by 64 metres in plan and be two storeys in height (7.3m). It will be clad with a combination of insulated metal roof and wall cladding and face brickwork. Powder coated aluminium framed curtain walling is used for glazed areas.

3.60. The building will house the site office, briefing room, learning suite, PPE Store, reception, canteen, meeting room, conference room and water closets.

Other Ancillary Buildings

3.61. There will be number of ancillary buildings onsite, including:

- Maintenance and engineering;
- Boiler house;
- Welfare; and
- Security.

INFRASTRUCTURE

Access

- 3.62. The main access into the site will be from an existing access road directly from Tees Dock Road and the internal PD Teesport private Teesport Road and then via Dabholm Road roundabout onto Kinkerdale Road. The existing Kinkerdale Road will be diverted to the south the main calcination site area to maintain access to existing PD Teesport buildings of Eustace House and the other operational building that will be retained, to enable surrounding road users to continue to utilise Kinkerdale Road.
- 3.63. Kinkerdale Road provides access via a security lock into the PD Teesport operational inner security zone. Kinkerdale Road and Dabholm Road benefit from street lighting and have two running lanes with central white lines. The roads serving the Site are designed to accommodate industrial, storage and port logistics uses, and therefore generally have appropriate geometry (widths and radii) to allow for HGVs to pass each other, and have appropriate bearing ratings, to accommodate the HGV's proposed.
- 3.64. The Tees Dock Road connects to the A66 and A1053 at Grangetown, which form part of the strategic road network and run generally west to east between Middlesborough and Redcar.

Car Parking

- 3.65. The nature of the Proposed Development means that LPA parking standards, based on building flood areas, are inappropriate in this instance. The proposed facility will employ approximately 250 people, comprising 60 office-based staff and 190 operational staff working three shifts as follows:
- 60 office-based staff (0800-1800) (40 admin plus 20 operational management);
 - 190 operational staff working shift patterns;
 - 0600-1400 (40 staff)
 - 1400-2200 (40 staff)
 - 2200-0600 (30 staff)
- 3.66. The shift rotation pool would be 40 + 40 (holiday cover/sickness/training) required to cover 24/7 working, thereby equating to 190 shift workers of whom 110 would visit site on any given day.
- 3.67. The facility will therefore employ 250 staff of whom up to 100 would be on site at any given time, but with short peaks at shift changes (i.e., up to 140 for 20 mins). The Proposed Development therefore includes 148 parking spaces to allow for peak demand at shift changes plus visitor parking. Importantly,

the provision of 148 staff parking spaces represents a net reduction in car parking on the site when compared to the existing uses.

- 3.68. Eight of the parking spaces will be suitable for disabled drivers, representing 5% of maximum staff onsite and making provision for visitors.
- 3.69. Thirty-two of the spaces (20%) will be provided with active electric vehicle charging points (EVCP) from the outset with passive provision (ducting and fitment points) for a further 20% to allow for future EV expansion.
- 3.70. The Proposed Development will include 10 cycle parking spaces in the form of 5 Sheffield loop stands to make provision of 10% of staff to cycle to work, plus 10 electric bike stands and charging points (site transport).

Lighting

- 3.71. The Proposed Development is located on an existing active port site that has high levels of lighting to allow for safe access and operation of the open dockside activities, as such and given that the Proposed Development is both largely enclosed, external lighting will be reduced to a level that is necessary for the safe movement of vehicles and pedestrians, for any external amenity areas, and for the security of employees and visitors.
- 3.72. The need to ensure safe working and operating conditions would be balanced against the requirement to reduce any unwanted visual prominence of the Proposed Development at night and to mitigate against general sky glow.
- 3.73. Once commissioned, the Proposed Development would operate on a continuous (24 hour / 7 day per week) basis. However, the deliveries and most staff / visitor movements would be made during the normal working day. In the winter months, some of these deliveries / visits are likely to be made when it is dark (e.g., late afternoon and early morning). During hours of darkness or low-level natural illumination, there would therefore be a need for lighting commensurate with health and safety requirements to ensure a safe working environment for operatives on Site.
- 3.74. The lighting design for the Proposed Development would seek to provide safe and well-lit external spaces and pedestrian walkways in accordance with the principles outlined in the best practice guidance above. Lighting levels would be designed to accord with best practice and to minimise the generation of obtrusive light beyond the development area. It is suggested that the detailed design for the lighting

scheme should be the subject of a suitably worded planning condition based upon the principles for lighting design identified within this sub-section of the ES.

3.75. There are a series of relevant documents and guidance that provide advice when developing internal and external lighting systems, including:

- Lighting Guide 6: Lighting The Outside Environment, CIBSE SLL 1992;
- Guidance Notes for the Reduction of Obtrusive Light, Institute of Lighting Engineers (ILE) 2000;
- Lighting Guide 12: Emergency Lighting Design Guide, CIBSE SLL 2004;
- Lighting Guide 7: Office Lighting, CIBSE SLL 2005 (with Addendum 2012);
- Lighting Against Crime. A guide for crime reduction professionals, Secured by Design 2011;
- BS 5489 Code of practice for the design of road lighting. Lighting of roads and public amenity areas, BSI 2013;
- BS EN 12464-2 Light and Lighting. Lighting of work places. Outdoor work places, BSI 2014; and
- Commercial Developments 2015 version 2, Secured by Design 2015.

3.76. The lighting design should demonstrate compliance with the various guidance documents and standards set out above.

3.77. Light sources would typically be LED, or other high efficiency sources. This would maximise both energy efficiency and longevity. Luminaires would be chosen in order to prevent light output above the horizontal, minimising light pollution.

3.78. The particular type of lighting columns and bollards would be chosen in accordance with the optimum height and spacing to ensure an even and efficient distribution of light that fulfils the design requirements in terms of security and minimal light pollution.

3.79. All non-essential external lighting would be turned off during hours of darkness outside of normal working hours. Lighting would be controlled via a timer system with photocell override (e.g., timer could be overridden if sufficient ambient light is available).

3.80. The lighting design would incorporate the following mitigation measures:

- the use of low level lighting as far as possible to reduce night-time visibility;

- the use of carefully located directional lighting incorporating light shields / or full-cut off luminaires to avoid unwanted light spray / upward light and possible glare / sky glow effects;
 - digital programmable switches including timers and / or movement sensors;
 - avoid unnecessary or unplanned lighting of building façades; and
 - lighting to be concentrated in locations essential to night-time operations; use of low-level lighting bollards with low energy fittings to reduce the impact of lighting around amenity areas and pedestrian routes.
- 3.81. External lighting within the site would be required to ensure the safety of manoeuvring vehicles and pedestrians around the site, while minimising unnecessary light pollution. Lighting would also enhance the security of the site. The main areas where lighting would be necessary are as follows:
- Adjacent to roadways, footpaths and vehicle manoeuvring areas. This would include all site roads and hardstanding's within the site;
 - Above doorways; and
 - On the façade of the building.
- 3.82. There are no proposals for floodlighting the buildings, or for the same quantity of high level flood lighting as is currently operated by the port. All lighting will be local to the access roadways and process plant and be sufficient to enable the safe operation, access and maintenance of the plant.
- 3.83. Lighting of roadways and footpaths would be designed to ensure that there will not be any 'glare' or light trespass. In this respect, regard has been given to guidance provided by the Institution of Lighting Professionals².
- 3.84. Lighting has been designed to incorporate fluorescent or LED down lighters, affixed to poles, or the building façade, and positioned horizontally with no upward tilt. Lighting units will be fitted with a time clock or photocell to allow for automatic and manual operation. 'Bulkhead' style lighting units will be

² Guidance Note 1 for the reduction of obtrusive light 2020, Institute of Lighting Professionals.
<https://theilp.org.uk/publication/guidance-note-1-for-the-reduction-of-obtrusive-light-2020/>

affixed to the façade of the building above all pedestrian exits. Again, these units will be directed downwards, and baffles/shields used to limit light glare.

Fencing and Security

3.85. The security to be provided has been designed on the following principles:

- Establish a secure observable line remote from the building to ensure that the building and its operations are safe from objects thrown over the fence;
- A system that is able to detect intrusion into this secure line; and
- A system that is able to respond to any intrusion rapidly and effectively in order to prevent any of the threats mentioned above.

3.86. The proposed security would therefore consist of the following components

- Physical barrier at site perimeter in the form of a boundary well meshed fence, 2.4m high with an unfinished topping surrounding the majority of the site;
- Adequate external lighting to enable good operation of selected CCTV system;
- CCTV system to detect breach of the boundary line and subsequent location of intrusion; and
- A 24/7 presence on site, conducting patrols and monitoring CCTV system, and capable of calling upon the appropriate response backup.

3.87. The entrance and exit to the site would be capable of being securely shut. The access points would be suitable for two HGV vehicles to pass safely side by side, approximately 8 metres clear gate opening width.

3.88. As part of the Reserved Matters Application, the Applicant will be engaging with the local 'Secured-By-Design' team of the local police liaison team with all recommendations being adopted where possible.

CONSTRUCTION WORKS

General

3.89. In general terms, construction would commence with enabling and preparation works to provide suitable access and laydown areas for temporary accommodation and plant and materials storage. The enabling works would also include for the provision of power, drainage and communications necessary for the duration of the construction phase. The general sequencing of civil engineering and building

works would be subject to the contractor's detailed proposals, the following is intended to provide a typical approach:

- i) site clearance and enabling works as well as piling works;
- ii) groundworks and concreting works;
- iii) construct floor slabs;
- iv) construction of general foundations;
- v) construction of buildings;
- vi) construct internal plant and electrical rooms along with installation of process equipment coordinated with erection of steel superstructure and cladding;
- vii) construction of external plant and equipment, along with storage tanks;
- viii) construct office/welfare facilities;
- ix) mechanical and electrical fit-out;
- x) commissioning of plant and equipment;
- xi) external works to include drainage, services, general pavements/hardstanding's and site entrance works.

3.90. Main items of plant which are likely to be required during the construction phase would include:

- Excavators;
- Mobile shovels;
- Piling rigs;
- Mobile and tower craneage (some with high and heavy lifting capacities);
- Scissor lift;
- Telescopic handlers/cherry pickers;
- Dumpers/general earthmoving vehicles; and
- Concrete delivery wagons and concrete pumps.

3.91. The construction period for the scheme is forecast to be around 36 months across all phases. All parking and functions associated with this phase would be accommodated on the application site.

3.92. A Phase specific construction programme will be submitted to the planning authority as part of the Reserved Matters Application.

Demolition

3.93. The enabling works that will be completed as part of the pre-construction construction phase will include the dismantling / demolition of 7 existing small and medium sized buildings.

3.94. All of the buildings are of a portal framed construction and can be dismantled without the need for significant demolition. PD Ports have expressed a desire to reuse and relocate a number of these structures, so will complete this work in advance the commencement of construction activities by the Applicant.

3.95. Any permissions and approvals required for the dismantling and relocation of these buildings will be agreed as part of the Reserved Matters Application or under a separate application by the land owner.

3.96. This topic will be further discussed at the Reserved Matters stage of the application, where appropriate demolition plans will be composed. Figure 3.4 below, shows the locations of the existing buildings, with red showing planned demolitions.

