



Green Lithium Refining Limited, Lithium Refinery, Kinkerdale Road,
Teesside, TS6 6UE

Proposed Lithium Hydroxide Monohydrate Refining Facility

TRANSPORT STATEMENT

Prepared by: Entran Ltd

On behalf of: Green Lithium Refining Ltd.

Date: March 2023



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Commonly used abbreviations:

CEMP	Construction Environmental Management Plan
CTMP	Construction Traffic Management Plan
DCLG	Department for Communities and Local Government**
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DSP	Delivery and Servicing Plan
EIA	Environmental Impact Assessment
HGV	Heavy Goods Vehicle
NH	National Highways
NPPF	National Planning Policy Framework (2021)
NYCC	North Yorkshire County Council
PPG	Planning Practice Guidance
RCBC	Redcar and Cleveland Borough Council
STC	Staff Travel Co-ordinator
TPA	Tonnes per annum
TPD	Tonnes per day
TS	Transport Statement

*** now Department for Levelling Up, Housing and Communities*



1.0 INTRODUCTION

1.1 Overview

- 1.1.1 This Transport Statement (TS) has been prepared by Entran Ltd in support of an outline planning application for the redevelopment of a brownfield site which is part of the existing PD Port container storage terminal / former vehicle import facility within Teesport, to provide a Lithium Hydroxide Monohydrate Refining Facility. Full details of the proposed development are contained in section 4 of this report.
- 1.1.2 The site falls within the jurisdiction of Redcar and Cleveland Borough Council (RCBC) who are the local planning authority and North Yorkshire County Council (NYCC) who are the local highway authority.

1.2 Policy and guidance

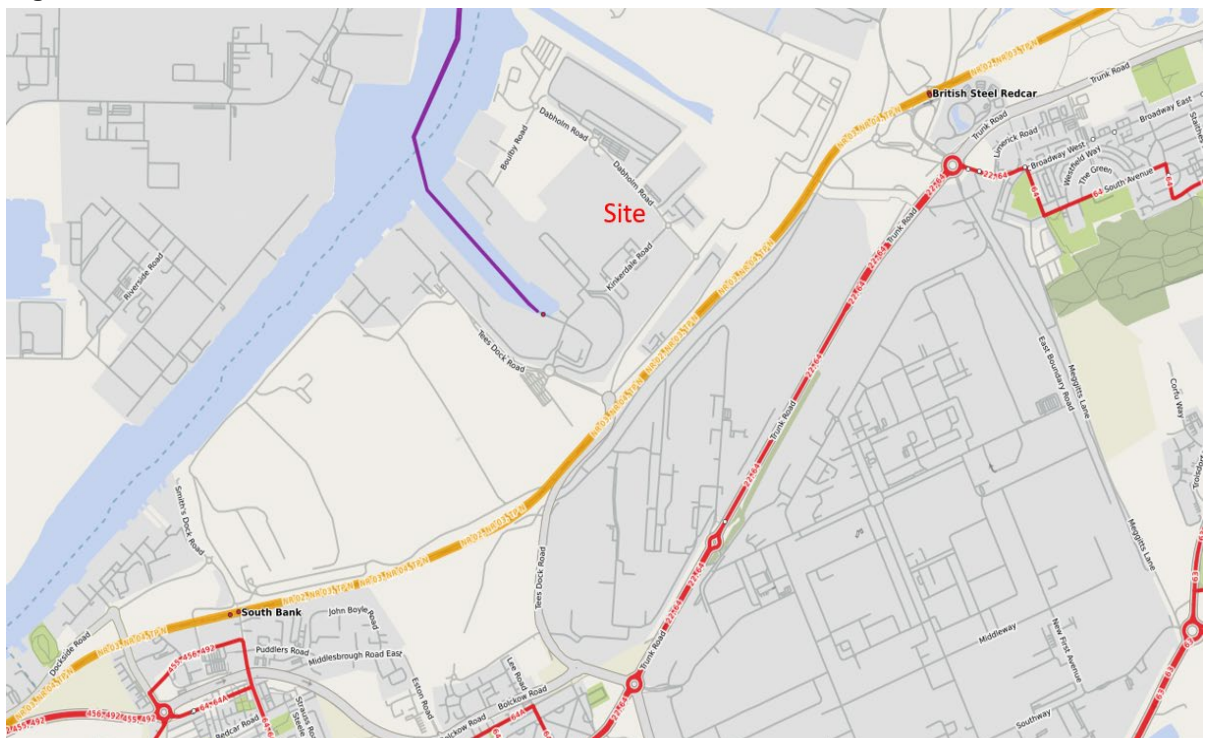
- 1.2.1 Guidance published by the DfT and the DCLG in 2007 provides advice on the content and preparation of Transport Assessments and Transport Statements. It also assists stakeholders to determine whether an assessment may be required and, if so, what the level and scope of the assessment should be.
- 1.2.2 Guidance published by the DfT and the (then) DCLG in 2007 provided advice on the content and preparation of Transport Assessments and Transport Statements. It also assisted stakeholders to determine whether an assessment may be required and, if so, what the level and scope of the assessment should be.
- 1.2.3 The 2007 document brought the Guidance on transport assessment up to date with these changes in Government policy and expanded it to address the assessment of the potential implications of development proposals on the entire transport system.
- 1.2.4 In 2014 DCLG published a suite of Planning Practice Guidance including advice entitled "Travel plans, transport assessments and statements in decision taking". The 2007 guidance has been superseded by the PPG as current government guidance on the transport related effects of development, but many highway authorities still refer to it as useful advice on detailed matters of transport assessment.
- 1.2.5 A pre-application and EIA scoping request was submitted to RCBC in 2022. This Transport Statement takes account of that scoping document as well as local and national policy and guidance.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Location