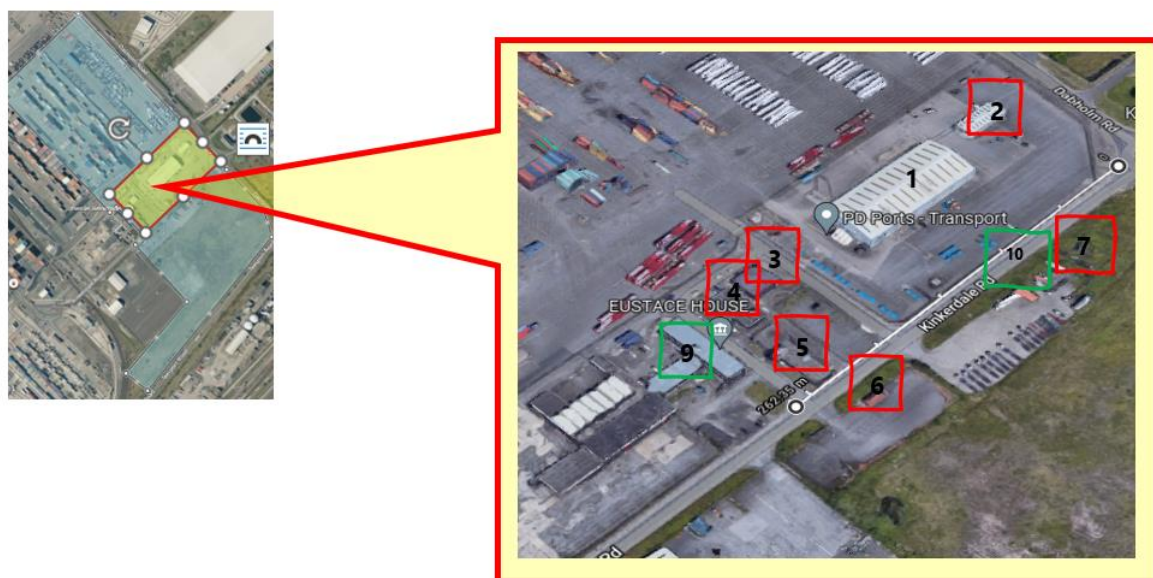


Figure 3.4: Location of existing buildings

Site Preparation

- 3.97. At the outset of the construction phase, any construction fencing/hoarding would be erected around the periphery of the site to ameliorate the effects of construction dust and noise. Certain areas of hardstanding would be broken up and processed on site where possible for crushing to produce secondary aggregate. Following on from this, the development platform upon which the various buildings and associated plant/equipment are to be erected would be created.
- 3.98. The laying and installation of drainage and utilities would be phased with much of the work being undertaken in the early phases of the project, for example during the site preparation works.
- 3.99. A detailed drainage plan and associated strategy will be provided as part of each phase of the project and submitted as part of the relevant Reserved Matters Application.

Civils

- 3.100. The foundations of the main building and structures are likely to require a combination of augured and/or driven piles, strip foundations and pad footings. A detailed piling plan and risk assessment will be provided to the Planning Authority for approval as part of the pre-commencement conditions and requirements.
- 3.101. All construction impacts will be mitigated and managed as part of the approved Construction Environmental Management Plan (CEMP).
- 3.102. It is anticipated that piling may be necessary for some of the larger buildings and the areas with heaviest equipment.
- 3.103. Following on from the formation of foundations and concrete slabs, work would commence on the above ground concrete works, such as any push walls.
- 3.104. External civil engineering works are likely to be undertaken towards the end of the main construction works in parallel with the commissioning period. These works would comprise the laying of access roads, the car park, external hard standing areas to the buildings and the landscape works.
- 3.105. The applicant will prepare and submit a detailed piling plan and associated risk assessment in conjunction with each phase of this development and will be provided as part of the relevant Reserved Matters Application.

Erection of Buildings

3.106. The industrial processing buildings would be steel portal framed structure. The frame of the building would be constructed using cranes to lift steelwork into position. Where possible, sections of each structure would be assembled at ground level, then erected using a crane. Where the buildings are to house large pieces of plant, this would be lifted into position as installation of the steel structures progresses, and prior to the top frames being closed. Once the steel structures are complete and internal plant is in place the buildings would be clad with steel sheeting and then roofed. There is also potential for skidding of main plant items, the buildings will be designed to accommodate modularisation of plant and equipment.

Installation of Plant

3.107. Large items of plant and equipment will be installed during the overall construction and erection of building, with plant installed and aligned as building construction activities progress. Where required individual plant /equipment parts would be welded and other necessary installation processes.

Testing and Commissioning

3.108. Plant commissioning will take place only once all installation activities have been completed, all necessary testing has been conducted and all document required to support system handover to commissioning has been completed and accepted.

Construction Compound

3.109. To facilitate the construction phase, it would be necessary to establish a construction compound. This would comprise:

- Office, canteen and welfare accommodation (in the form of portable modular style buildings), which, to save space, would be two or three storeys (i.e., three modules stacked vertically) with external metal steps;
- Portable style secure storage buildings;
- Bunded/dual skinned fuel tanks and oil storage;
- Separate containers for office, canteen and construction wastes (construction wastes would be segregated wherever possible)
- Car parking; and

- Security gatehouse.

3.110. The compound area would be securely fenced and gated.

Environmental Management

3.111. Environmental control measures would be imposed to mitigate and minimise adverse environmental effects during the construction of the development.

3.112. A Construction Environmental Management Plan is proposed to be prepared and adopted to include sections on: noise, vibration, air quality, water quality, surface quality (prevention of contamination of ground surface), site transportation and traffic management, visual intrusion and waste management.

3.113. All construction activities, which have the potential to generate significant amounts of noise and/or vibration, would be undertaken during daytime periods wherever possible.

Waste Management and Disposal

3.114. Waste would be generated during all stages of the construction works. Both a Construction Environmental Management Plan (CEMP) and a Site Waste Management Plan (SWMP) is proposed to be prepared for each phase of the development and all relevant contractors would be required to seek to minimise waste arising at source and, where such waste generation is unavoidable, to maximise its recycling and reuse potential.

3.115. Any recycling of materials will take place off-site where noise and dust are more easily managed and less likely to impact on the occupants of surrounding properties.

3.116. Details of the proposed Waste Management and Disposal practices of all phases of this development will be addressed within the CEMP at the time of the relevant Reserved Matters Application.

OPERATIONAL PHASE

Vehicle Movements

3.117. The Proposed Development would generate the following vehicle movements.

Table 3.2 Vehicle Movements						
Material	TPA	TPD	Transport	Veh Load (t)	HGVs	HGV Trips
Inputs (raw materials)						
Spodumene concentrate	510,000	1818	Via port (sea) and private Rail	N/A	N/A	N/A
Inputs (reagents)						
Sodium carbonate	102,000	364	Rail/Road (liquid bulk tanker)	20	18	36
Calcium hydroxide	85,500	305	Rail/Road (liquid bulk tanker)	20	15	30
Hydrochloric acid	6,750	24	Rail/Road (liquid bulk tanker)	20	1	2
Sodium phosphate	4,500	16	Road (liquid bulk tanker)	20	1	2
Sulphuric acid	2,250	8	Road (liquid bulk tanker)	20	0.5	1
Outputs						
Lithium Hydroxide	75,000	167	Rail or ship			
Analcime	714,000	2,545	Rail or ship			
Salt	9,450	34	Road bulk trailer	24	1.5	3
Total					37	74

Operational Hours

3.118. The plant would operate on a continuous basis, 24 hours a day, 7 days a week throughout the year, operating for a total of 365 days per year. Notwithstanding this, there would be periods of programmed maintenance twice a year. In this respect, the plant is anticipated to be operated in excess of an annual availability of 7,500 hours.

3.119. Due to the nature of the process and the location within the Teesport facility, there are no proposed restrictions on the hours of operations, delivery or collection at the site.

3.120. Under normal operation, the reception of vehicles handling waste and other raw materials material associated with the facility are likely, but will not be limited to, the following core hours:

- Monday to Friday: 07:00 to 18:00; and
- Saturdays: 08:00 to 13:00.

Employment

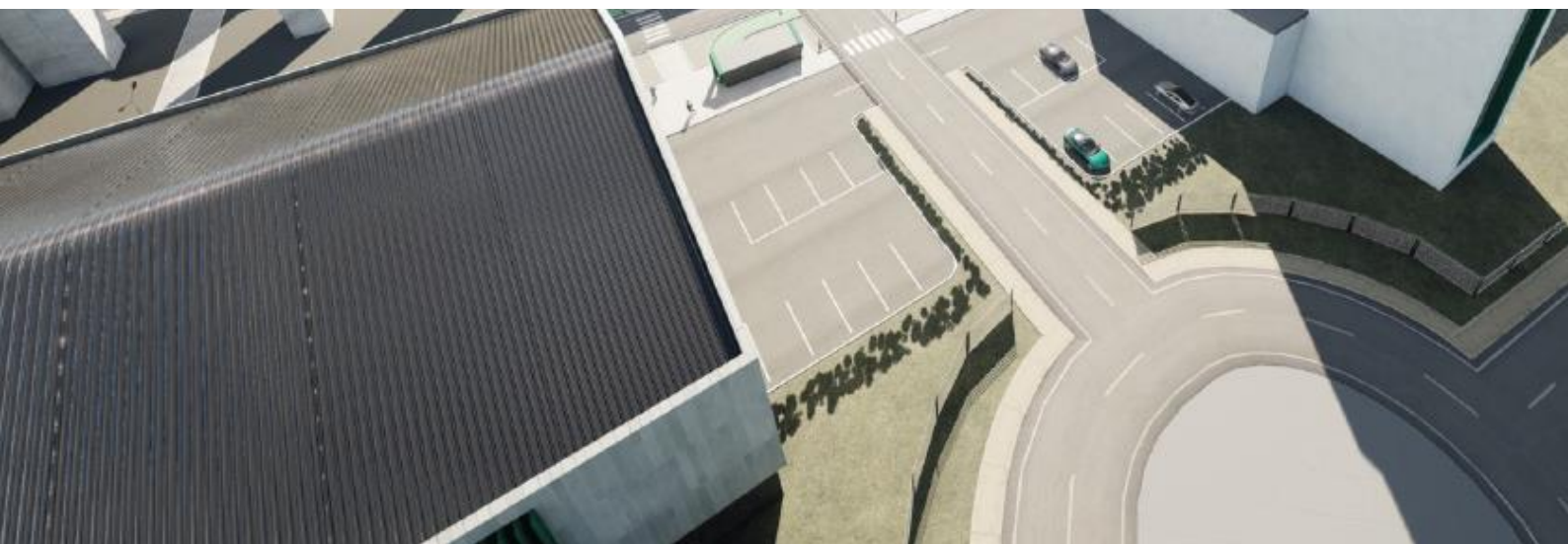
3.121. The proposed facility will employ 250 people, comprising 60 office-based or home-based staff and 190 operational staff. Of those operational staff, approximately 110 will work on any given 24 hour period. There is likely to be different shift patterns operating in the refinery as the core refinery facility will require continuous staffing (24x7). Approximate figures are as follows: 60 office-based staff (0800 - 1800) 190 operational staff working these illustrative shift patterns.

- 60 office-based staff (0800-1800) (admin and operational management)
- 190 operational staff working shift patterns (110 per day)
 - 0600-1400 (40 staff)
 - 1400-2200 (40 staff)
 - 2200-0600 (30 staff)

3.122. The facility would also provide opportunities for downstream employment through the requirement for a range of services such as haulage, engineering/maintenance, cleaning and catering, for example.



CHAPTER 4 PLANNING POLICY



4. NATIONAL PLANNING POLICY

INTRODUCTION

- 4.1. This chapter details the specific national policies and legislations which apply to the Proposed Development.
- 4.2. It is clear from national legislation and the National Planning Policy Framework (NPPF) that the Government is committed to a plan led system, with the Local Plan forming the basis of all planning decisions. Section 38(6) of the Planning and Compulsory Purchase Act 2004 (PCPA 2004) confers a presumption in favour of development proposals which accord with the Local Plan unless material considerations indicate otherwise. This is re-iterated in the NPPF. Sub Section 5 of Section 38 also states that,

“if to any extent a policy contained in a development plan for an area conflicts with another policy in the development plan the conflict must be resolved in favour of the policy which is contained in the last document to be adopted, approved or published (as the case may be)”.
- 4.3. This principle has been developed and clarified by case law, which has confirmed that a particular proposal does not need to accord with each and every policy in a development plan; the key issue is that it accords with the overall thrust of development plan policies taken as a whole.
- 4.4. At the national level, planning policy is set out in the NPPF (and associated web-based Planning Practice Guidance, PPG). This addresses general principles and policies together with providing guidance and forms a material consideration to the consideration of a planning application. National guidance is translated into more detailed policy through the Local Plan but will take precedence where the Local Plan is out of step with national policy.
- 4.5. As such National planning policies are a material consideration in determining any planning application.
- 4.6. This section of the statement sets out the relevant national and local planning policies for the development.

NATIONAL POLICY

General

- 4.7. National Planning Policy guidance is set out in the National Planning Policy Framework (NPPF) which was revised and updated in July 2021. The NPPF is accompanied by the internet-based Planning Practice Guidance (PPG) which provides further guidance on the interpretation of the NPPF and specific matters.

4.8. The application site is within a defined industrial employment zone and not located within a National Park or Area of Outstanding Natural Beauty (AONB). Neither does it directly impinge upon any archaeological designations of international or national importance. As a result of the lack of many land use planning constraints, many sections of national guidance are not relevant to the planning application.

The NPPF

4.9. The NPPF does not change the fundamental premise of Section 38(6) of the Planning and Compulsory Purchase Act 2004. Paragraph 2 clearly states that:

“Planning law requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise”.

4.10. It goes on to add that the NPPF must be considered in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions.

4.11. Beyond the general principles of the plan-led system, sustainable development and the approach to decision making, much of the main guidance relates to the development of the built environment. Those parts relevant to the Proposed Development are considered within the subsequent sections.

Sustainable Development

4.12. At the heart of the NPPF is a presumption in favour of sustainable development. The applicant has committed to design, build and operate an industrial development that has the lowest carbon footprint of any similar facility globally and is committed to the transition to low and zero carbon impact. With this in mind the Proposed Development is highly sustainable and will be an exemplar development within the UK.

4.13. For decision making, paragraph 11 of the NPPF indicates that for highly sustainable developments, this means:

- *approving development proposals that accord with an up to date Development Plan without delay; or*
- *where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:*
 - i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or*

ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.

4.14. NPPF confirms that the purpose of the planning system is to contribute to the achievement of sustainable development (para 7). It indicates (para 8) that sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways, namely:

- *“An economic objective”, which NPPF notes can build a strong responsive and competitive economy by ensuring that sufficient land of the right type is available in the right place and at the right time to support growth. The application site is “the right type” in terms of the location in proximity to the strategic transport corridor and road network (such as the A66 and Teesport Docks). It is also the right type in providing a facility that can produce Lithium Hydroxide. The site is in the right place as a brown field site suitable for redevelopment in a strategic location with ease of access to the principal highway network as well as being a port side location. It is also not constrained by sensitive receptors. A planning permission would also be at the “right time” to support growth via supply of lithium hydroxide products, avoiding the need to import them from overseas.*
- *“A social objective” to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations.....the proposals allow for the development of a modern, state of the art lithium refinery within a location that can readily accommodate it without affecting local communities. The Proposed Development would create some 250 full time jobs and have indirect ‘knock-on’ effects for local services in the area. The development of the first lithium refinery of its kind will also allow the UK to benefit from self-sufficiency and internal investment prospects; and*
- *“An environmental objective” to contribute to “protecting and enhancing our natural built and historic environment, including making effective use of land, (and) helping to improve biodiversity.....Again, the development would be a very effective use of currently redundant or ineffective land. Moreover, as noted from the following sections (and associated appendices) the proposals would not give rise to a significant adverse effect on the environment or local community. The development would also further the development of Electric Vehicles, aligning with environment policies including the Net Zero agenda, which has stated the aim to move from combustion engines onto battery powered vehicles.*

- 4.15. It is thus concluded that the Proposed Development represents a sustainable development, which is entitled to the presumption in favour of granting permission for sustainable development, noting the advice in NPPF that for decision taking, the presumption in favour of sustainable development means approving development proposals that accord with the development plan without delay (ref para. 11).
- 4.16. NPPF continues by emphasising that *significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development* (ref para. 80).
- 4.17. The Proposed Development is fully consistent with these principles, delivering as it would, from a current brownfield and storage site, instead produce vital mineral products used for the transition of the UK and global economy to zero carbon.
- 4.18. These objectives are not criteria against which every decision can or should be judged. Paragraph 9 of the NPPF provides that *“Planning policies and decisions should play an active role in guiding development towards sustainable solutions, but in doing so should take local circumstances into account, to reflect the character, needs and opportunities of each area”*.
- 4.19. In that context, NPPF emphasises that decisions should *“give substantial weight to the value of using suitable brownfield land...for identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land”* (ref para. 118) and *“strategic polices should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously developed or ‘brownfield’ land. “* (para 119) The Proposed Development, on a current brownfield site, would be consistent with these objectives.
- 4.20. In relation to resources paragraph 152 states that *“the planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.”*
- 4.21. NPPF also emphasises that *“the focus of planning policies and decisions should be on whether the development itself an acceptable use of the land is rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”* (ref para. 183). The Proposed Development would be regulated under The

Environmental Permitting Regulations (England and Wales) 2018 (as amended) by the Environment Agency.

Environmental Considerations

4.22. The NPPF, together with the web-based PPG, sets out the overarching national policy and associated guidance respectively aimed at protecting the environment and local communities. This is further considered under the heading of '*Conserving and Enhancing the Natural Environment*' later in this chapter.

4.23. Paragraph 158 states that when determining planning applications for low carbon development, LPAs should not require applicants to demonstrate the overall need for the development and approve the application if its impacts are (or can be made) acceptable.

NPPF Policies of interest

4.24. The following chapters of the NPPF have been taken into consideration as they are thought to contain policies relevant to the determination of the planning application for the Proposed Development. These include:

- Chapter 2: Achieving sustainable development.
- Chapter 6: Building a strong, competitive economy.
- Chapter 9: Promoting sustainable transport.
- Chapter 11: Making effective use of land.
- Chapter 12: Achieving well designed places.
- Chapter 14: Meeting the challenge of climate change, flooding and coastal change.
- Chapter 15: Conserving and enhancing the natural environment.
- Chapter 16: Conserving and enhancing the historic environment.

4.25. A summary of the relevant policies can be found below.

Chapter 2 Achieving Sustainable Development

4.26. The aim of this policy is to promote developments that align with all elements of sustainability, including; economic, social and environmental benefits. The Proposed Development has shown that it will be in accordance with this chapter, and in fact contribute a significant provide both local and national sustainability benefits.

- 4.27. The primary national benefits that this development will bring is in regard to the electrification of the transport sector of the UK, with the Proposed Development being the first lithium hydroxide refinery in Europe and allowing national production of a vital element for electric car batteries. This will therefore result in the reduction of greenhouse gases from the transport sector, one of the largest producers in the UK, and aligning with the UK Net Zero agenda.
- 4.28. Alongside this benefit the development also includes social and economic prosperity of the local area. The development is expected to employ up to a maximum of 250 full time staff members when all three process are operational, and will have a construction period of approximately 3 years, providing work for a range of employment, and providing skilled jobs to the local population.

Chapter 6 Building a Strong Competitive Economy

- 4.29. This NPPF Chapter is in relation to the ongoing commitments to providing the UK with economic growth, productivity and addressing weaknesses in these areas. In particular paragraphs 81 and 82 directly address the planning system and how it is vital that it focuses on supporting sustainable economic growth through planning proactively and encouraging investment.
- 4.30. The Proposed Development is expected to generate an approximately 1000 jobs for the 3 year construction phase, as well as up to a maximum of 250 full time jobs during the operational life of the plant. The operational employment will supply the local community with skilled work, which can be translated into other skilled jobs, highly benefiting the local economy.
- 4.31. The Proposed Development will create a significant capital investment into the north east of England and Teesside area. The client is dedicated to creating supply chain opportunities for local businesses and suppliers on Teesside, through both stages of development by utilising this investment. The investment will also bring international recognition for the potential of land found at Teesside, having the potential of bringing further economic prospects to the area.
- 4.32. The client is driven to working with RCBC in order to provide opportunities for local employment with this project, for both stages of the development. This will be done by following advice provided by RCBC. All the above points demonstrate how the Proposed Development will make a significant impact on the economy of the local area as well as supporting national agendas, including NPPF.

Chapter 9 Promoting Sustainable Transport

- 4.33. Chapter 9 identifies the importance of having a range of transport options, with suitable choices for sustainable methods, including walking, cycling and utilising public transport methods. In particular Paragraph 110 states that when reviewing a sites suitability for an application, there should be

appropriate consideration for sustainable methods of transport and appropriate accommodation for staff on these methods. There should also be understanding of the potential impacts of the development on the wider road transport network, this impact should be effectively mitigated to an acceptable degree.

- 4.34. A Transport Statement has been carried out to support this planning submission that analyses the potential effects of the development. The Transport Statement demonstrates that there will not be a significant effect on the local or strategic highway network during the construction or operation of the facility. It also demonstrates that there are suitable existing sustainable transport methods to be used by a suitable amount of the staff.
- 4.35. The conclusion of Transport Statement is that there is no reason why the development should be refused on grounds of highway capacity or safety, impact on the transport network or sustainability.

Chapter 11 Making Effective Use of Land

- 4.36. Chapter 11 of the NPPF promotes utilising land for its best potential, translating to sites including brownfield sites to be primary sites for development.
- 4.37. The Proposed Development has ensured that this chapter has been followed by selecting to develop on a brownfield site in an area deemed an industrial and employment zone by the LPA. The layout of the development also makes the best use of the site, by locating the primary industrial and manufacturing facility on the existing developed areas of the site to create a high value land use.