- 2.1.1 The Site is located on land referred to as PD Ports Container Terminal Site, Kinkerdale Road, TS6 7SA. The Site is located on the northern side of PD Ports' Teesport dock, approximately 4km west of Redcar town centre and 6km northeast of Middlesbrough town centre. A site location plan is shown below in Figure 1.1.

Figure 1.1 – Location Plan



2.2 Existing land use

- 2.2.1 The Site is currently used as a logistics terminal, car depot and storage area. Teesport have permitted development rights enabling them to undertake work associated with port activities, and the wider area benefits from an Outline Planning Permission which also relates to Port Logistics and Storage uses. The Site has an area of approximately 61 acres (24.7ha) within the wider 779 acre (315ha) Teesport industrial, shipping and logistics estate in South Tees.
- 2.2.2 The Site includes a large existing storage building which forms part of the PD Ports operations and comes with ancillary car parking for staff and parking/waiting for HGVs up to 16.5m articulated semi-trailers.

2.3 Existing access

- 2.3.1 Vehicular and pedestrian access into the site is via a gated entry off Kinkerdale Road, from which the whole site can be accessed. A separate vehicle access is available from Dabholm Road.



3.0 LOCAL TRANSPORT NETWORK

3.1 General

- 3.1.1 The Site is bounded to the northeast by Dabholm Road and to the southeast by Teesport Road; it is dissected by (and takes access from) Kinkerdale Road.
- 3.1.2 Kinkerdale Road is a private industrial estate road which runs between Tees Dock Road and Dabholm Road (both also private industrial estate roads). 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.
- 3.1.3 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.
- 3.1.4 The junctions around the site have good inter-visibility between drivers in all directions in accordance with the standards set out in the Design Manual for Roads and Bridges (DMRB).

3.2 Accessibility audit

- 3.2.1 Initial pedestrian, cycle and public transport audits have been carried out for the area surrounding the site.

3.3 Pedestrian movement

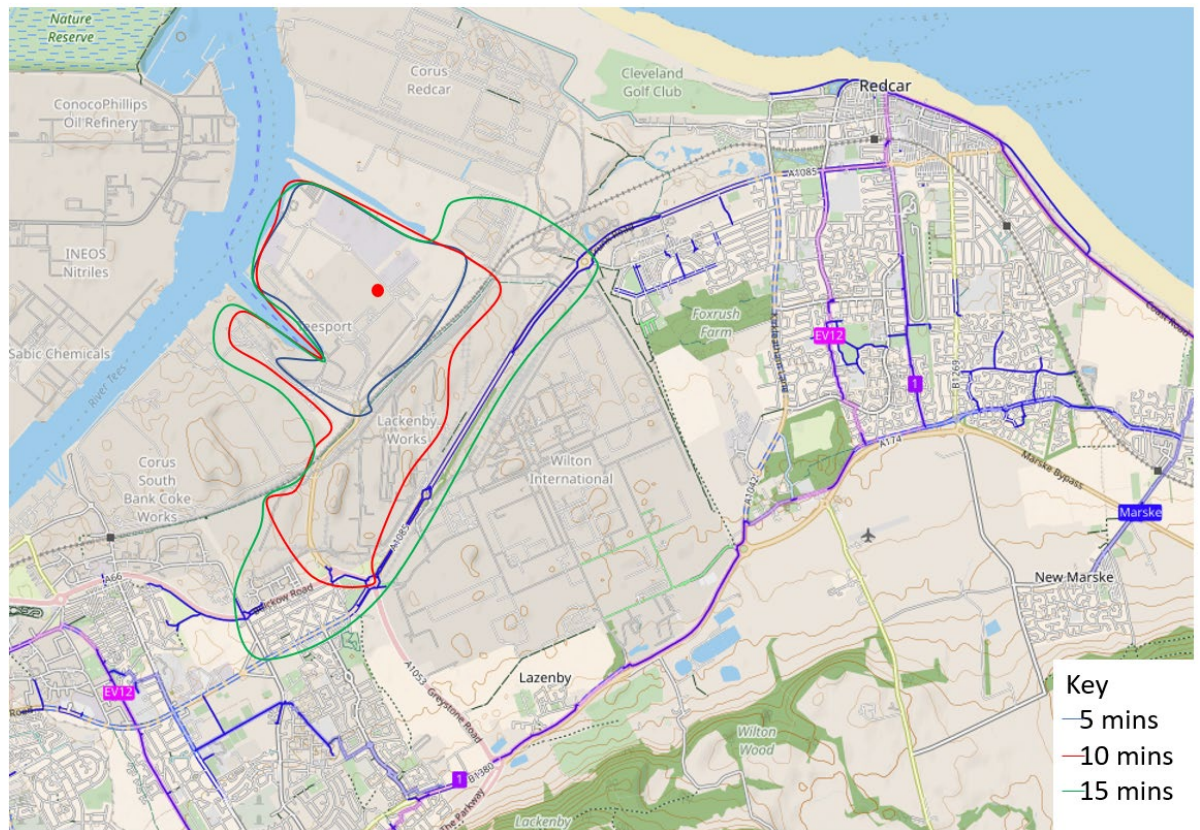
- 3.3.1 Acceptable journey distances on foot vary depending on the purpose of the journey, the environment in which the journey is taking place and of course the individual walking. The IHT guide 'Providing for Journeys on Foot' suggests that for journeys to work a desirable walking distance would be 500m, an acceptable walking distance would be 1km and the preferred maximum walking distance would be 2km.
- 3.3.2 Due to the highly industrial nature and location of the site, there are limited footways and formal pedestrian crossings from major destinations such as Redcar; furthermore the closest residential area is approximately 2km from the Site, at the limit of a reasonable walking distance.
- 3.3.3 There are, however, 2m wide footways immediately surrounding the Site which provide access to the nearest bus stop some 200m (2-3 minutes' walk) to the north of the proposed site access.