Chapter 12 Achieving well-designed places

- 4.38. Chapter 12 of the NPPF is in relation to keeping the aesthetic of an area to a certain standard and having developments in this area keep to the standard.
- 4.39. In order to be aligned with this chapter the Proposed Development will be in keeping with the character of the Teesport Site and general Teesport area. The building heights and development concentration are all consistent with the agreed parameters plans of the neighbouring Teesworks development plant and either similar or smaller in scale than the neighbouring developments.
- 4.40. The scheme has been designed in accordance with the agreed design guide used throughout the neighbouring approved Teesworks master plans. All structures will be designed to be modern industrial buildings and incorporate neutral colour palettes and colour schemes in-keeping with the neighbouring developments. The building design and colour palette will be finalised determined at detailed design stage and be submitted to the Planning Authority for approval prior to development.

Chapter 14 Meeting the challenge of climate change, flooding and coastal change

- 4.41. Chapter 14 has a primary focus on mitigation and prevention of climate change and its effects. In particular paragraph 152 shows the direction of this chapter and the role that planning can play in creating a reduction in climate change, by reducing greenhouse gases as well as other indirect methods. Further paragraphs of the Chapter detail the risk of inappropriate developments being at a high risk of flooding due to poor planning, this should be avoided at all costs by effectively planning and mitigating these risks, as well as choosing a suitable site.
- 4.42. The Proposed Development will be a highly sustainable LHM production facility, which is required to meet the growing UK and Global demand for the transition to a low carbon economy. The Proposed Development aligns entirely with the objectives of this Chapter in that;
- The entirety of the development will be located in Flood Zone 1 and have a [very low] chance of flooding being >0.1%;
 - All drainage from the facility has been designed to meet the Sustainable Urban Drainage (SUDs) requirements to ensure all water runoff and drainage is attenuated to a suitable level and is aligned with government guidance;
 - Wherever possible, green infrastructure has been incorporated in the development to provide natural attenuation and surface water retention;

- Protective measures, such as surface water interceptors, containment compounds and pollution protection measures (tank alarms, leak detection, runoff controls etc) have all been incorporated into the drainage strategy; and
- The design of the lithium facility incorporates a patented Zero Liquid Discharge (ZLD) technology that ensures that all liquid process emissions and effluents are eliminated and hence not released to the environment.

4.43. The conclusion of the FRA and accompanying drainage strategy is that the site will not adversely impact the wider local drainage system and will be able to effectively drain any necessary water without the potential for pollution to the environment. In addition to this the FRA states that the Proposed Development will not increase the possibility of flooding in the area.

Chapter 15 Conserving and Enhancing the Natural Environment

- 4.44. Chapter 15 of the NPPF aims at dealing with conservation of environments, with the primary emphasis looking at protection of valuable landscapes and the wider countryside. It identifies the wider benefits present from high value environments and aims to protect them. It does this by preventing new developments in areas of high ecological value, as well as the requirement for biodiversity net gain. The chapter also requires investigations into the effects of the development onto air, noise, land and water.
- 4.45. To address this requirement an EIA has been undertaken separately to this document, the EIA has conducted assessments into all necessary receptors, including water, air, noise and land to assess the baseline condition and also how the development could potentially impact them. The results from the EIA have shown that no significant impacts will occur from the Proposed Development. Also, the Site is not located within or has any separate environmental designations necessitating higher levels of protection.

Chapter 16 Conserving and Enhancing the Historic Environment

- 4.46. Chapter 16 helps to sustain the historic character and the sense of place of both designated heritage assets as well as non-designated heritage assets of archaeological interest. The chapter requires developments which may have the potential to include heritage assets in the form of archaeological interest then a desk-based assessment (DBA) and if necessary, a field evaluation will be required.
- 4.47. The proposed site is entirely located on reclaimed, brownfield or previously developed land and is not subject to any heritage designations. The site is not within 2km of any Scheduled Monuments, Listed Buildings or Conservation Areas.

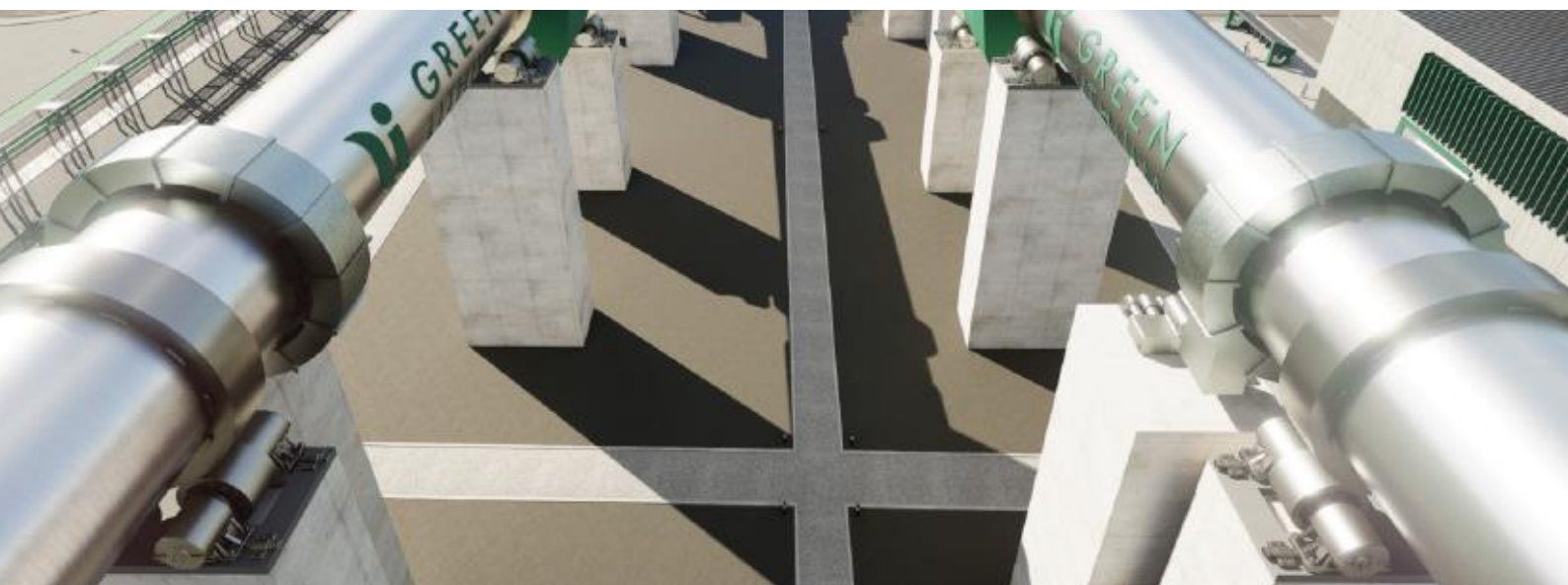
4.48. The DBA undertaken confirms that there is low potential for archaeological remains at the site and any potential remains identified would be addressed appropriately.

Conclusion

4.49. In conclusion the Proposed Development does not have any conflict with the identified policies of the NPPF.



CHAPTER 5 LOCAL PLANNING POLICY



5. LOCAL PLANNING POLICY

5.1. This section provides details on the Local Planning Policies which are potentially relevant to the Proposed Development.

5.2. The following policies have been identified within the approved Redcar & Cleveland Local Plan and Policies Map adopted May 2018 and Tees Valley Joint Minerals and Waste DPDs adopted September 2011 and are listed below:

- ED6 – Promoting Economic Growth;
- TA1 – Transport and New Development;
- MWC3 – Alternative Materials for Aggregates Use;
- MWC4 – Safeguarding of Mineral Resources from Sterilisation (Salt & Gypsum);
- MWC10 – Sustainable Transport;
- MWC11 – Safeguarding of Port and Rail Facilities;
- N1 – Landscape;
- N2 – Green Infrastructure;
- N4 – Biodiversity and Geological Conservation;
- LS4 – South Tees Spatial Strategy;
- SD1 – Sustainable Development;
- SD2 – Locational Policy;
- SD3 – Development Limits;
- SD4 – General Development Principles;
- SD5 – Developer Contributions;
- SD6 – Renewable and Low Carbon Energy;
- SD7 – Flood and Water Management; and
- HE2 – Heritage Assets.

5.3. The above policies have been summarised below.

SUMMARY OF LOCAL POLICIES

ED6 Promoting Economic Growth

- 5.4. RCBC created a Policy Map, where employment zones have been identified, alongside a review of these sites. These zones have increased development potential, with encouragement given to investors and certain barriers removed. Specialist uses, such as heavy processing industries and port logistics, will be focused in the following areas: Wilton International, Land at South Tees and Skinningrove, with 405ha of additional land available over the plan period. In these areas proposals falling within Use Classes B1, B2, B8 and suitable employment related sui generis uses will be supported.
- 5.5. The Proposed Development Site has been recognised as residing within Land at South Tees, therefore suitable for development of heavy processing industry. The sites also partially located on an identified area of development, further increasing the development potential of the land.

TA1 – Transport and New Development

- 5.6. The Council will ensure that adverse impacts and effects from new developments onto the local transport network does not occur. This will be done by identifying developments that have potential to negatively impact the transport network, and requiring sufficient travel plans, as well as promotion of sustainable travel to minimise environmental impacts to support residents' health and wellbeing.
- 5.7. As part of the Planning Submission for this development a Transport Statement has been carried out that identifies the means of transport and to ensure that the transportation associated with the facility is both sustainable and does not adversely affect the public highway. The transport assessment concludes that the Proposed Development will not have a significant effect on the local or strategic highway network during construction or operational phases.
- 5.8. Chapter 7 of the ES is the AQ chapter and also demonstrates that the Proposed Development will have no significant effects on human health as a result of traffic emissions.
- 5.9. A CTMP will be devised and employed during the construction phase of the development as well as a Travel Plan, to ensure sustainable transport is both available and promoted. Both of these documents will be provided as part of the relevant Reserved Matters planning Application.

MWC3 – Alternative Materials for Aggregates Use

- 5.10. This policy is in relation to sourcing and the production of materials used as alternatives for primary aggregates, including sand gravel. This policy will support applications which are proposing developments including this practise.
- 5.11. A significant quality of analcime sand is produced as a by-product of the Proposed Development which can be utilised as an aggregate feed material in the cement manufacturing and construction sector. The Proposed Development therefore fully aligns with this policy.

MWC4 – Safeguarding of Mineral Resources from Sterilisation (Salt & Gypsum)

- 5.12. The proposed site resides on a designated mineral safe guarding area, the Teesside area specifically protects Salt and Gypsum reserves. These areas are there to permit only non-mineral developments only. Developments which have the potential to sterilise or put at risk the minerals in these areas will not be permitted. Developments which could impact a reserve will only be approved if it can be shown that either an alternative extraction can be undertaken, or if the reserve can be removed prior to the development.
- 5.13. The Proposed Development has no potential of impacting these mineral reserves, namely Salt and Gypsum. The depths of these resources are considerably lower than anything proposed by the development, removing the potential for impact, albeit the development does reduce the ability to directly access these minerals should they be located under the site.

MWC10 – Sustainable Transport

- 5.14. This policy is in regard to utilising other forms of transport than road based. Teesport is uniquely connected to both shipping, rail lines and road access alongside being the largest freeport in the UK. The policy also aims at encouraging proposals to allow easy access to the development via walking, public transport and cycling and minimise the need to travel by road.
- 5.15. The PD Teesport site meets the specific project requirements in terms of deep port access enabling spodumene shipments, internal transfer facilities that do not require the use of the public highway, rail freight connections to enable to export of all materials from site and a local employment base located within a sustainable distance from the site. A transport statement has been prepared the demonstrates that there is available public transport, cycle and walking network for staff to access the site. Reducing the dependence on road based transport.

MWC11 – Safeguarding of Port and Rail Facilities

- 5.16. The aim of MWC11 is to ensure that no developments within specified areas of Teesside have the potential to interfere or adversely impact the freeport activities.
- 5.17. Although the Site is within land of Tees Dock, it has no potential of adversely impacting the freeport as it does not border the PD Teesport current operational area site and the Sites current use of container storage has been suitably moved to another location. Therefore, the development will be in accordance with MWC11.

N1 – Landscape

- 5.18. The outcomes of this policy are to protect and enhance the areas landscape alongside preventing the unnecessary loss of features important to said landscape. A Landscape Character Assessment will be utilised to add context to developments. Developments which have the potential of leading to a loss of features important to the character of the landscape, or its quality and uniqueness, unless benefits clearly outweigh these.
- 5.19. The Proposed Development Site is within an area of heavy industrialisation, with Lackenby Steel Works, PD Teesport as well as a large commercial distribution service all surrounding the development. The current uses of the area include previously developed brownfield land, former refinery and container and vehicle storage.
- 5.20. The applicant has completed a Landscape and Visual Impact Assessment (LVIA) as part of the planning submission and EIA to demonstrate that no adverse visual impacts will occur as a consequence of the development. The results of this assessment concluded that the impact level of the operational phase of Proposed Development is low, due to the industrial history, Proposed Development objectives and surrounding industrial landscape.
- 5.21. Construction phase impacts has also been assessed with the conclusion of the assessment being low to negligible.
- 5.22. It is noted that the Proposed Development will result in a permanent minor visual impact to the overall character of the area, but is consistent with the regional development plan and proposed neighbouring facilities.

N2 Green Infrastructure

- 5.23. This policy has objectives rooted in enhancing the green infrastructural network of the area, including green belts and the need for developments to provide adequate open space. The policy asks for

developments to include green infrastructure in the proposal, which can include the following: open space, green belts, green wedges, and infrastructure corridors.

- 5.24. The Proposed Development will not result in a loss of any existing habitats or offsite impacts to any specified habitats. A baseline assessment of the ecological value of the development site has been carried out and concluded that the value is low. Any identified onsite ecology will be protected with no net loss of any biodiversity features.
- 5.25. The Proposed Development Site is found in close relation to the River Tees and Teesmouth & Cleveland Coast Estuary, which is a designated European Protected Site comprising SPA, Special Areas of Conservation (SACs) and Ramsar, and are part of the Natura 2000 Network. European protected sites are of exceptional importance for the conservation of important species and natural habitats within the European Union.
- 5.26. A shadow Habitats Regulations Assessment has been carried out to ensure that protection of the integrity of designated European protected sites is maintained.
- 5.27. The conclusion of the assessment is that there will be no negligible impact to the Teesmouth & Cleveland Coast regions and as such no further consideration is required.

N4 Biodiversity and Geological Conservation

- 5.28. This policy is in regard to protecting and enhancing biodiversity and geological features and resources. Its primary focus is surrounding encouraging developments which are not significantly impacting a valued area or habitat including a forest or wetland. Instead, developments should focus on areas which have low value, including brownfield and already developed sites.
- 5.29. The Proposed Development Site is not within a designated site for either ecology or geological conservation. The nearest designation to the site is the Teesmouth & Cleveland Coast SPA, SAC, Ramsar site and SSSI. This Teesmouth & Cleveland Coast SPA, SAC, Ramsar site and SSSI Internationally recognised site is within 0.5km of the Proposed Development and through the detailed Air Quality modelling and shadow HRA assessment it has been determined that no significant effects of the development for either the operational or constructional phase will occur.

LS4 – South Tees Spatial Strategy

- 5.30. The Proposed Site is within the area identified as South Tees that encompasses the South Tees Industrial Estate (Teesworks), Wilton International, Teesport among others. The policy sets a precedent in the area that economic development supporting investments and job growth will be heavily favoured and

recognises the area as the single largest employment opportunity in the UK. The primary aims of the policy are as follows;

- Outline and support development opportunities within the identified area, as well as protecting and enhancing areas which require it; and
- Develop a strategy to deliver both physical and economic regeneration to the South Tees area.

5.31. The Proposed Development is in complete alignment with LS4 as it will create significant employment, provides a very significant capital investment into the area and will environmentally benefit the locality.

5.32. The employment created through the construction and operational phases of the development will provide full time work for the local and wider community, with strong educational ties being made with the Teesside University and local education authorities to enable training of staff as well as the hiring of highly skilled personnel.

5.33. The Proposed Development Site will also enhance and maintain any onsite ecology, provide an upgrade to the site drainage infrastructure and remediate an area of low value industrial land that has known subsurface contamination issues.

SD1 – Sustainable Development

5.34. This policy favours developments that improve the economic, social and environmental development of an area. Any Proposed Development that demonstrates a commitment to the RCBCs identified sustainability principles will be looked upon favourably by RCBC and will be more likely to succeed in the planning process.

5.35. The applicant has ensured that the Proposed Development aligns with this policy. The environmental benefits of the facility are multifaceted and arise through a combination of:

- Delivering a UK and European source of Lithium Hydroxide which is deemed essential for the growing EV and battery storage market;
- Delivering energy security and assisting in the production of fossil fuel free transport methods;
- Creation of high value jobs within the emerging green economy with the economic gains of the project being felt both nationally and directly at Teesside;
- Being an embedded customer for the proposed hydrogen network and associated CCUS facilities being developed at Teesside.

SD2 – Locational Policy

5.36. SD2's focus is to ensure that developments are located in the most suitable place with new development being located primarily in urban and coastal areas, specifically the South Tees Industrial Zone in the locality of Redcar. The historical legacy of the South Tees area has resulted in a number of brownfield sites throughout the South Tees area all of which are targeted for industrial redevelopment and employment. The policy protects areas which have ecological designations or have high environmental value, such as the Teesmouth Estuary SPA.

5.37. Due to the proximity of the Teesmouth Estuary SPA, the policy requires that appropriate assessments are undertaken. The results of all such assessments are provided within the ES and demonstrate all potentially adverse impacts are suitably mitigated.

SD3 – Development Limits

5.38. This Policy supports the development or re-development in locations which do adversely impact sensitive or designated habitats or where material improvement can be delivered to existing brownfield sites.

5.39. The Proposed Development is located at a brownfield site which is identified in the Local Plan as an employment zone, is the site of a former oil refinery and will not have any impacts on any sensitive or designated habitats. As such, the Proposed Development is considered to wholly align with the objectives of SD3.

SD4 – General Development Principles

5.40. This policy outline the general principals of appropriate development and supports:

- Sites that are identified and included in the Local Plan;
- Sites that will not have an adverse effect on operational, commercial or residential receptors;
- Site that will not result in the damage to human health, loss in ecological habitats or impacts to the wider environment; and
- Developments will utilise their space efficiently and tacitly.

5.41. The Proposed Development utilises existing brownfield land and is identified as an employment zone within the local plan. The development policy prioritises brownfield development over greenfield sites and favours functional industrial development.

SD5 – Developer Contributions

- 5.42. Developments with the potential for significant adverse effects that require mitigation have the potential to financially burden the area. This policy has been created to ensure that appropriate funding allocated to mitigate any adverse effects on the surrounding environment and ensures that suitable funds are set aside for the worst-case scenario.
- 5.43. The Applicant has undertaken an EIA to ensure that any impacts from the process and construction are identified and mitigated, resulting in a development which will not adversely affect any surrounding environment and therefore will not require a financial contribution.

SD6 – Renewable and Low Carbon Energy

- 5.44. Applies to Low Carbon developments with the potential for impacting airport radar and requires mitigation to be proposed and agreed with the airport.
- 5.45. The Proposed Development is not considered to have any implications for impacting radar or airport safety, for this reason complying with Policy SD6.

SD7 – Flood and Water Management

- 5.46. This policy is regarding developments that are in a flood prone area or areas larger than 1 hectare. All applicable developments require a Flood Risk Assessment that demonstrates that the proposals do not have the potential to increase the flood risk of the area or be at risk of flooding.
- 5.47. Although the Proposed Development is located within Flood Zone 1, its area is larger than 1 hectare so therefore has been subject to Flood Risk Assessment. Multiple measures have been incorporated in the design of the site, including SuDS and new associated new surface water drainage infrastructure to ensure that the flood risk of the site is fully mitigated.
- 5.48. The drainage strategy and associated Flood Risk Assessment demonstrate that the site has a low flood risk and can be developed in accordance with this policy.

HE2 – Heritage Assets

- 5.49. This policy aims to protect and enhance nationally or internationally designated and non-designated heritage assets of archaeological interest. The policy requirements state that developments do not have the potential of adversely impacting any identified heritage asset.
- 5.50. A Desk Based Archaeological and Cultural Heritage Assessment ('DBA') has been carried out to confirm the presence (or lack of) any heritage assets within 2km of the site. It has been confirmed that the Proposed Development does not have any designated or non-designated heritage sites, Scheduled

Monuments or listed buildings within its red line boundary or lies within a conservation area. There are also no Scheduled Monuments or Listed Buildings within 2km of the Site.

5.51. The Proposed Development is therefore aligned with HE2.



CHAPTER 6 PLANNING ASSESSMENT



6. PLANNING ASSESSMENT

INTRODUCTION

- 6.4 The Proposed Development meets the description of a Schedule 1 EIA Development and also meets the definition of B2 as provided under the Industrial Use Classes stipulated by The Town and Country Planning (Use Classes) Order 1987 (as amended) and requires Reserved Matters Planning permission to be granted prior to its construction and development.
- 6.5 This section provides a summary of the Proposed Development in planning and environmental terms and refers to the findings of the Environmental Impact Assessment and associated ES.

PRINCIPLE OF DEVELOPMENT

- 6.6 The Proposed Development will be located on land within the PD Teesport Site and is designated in the local development plan for industrial and employment use and subject to Policy ED6 '*Promoting Economic Growth*'.
- 6.7 Policy ED6 encourages proposals for new employment uses in locations such as PD Teesport especially given that the site is of low environmental sensitivity, is a long-established industrial location and is neither subject to any environmental or heritage designations or in close proximity to any sensitive receptors.
- 6.8 It is therefore considered that the principle of developing the LHM manufacturing plant in this location is acceptable in land use planning terms.

SITE SELECTION AND ALTERNATIVES

- 6.9 The development of a lithium refinery at the scale proposed itself has a number of site-specific requirements which necessitate or lend itself to its location in Teesside or other similar location namely:
- A site that is available that is in excess of 60 acres that allows the scale of development necessary for a 3-line integrated lithium plant;
 - Provides a multi-modal transport and distribution network;
 - Deep water port dockside location with associated offload and transfer facilities; and
 - Access to hydrogen and low carbon infrastructure.

- 6.10 The Site was selected by the Applicant for a number of reasons, including its proximity to potential customers and proposed EV Gigafactories in the North East of England and Europe who will require a supply of LHM for EV battery manufacture;
- 6.11 The location within the Teesport facilities (including the emerging Tees Valley Freeport) and the presence of a strategic road and rail network provides the optimum multi model transport flexibility for the import and export of raw materials/feedstock and products and by-products.
- 6.12 The location is further suited for the following factors:
- Availability of an experienced workforce with a chemicals manufacturing/processing skills base;
 - Supportive planning and development policies;
 - Site size, scale and availability;
 - The presence of renewable energy utilities, gas and grid connection infrastructure; and
 - The proximity to the proposed H₂ network and CCUS pipelines and offshore storage facilities.
- 6.13 In choosing the development site, numerous alternative facilities were considered, however agreement could not be met for numerous environmental, infrastructure or commercial reasons.
- 6.14 Chapter 5 of the ES provides further information and discussion on Site Selection and Alternatives
- 6.15 The alternative of developing the Site for a LHM plant would be the '*Do Nothing*' scenario, resulting in the PD Teesport site remaining in use as a low value hardstanding storage / laydown area as opposed to a leading manufacturing and production facility, employing a highly skilled workforce.

ENVIRONMENTAL DESIGNATIONS

- 6.16 This section has utilised MAGIC Maps alongside national databases for information regarding designated sites with the programme QGIS, in order to determine the environmental designations which could be in the area.
- 6.17 The nearest designated site to the Proposed Development is the Teesmouth & Cleveland Coast ('SPA', 'SSSI'), found approximately 400 – 500 metres north of the site. However, due to the nature of the development and the fact that plant utilises '*Zero Liquid Discharge*' (ZLD) technology the impacts on the SPA are extremely limited and therefore not considered to be a constraining issue.
- 6.18 Other designated sites in the vicinity include Listed Buildings, with the closest found approximately 4.4km northeast, again which does present a constraint to the development.
- 6.19 A map of the nearby designations and EA Flood Risk maps can be found in Figures 6.1 and 6.2 below.

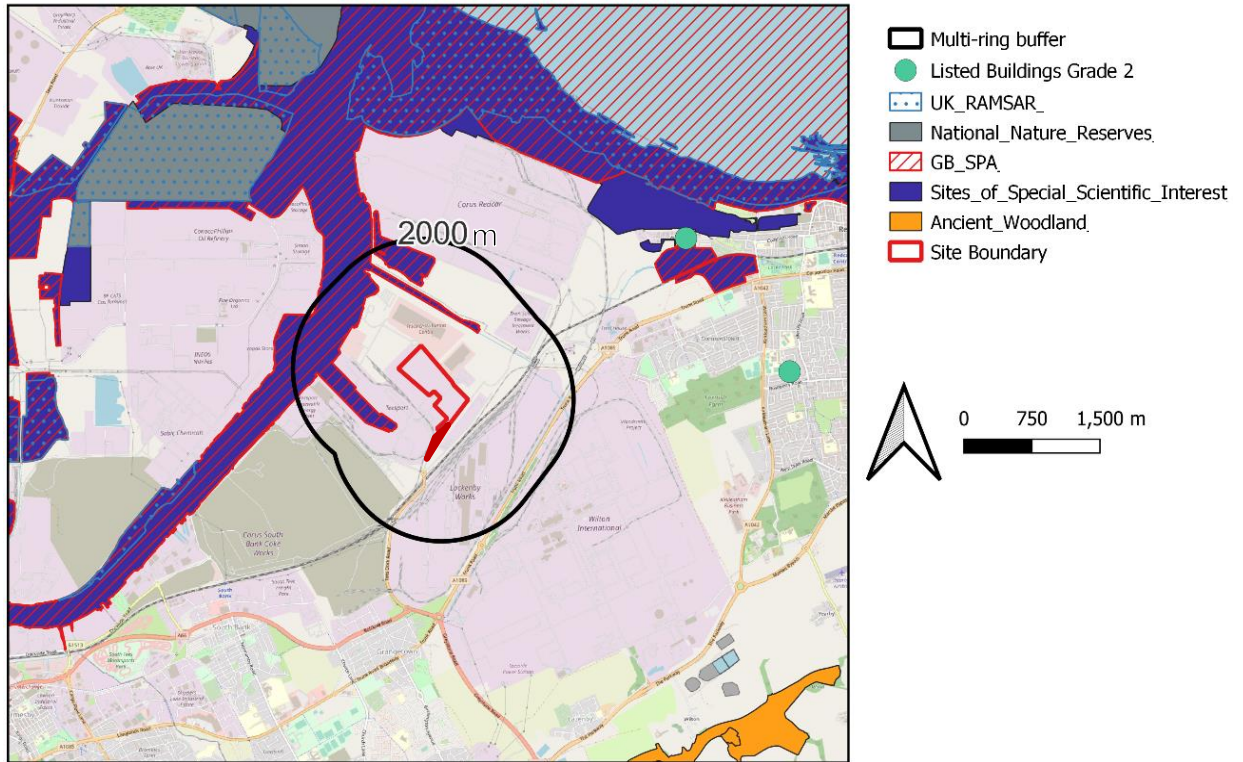


Figure 6.1 A Map of the Designated Sites in the surrounding area

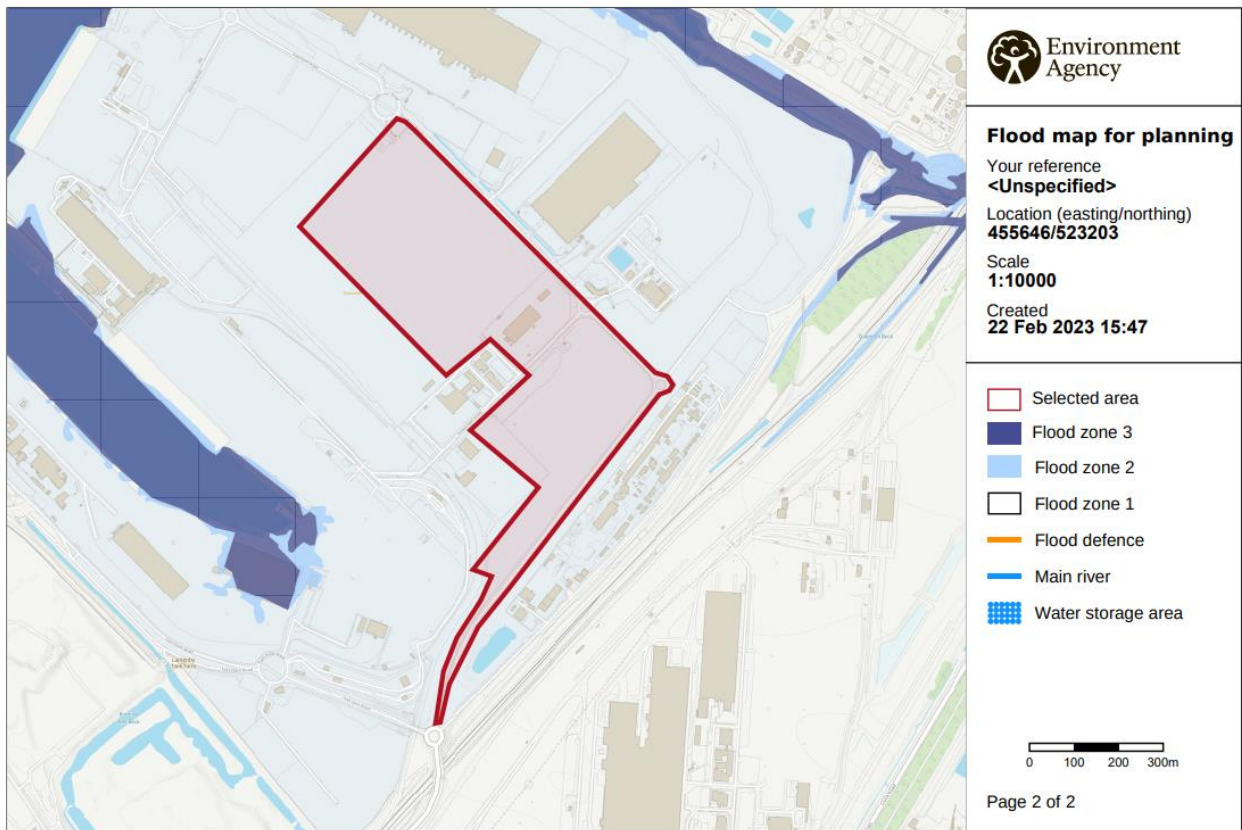


Figure 6.2 Flood Risk Map for Proposed Development Site

PROTECTION OF THE ENVIRONMENT

- 6.20 Both the NPPF and the Local Plan contain specific policies on safeguarding and protecting the environment, covering all aspects such as the countryside; the natural environment; built and cultural heritage; agriculture; and landscape. They also set out policies aimed at minimising the loss of amenity through pollution.
- 6.21 The following paragraphs provide an overview of both national and local policy considerations for safeguarding the environment and local communities. For ease, policies are grouped by each facet of the environment.

Landscape

- 6.22 This subject is discussed in detail within Chapter 10 of the ES and is accompanied by a full Landscape and Visual Impact Assessment that has been carried out on the basis of the outline parameters plan (i.e. building up to 45 metres in height and up to 180,000m² of development) and assumes that all 6 phases will be developed.
- 6.23 Section 15 of the NPPF, *“Conserving and enhancing the natural environment”*, sets out criteria that are relevant to landscape. These include the protection of valued landscapes in a manner that is commensurate with their statutory status or identified quality in the Local Plan, recognition of the intrinsic character and beauty of the countryside and maintaining the character of undeveloped coast.
- 6.24 In paragraph 172 it is stated that *“great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues”*. It also set out that *“the scale and extent of development within these designated areas should be limited”* and that *“planning permission should be refused for major development other than in exceptional circumstances and where it can be demonstrated that that the development is in the public interest”*. In addition, the NPPF sets out (paragraph 173) *“that within areas defined as Heritage Coast.... planning policies and decisions should be consistent with the special character of the area and the importance of its conservation”*.
- 6.25 Policy N1 addresses landscape character and states:
- “We will aim to protect and enhance the borough’s landscapes...*
- d. Be carefully designed.’*
- 6.26 Policy SD 4 then relays the requirement for an evaluation *“assessing the suitability of a site or location, development will be permitted where it:*

- a. *will not have a significant adverse impact on the amenities of occupiers of existing or proposed nearby land and buildings;*
- b. *will not result in the unacceptable loss or significant adverse impact on important open spaces or environmental, built or heritage assets which are considered important to the quality of the local environment;”*

- 6.27 The development site is not located within a sensitive area with regard to landscape, with the nearest designation over 2 km distance from the site.
- 6.28 The Proposed Development would introduce new buildings and ancillary structures up to 45 metres in height (a flue stack at approximately 47 metres in height) on the site; however, they are set within an industrial context, and less significant than the existing neighbouring developments surrounding the site.
- 6.29 The new buildings and structures would be of a similar scale to those already existing within the wider Teesworks site and the scale and form of development is not at odds with what would be expected on industrial employment zones.
- 6.30 Overall, the site and surrounding area is industrial in nature, and so no significant landscape effects are predicted, with few sensitive viewpoints or residential receptors in the area.
- 6.31 In this context, a Landscape and Visual Impact assessment has been completed and has concluded that the proposals would not give rise to a significant effect upon landscape or visual amenity. Therefore, the proposals accord with policies aimed at protecting landscape character and visual amenity.
- 6.32 The Proposed Development is therefore seen to be in accordance with Policy N1 and SD 4.

Natural Environment (Ecology)

- 6.33 The ecological impacts of the Proposed Development are evaluated within Chapter 8 of the ES.
- 6.34 In completing the ES, both the on-site ecology and proposed offsite impacts have been assessed through the use of a Shadow Habitats Regulation Assessment.
- 6.35 The key controls relating to the development are in relation to liquid and air discharges, with all proposed emissions being abated and mitigated to an extent that they will not have an adverse impact on the environment.
- 6.36 The relevant paragraphs in the NPPF are 175 to 176. These paragraphs provide that:

175. *When determining planning applications, local planning authorities should apply the following principles:*

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons, and a suitable compensation strategy exists; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

176. *The following should be given the same protection as habitats sites:*

- a) potential Special Protection Areas and possible Special Areas of Conservation;*
- b) listed or proposed Ramsar sites; and*
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

6.37 The site is located in proximity to designated sites including the Teesmouth and Cleveland Coast SSSI. Policy N4 states that development that would adversely affect the integrity or value of a site such as an SSSI will be rejected, with priority given to protecting the internationally important sites. It is not considered that the Proposed Development will have a significant impact on the designated site, with the Air Quality Assessment demonstrating no adverse effects will occur from the development onto the site.

- 6.38 The sites proximity to the River Tees, requires consideration of policy N2 which states “*protect and enhance the green infrastructure network*”, with river networks recognised as an important green infrastructure. The River Tees is protected through a comprehensive drainage strategy which eliminates industrial discharges to water, prevents any pollution from leaving the site and ensures a high degree of environmental protection at all times.
- 6.39 The Air Quality Assessment has been undertaken to investigate the potential impacts to this green network. The Air quality assessment concludes that the pollution control and mitigation measures provided by the facility are sufficient to ensure that “*no significant likely effects*” would occur to the River Tees from either the construction or operational phases of the Proposed Development. Also, the existing infrastructure in the area associated with PD Teesport and the wider Teesside industry, shows that the Proposed Development will not change the existing landscape or adversely impact the River Tees.

Water Environment

- 6.40 Impacts on water resources and local flooding is evaluated in detail within Chapter 9 of the ES.
- 6.41 Guidance formerly contained in PPS25 is now within paragraphs 148 to 165 of the NPPF, together with a complete section on flood risk contained in the web-based PPG (paragraphs 7-001 to 7-078) and has been adopted fully by the application design team.
- 6.42 In the Local Plan Policy SD7 addresses flood risk and water management, outlining how the council will adopt a sequential approach to discourage development on areas at risk from flooding, stating
- “A site specific flood risk assessment will be required to be carried out to demonstrate that development is not at risk from flooding and that it does not increase flood risk elsewhere in the following circumstances:*
- h. proposals of 1 hectare in size or greater in Flood Zone 1; or*
 - i. proposals for new development (including minor development and change of use) in Flood Zones 3a or Flood Zone 2; or*
 - j. proposals for new development in areas susceptible to surface water flooding; or*
 - k. proposals situated in an area currently benefiting from defences; or*
 - l. proposals situated within 20 metres of a bank top of a main river; or*

m. proposals over a culverted watercourse or where development will be required to control or influence the flow of any watercourse; or

n. where the Proposed Development may be subject to other sources of flooding...”

6.43 The site is located within Flood Zone 1 and approximately 23.53 ha in area (58 acres), therefore requiring a site specific flood risk assessment in order to be in accordance with SD7.

6.44 The FRA carried out in support of the development proposals confirm that the proposed drainage design, flood mitigation strategy and pollution prevention measures demonstrate the Proposed Development is an acceptable land use at this location that surface water runoff can be managed in accordance with best practice so that flood risk is not increased as a consequence of the Proposed Development.

6.45 This policy also addresses flooding risk caused by surface water and sewer flooding. It outlines that the Planning Application must involve;

“a drainage plan to show the site drainage can be adequately dealt with. The proposed drainage scheme should incorporate SuDS unless it can be demonstrated that they would be inappropriate.

The drainage system must be designed and constructed so surface water discharged does not adversely impact the water quality of receiving water bodies, both during construction and when operational. New development should seek to improve water quality where possible, as well maintaining and enhancing the biodiversity and habitat of watercourses.”

6.46 The drainage strategy adopted by the Proposed Development has been designed in accordance with Policy SD7.

6.47 The accompanied ES has set out the findings of an assessment on the water environment. That assessment concludes, that taking into consideration the mitigation measures inherent to the design and those outlined in the Chapter and the mitigation incorporated in good practice techniques, the Proposed Development is not predicted to result in significant changes to the water environment. No cumulative effects with other approved developments in the area on the water environment are identified.

6.48 It is concluded that the Proposed Development accords with international and national legislation, and national and local planning policies, regarding flood risk, drainage and protection of the water environment.

Transport

- 6.49 Due to the location of the Proposed Development within the existing Teesport and Teesside Freeport area, the proximity of strategic high volume road, rail and dockside infrastructure, it was agreed by RCBC that transport impacts (assessed in the form of a detailed Transport Assessment) could be scoped out of the EIA.
- 6.50 Notwithstanding the above, a Transport Statement has been prepared in support of during the Proposed Development to assess the potential transportation impacts on the local road network. Further work has been completed by the applicant to confirm that the proposed use of the rail network is suitable for the proposed bulk transport of analcime sands and associated process feedstocks.
- 6.51 At the national level, paragraphs 102 to 111 in Section 9 of the NPPF are relevant. All developments that generate significant amounts of movement should be required to provide a Travel Plan and be supported by a Transport Statement or Transport Assessment³. Plans and decisions should take account of whether:
- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
 - Safe and suitable access to the site can be achieved for all users; and
 - Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.
- 6.52 Paragraph 109 then adds that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.
- 6.53 Relevant local policies relating to transport at the site are focused on TA1. The application is supported by a Transport Statement, with future phases of the development all being supported with Travel Plans as required. The Transport Statement has shown that the application proposal is acceptable and will not adversely affect the highway.

³ Paragraph 111, NPPF

6.54 The expected tonnages at the site and vehicle movements are comfortably within the quantities handled and processed by the wider Teesport complex and will not have an adverse impact on the private or public transport system of the local or regional area. Under normal operations the Proposed Development will be utilising the rail network for all bulk exports so will therefore have a minimal impact on the road network.

POLLUTION AND AMENITY OF LOCAL COMMUNITIES

6.55 The key local pollution impact of the proposed development are limited to the generation of dust, noise and air pollution, all of which have been assessed in detail within Chapters 7 and 12 of the ES.

6.56 The regulation of the site emissions by the Environment Agency as part of the Industrial Emissions Directive requires the facility to demonstrate Best Available Techniques (or BAT) in both the methodologies and control measures associated with these emission parameters. In all cases, sufficient control and abatement has been incorporated into the design of the facility therefore assuring that offsite impacts are fully mitigated.

6.57 Pollution issues are set out in paragraphs 170 and 178 to 183 of the NPPF. Paragraph 170 refers to preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

6.58 Paragraph 180 provides that “*decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation”.*

6.59 Finally, paragraph 183 notes that LPAs should focus on whether the development itself is ‘*an acceptable use*’ of the land, and the impact of the use, rather than the control of processes or emissions

- themselves where these are subject to approval under pollution control regimes. Local planning authorities should assume that these regimes will operate effectively.
- 6.60 Guidance can also be found in the web-based Planning Practice Guidance. Firstly, the guidance addresses the ability to comply with the noise criteria is set out in the Planning Practice Guidance (paragraphs 019 to 0228⁴). Secondly, the ability to adequately control and mitigate dust emissions is set out in the Planning Practice Guidance at paragraphs 023 – 0329⁵.
- 6.61 In the Local Plan, Policies SD4, SD2 and Policy LS4 are of note. Firstly, Policy SD4 at part n indicates that new developments will “*minimise pollution including light and noise and vibration levels to meet or exceed acceptable limits;*”. LS4 outlines that developments should “*encourage clean and more efficient industry in the South Tees area to help reduce carbon dioxide emissions and risk of environmental pollution;*” as well as “*secure decontamination and redevelopment of potentially contaminated land; protect European sites, and safeguard and improve sites of biodiversity interest particularly along the River Tees and the estuary and encourage integrated habitat creation and management; enhance the environmental quality of the River Tees and coastline;*”.
- 6.62 The proposed lithium refinery process falls under the regulatory control requirements of the Environmental Permitting Regulations (England and Wales) 2018 (as amended)(EPR). Under these regulations, all aspects of the process and associated emissions (to land, air and water, noise and amenity impact) will be regulated by the Environment Agency under defined conditions and controls.
- 6.63 In accordance with the EPR, an environmental permit can only be granted by the competent authority where they are satisfied that a regulated activity is not likely to have a significant adverse effect on the environment.
- 6.64 Given that all of the emissions from the plant are regulated by the Environment Agency, then it can be assured that all impacts will be acceptable in terms of environmental impact.
- 6.65 Policy SD2 also addresses contaminated land stating “*Wherever possible, priority will be given to the development of brownfield land in sustainable locations, providing it is not of high environmental value,*

⁴ Reference ID: 27-019-20140306 to 27-022-20140306

⁵ Reference ID: 27-023-20140306 to 27-032-20140306

the reuse of existing buildings and limiting development in the countryside.” The location of the site on formerly developed brownfield land accords exactly with this policy.

Climate Change and Greenhouse Gases

- 6.66 The lifecycle, carbon and greenhouse impacts of the facility are evaluated within Chapter 13 of the Environment Statement.
- 6.67 The ES concludes that the combination of highly efficient chemical design, the use and procurement of certified renewable energy, the adaptability of the processing technology to operate using hydrogen and CCUS, then the long term carbon and greenhouse gas impacts are acceptable.
- 6.68 Paragraphs of relevance in the NPPF to climate change include 153-158, these state that plans should demonstrate how they have taken a proactive approach to mitigation and adaption of climate change, showing how minimal use of fossil fuels, long term flood risk implications alongside other issues such as coastal change, and landscapes.
- 6.69 It states that new developments should take the following steps to ensure it aligns with this policy: to avoid vulnerability to the prior mentioned impacts that climate change has the potential of adversely effecting, including flood risk and overheating. These should be managed through appropriate mitigation measures and sustainable designs. The development should also help to reduce carbon emissions, through either its design, location etc.
- 6.70 The NPPF also recognises that developments which are in relation to renewable and low carbon growth should not require demonstration of overall need for development and also to be favoured if the impacts are or can be acceptable.
- 6.71 Local policies which reference this topic include SD4 and SD7. Firstly, SD4 states that developments should be *“sustainable in design and construction, incorporating best practice in resource management, energy efficiency and climate change adaptation”*. SD7 is focused on flood and water management, with climate change identified in the following context *“All development proposals will be expected to be designed to mitigate and adapt to climate change, taking account of flood risk by: d. ensuring opportunities to contribute to the mitigation of flooding elsewhere are taken; e. prioritising the use of sustainable drainage systems (SuDS); f. ensuring the full separation of foul and surface water flows; and g. ensuring development is in accordance with the Redcar and Cleveland Strategic Flood Risk Assessment.”*

- 6.72 Due to the development developing a low carbon technology resource it aligns with paragraph 158 of the NPPF, with the planning application being favoured over multiple aspects and assisted to be approved in the application process. This further aligns with local policies, with the Proposed Development reducing the carbon emissions of the UK as well as Europe and assisting the UK to meet the Net Zero goal set in 2015.
- 6.73 The ES also includes a Climate Change Chapter, which includes a Life Cycle Assessment of the facility, demonstrating that the cradle to grave process for the lithium refinery is acceptable for national guidance, with suitable mitigation identified.



CHAPTER 7 NEED FOR DEVELOPMENT



7. NEED FOR DEVELOPMENT

INTRODUCTION

7.1 Proposed Development is required on both a national and international scale and is recognised in UK and EU policy and legislation.

7.2 The primary need for this development is in relation to the UK’s transition to net zero. The policy and legislation documents which will be analysed as part of this chapter are as follows:

- British Energy Security 2022;
- Decarbonising Transport 2022;
- Net Zero: Build Back Greener 2021;
- Climate Change Act 2008;
- Energy White Paper 2020; and
- Ten Point Plan for a Greener Industrial Revolution, November 2020.

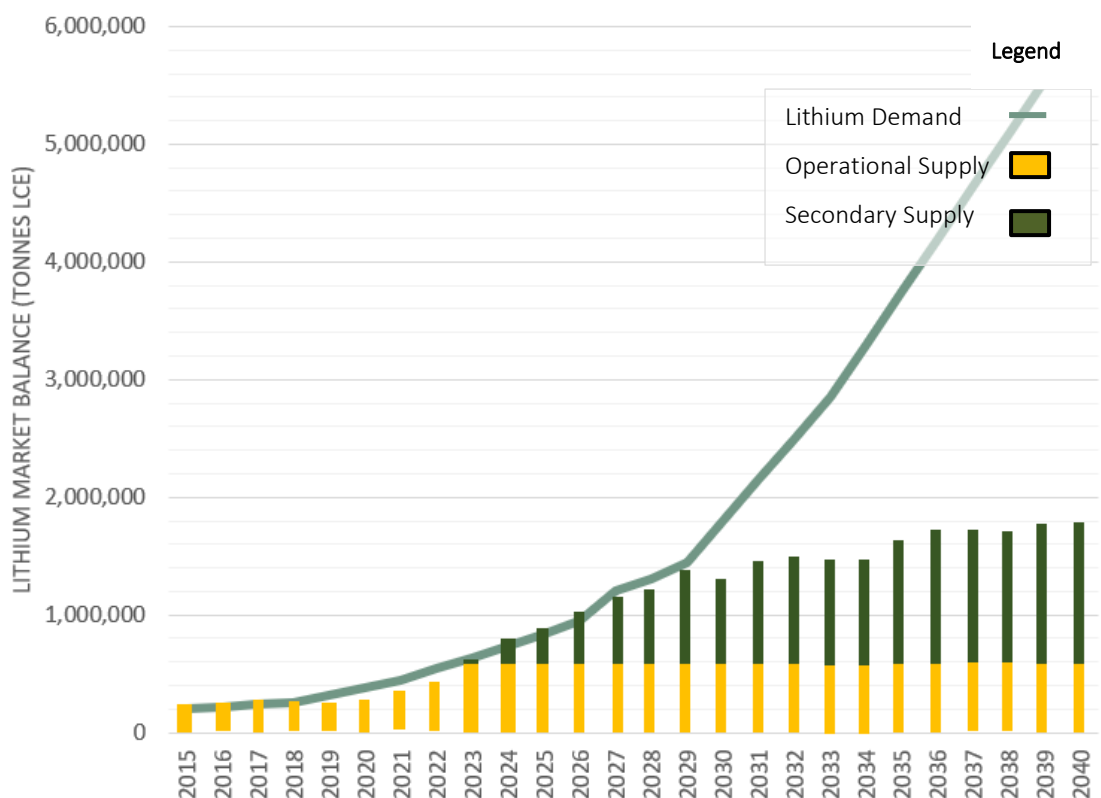


Figure 7.1 Global demand of Lithium, with predicted values (source: Benchmark Mineral Intelligence, 2019)

7.3 The LHM produced at the Proposed Development will be used for EV's and renewable energy storage. The demand for EV's has greatly increased over the past decade, with it expected to surpass the expected demand as seen in Figure 7.1.

British Energy Security 2022

7.4 This strategy was published as a response to the growing concern over the UK's energy supply, currently the supply is supplied by aggressive foreign powers including Russia and China. International geopolitical tension has been witnessed over recent years demonstrating the fragility of these supply chains and the demands made that have to be met.

7.5 National resilience in terms of energy and critical minerals supply is now a matter of national significance and is a Government priority, with plans being favoured for further utilisation of the North Sea Reserves, plans for national shale gas extraction, alongside proposals to reduce 40% of the gas consumption and increased low-carbon power generation. Meeting these policies will create energy and mineral resources security in the UK, and developments which have potential of assisting this will be favoured upon.

7.6 Some of the steps that the UK have taken to reach these goals which are in relation to this project are: a £2.8 billion investment into the UK zero emission vehicle sector and construction of a number of gigafactories across the UK.

7.7 The Proposed Development is expected to produce up to 75,000 tonnes of LHM which will be harnessed and employed for the manufacture of EV and 'smart grid' battery storage systems.

7.8 Given that China currently controls approximately 90% of the world's capacity for raw lithium products, both the UK and Europe are vulnerable to international market stability and requires transition to renewable energy and a higher degree of energy security at the earliest opportunity. In turn this will reduce our fossil fuel consumption, as well as removing dependence on foreign powers to gain access to required technology. Therefore, the project aligns with the British Energy Security strategy.

Decarbonising Transport 2022

7.9 This plan aim is to set out the UK's desire to decarbonise the transport sector, both for public and personal transport.

7.10 The primary strategies employed are zero emission buses and coaches, decarbonisation of railways, and zero emission personal transport options.

7.11 The UK government strategy towards EV's production and the phasing out of combustion engines in the transport sector requires a very significant uplift in the volume of Lithium Hydroxide production within the UK. Therefore, the Proposed Development strongly aligns with the strategy and is critical to achieving this goal.

Net Zero: Build Back Greener 2021

7.12 The government announced this strategy in 2021, with the aim to deliver a long term plan for reducing emissions from each sector of the UK economy over the next 3 decades, with the goal of achieving net zero carbon emission by 2050.

7.13 The primary objective of the plan that are relevant to the Proposed Development are as follows:

"We will work with businesses to continue delivering deep cost reductions in low carbon tech through support for the latest state of the art kit to bring down costs for consumers and deliver benefits for businesses."

7.14 A section of the Net Zero plan is specifically focused onto the transport sector, in this area the government's viewpoint towards how the transport sector should follow is laid out:

"A zero emission vehicle mandate to improve consumer choice and ensure we maximise the economic benefit from this transition by giving a clear signal to investors. This will deliver on our 2030 commitment to end the sale of new petrol and diesel cars, and 2035 commitment that all cars must be fully zero emissions capable. Further funding of £620 million for zero emission vehicle grants and EV Infrastructure, including further funding for local EV Infrastructure, with a focus on local on street residential charging. Allocating a further £350 million of our up to £1 billion Automotive Transformation Fund (ATF) to support the electrification of UK vehicles and their supply chains."

7.15 The transport sector is one of the primary carbon emitting industries in the UK, with 24% of emissions resulting from transport in 2022. The aim of the government achieving net zero relies on this industry changing dramatically. There are no carbon neutral personal transport options for large and medium journeys than EV's, therefore the Net Zero plan is reliant on the EV industry to succeed.

Climate Change Act 2008

7.16 This forms the basis for the UK's strategy towards carbon reduction and tackling climate change. With set limits to emissions by check points in the future. The plan ends in 2050.

- 7.17 The Climate Change Act commits the UK government by law to reducing greenhouse gas emissions by at least 100% of 1990 levels (net zero) by 2050. This includes reducing emissions from the devolved administrations (Scotland, Wales and Northern Ireland), which currently account for about 20% of the UK's emissions.
- 7.18 The removal of carbon emissions from the transport sector is a crucial part of achieving this goal, something which the Proposed Development is vital for.

Energy White Paper 2020

- 7.19 This white paper builds on the Ten Point Plan delivered by Boris Johnson in 2020, setting out the energy-related measures and the strategy of a long term vision for the UK's energy system.
- 7.20 Chapter 3 of the document is titled Transport. The transport industry is recognised as an important aspect of the general public's everyday lives and fundamental. 90% of the emissions created by the transport industry are generated from road traffic, with 68% of this figure coming from passenger cars in a 2018 Road Traffic Emissions study.
- 7.21 The decarbonisation of vehicles is specifically noted in this paper, with support being shown towards this transition. Support includes:
1. *“Regulatory framework;*
 2. *Strong consumer base;*
 3. *Vehicle supply;*
 4. *Refuelling and recharging infrastructure;*
 5. *Energy system readiness.”*
- 7.22 Points 3 and 4 relate directly to the Proposed Development in that it is a critical supply chain link to the delivery of electric vehicle infrastructure. Further support is shown in the document through the following extract:
- “Nearly half a billion to be spent in the next four years for the development and mass-scale production of electric vehicle batteries (gigafactories) and other strategic technologies, as part of our commitment to provide up to £1 billion to support development of the electric vehicle supply chain, boosting investment in the automotive sector, including existing clusters of activity in the Midlands and North East.”*

7.23 For the UK to deliver on the proposals within the white paper requires decarbonisation of every sector, with the transport sector requiring drastic changes. The Proposed Development is the first of its kind and is a vital resource required if targets set out in this paper are to be met.

The Ten Point Plan for a Green Industrial Revolution 2020

7.24 This strategy is based around £12 billion in funding towards a more sustainable future. It aims to integrate a viable plan, and enhance Green Industry on a national scale.

7.25 The components of the plan which relate to the Proposed Development are as follows:

- Point 4 Transmission to Zero-Emission Transportation;
- Point 5 Provide Better Green Public Transportation;
- Point 6 Jet Zero and Green Ships; and
- Point 10 Green Finance.

7.26 Despite not all of these point directly referencing electric vehicles, the encouragement and development of the EV market and production industry in the UK will further promote green industry to develop in the UK.

7.27 Part 4 of the plan directly relates to the Proposed Development, with the government stating that by 2030 the sale of combustion engine cars will cease, moving to a complete fleet of EV's. Clearly, such a transition requires a complete overhaul of the transport infrastructure system, and requires huge amounts of resources to be undertaken, further promoting the development as crucial for progression.

SUMMARY

- 7.28 In summary, the use of the PD Ports Teesport site for the development of a Lithium Refinery is considered an appropriate use of allocated employment and industrial land, which is in complete alignment with all relevant UK critical decarbonisation policies.
- 7.29 Within the various UK decarbonisation policies there runs a *'golden thread'* that links the UK energy and decarbonisation strategy with the effective deployment of electric vehicles and transportation, not only does the Proposed Development align with local and national legislation, but also international and national action plans.
- 7.30 In short, there is a vital need for more Lithium Hydroxide to be produced across the EU and within the UK for the production of EVs and batteries for the UK and European Markets. With current control based in China, the development of this scheme shifts this control to a national source, that will create significant local employment, benefit carbon reduction, provide economic gains as well as meeting energy security agendas.