3.4 Cycle movement

- 3.4.1 As mentioned above in relation to pedestrian movement, due to the industrial location of the Site, the nature of the surrounding highway network may deter some cyclists. However, the roads are available for cycle journeys. Figure 3.1 shows 5-, 10- and 15-minute cycle isochrones for cycle movements. This demonstrates that the main residential settlements of Middlesborough and Redcar are beyond a 15-minute cycle ride from the Site.



Figure 3.1 – Cycle isochrones



3.4.2 This assessment indicates that the Site location, within an allocated industrial area, is not well placed to promote walking and cycling as the first choice of travel to work.

3.5 Public transport

3.5.1 The nearest bus stops are located some 200m from the proposed access. These are approximate 1-2 minutes’ walk) from the Site. These stops are served by the 101 service which provide links to Middlesbrough Bus station. The service 101 is designed to transport workers to and from the Teesport area and therefore coincide with common shift-change times. Full bus timetables can be found at stagecoachbus.com.

Table 3.1 – Bus services

No	Details	Duration	Frequency
101	Middlesbrough bus station – Teesport	0505-0550 1300-1350 2100-2150	3 Buses
101	Teesport – Middlesbrough bus station	0612-0649 1412-1449 2212-2249	3 Buses

3.5.2 The nearest rail station is South Bank station, some 5.6km to the southwest of the site. This is an 8-minute trip by taxi. Trains from South Bank station provide a direct link to Saltburn and Bishop Auckland (Northern Railway) and onward links via Middlesbrough and Darlington to Newcastle, Manchester and London (LNER).



4.0 PROPOSED DEVELOPMENT

4.1 General

- 4.1.1 The proposed development comprises the construction of a low carbon lithium hydroxide monohydrate refinery and associated dockside reception, handling, storage and manufacturing activities for the production of high purity lithium hydroxide monohydrate and associated by-products. The proposed development will repurpose part of the existing container storage yard adjacent to the PD Ports dock and will utilise the associated dockside unloading facility to import and process approximately 350,000 tonnes per annum of mineral ores using two processing lines, rising to 510,000 tonnes per annum if a third line is developed.
- 4.1.2 The Site has been carefully chosen for this proposed facility as it has dockside access and a rail connection, thereby allowing bulk materials to be imported and exported by ship or train. This is the most efficient and cost-effective means to transport bulk materials and has the beneficial effect of reducing vehicle movements to and from the Site.
- 4.1.3 The process will import and process up to approximately 510,000 tonnes per annum of mineral ore material and undertake an organo-alkali metal production process to manufacture approximately 75,000 tonnes per annum of Lithium Hydroxide.
- 4.1.4 The annual throughputs associated with the plan (+/- 10%) are as follows:

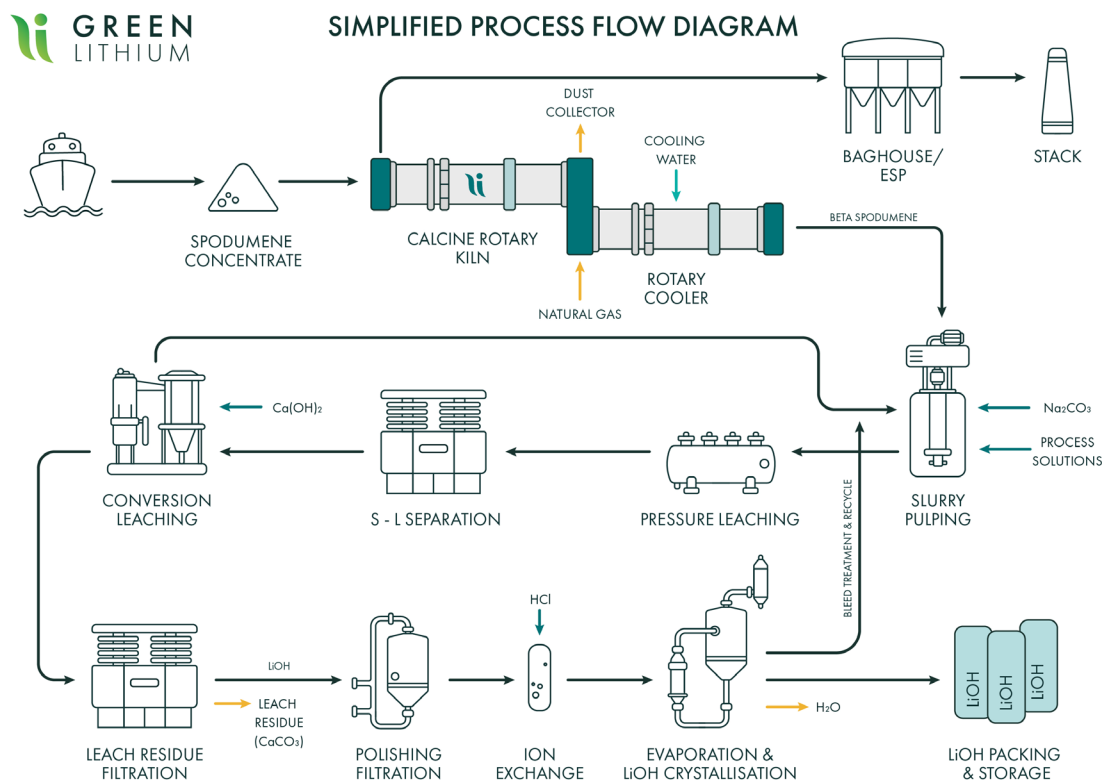
Table 4.1 – Material inputs and outputs

Material	Two lines (TPA)	Three lines (TPA)
Inputs – Raw material		
Mineral (spodumene) concentrate	350,000	510,000
Inputs - Reagents		
Sodium carbonate, Dense Soda Ash (Na ₂ CO ₃)	68,000	102,000
Calcium Hydroxide or Oxide (Ca(OH) ₂ /CaO)	57,000	85,500
Hydrochloric Acid (HCl)	4,500	6,750
Sodium Hydroxide (NaOH)	900	1,350
Sodium phosphate (Na ₃ PO ₄)	3,000	4,500
Sulfuric acid (H ₂ SO ₄)	1,500	2,250
Outputs		
Lithium hydroxide monohydrate (LiOH)	50,000	75,000
Mixed analcime (LiAlSi ₂ O ₆) & calcium carbonate (CaCO ₃) sands	476,000	714,000
Salt (NaCl)	6300	9,450

- 4.1.5 The facility will become a major employer and as part of a critical raw materials supply chain into the emerging lithium battery / Electric Vehicle (EV) market and hence considered to be a regional green infrastructure development.
- 4.1.6 A set of architects' plans are included as **Appendix A**.



Figure 4.1- Simplistic process stages



4.2 Means of access

4.2.1 The site currently has two vehicle accesses from Dabholm Road; direct access from the north of the Site via a five-arm roundabout, as well as indirect access to the centre of the Site via Kinkerdale Road. Access to the main site within the PD Ports operational area is only available via the main PD Ports Security Gate. The proposed development would rationalise the accesses such that the Kinkerdale Road roundabout would become the primary access into the site and that part of Kinkerdale Road which is contained within the Site, would be removed. Kinkerdale Road would be diverted to provide uninterrupted access to existing operational business premises such as Eustace House (Immigration Control/Customs).

4.2.2 The re-use of an existing road and roundabout, designed to accommodate HGV traffic, means that the width, radii and visibility are already fit for purpose. Notwithstanding this point, a set of swept path analyses are included as **Appendix B** for completeness.

4.3 Parking

4.3.1 The nature of the proposed development means that LPA parking standards, based on building floor areas, are inappropriate in this instance. The proposed facility will employ up to 250 people, comprising 60 office-based staff and 190 operational staff working three shifts. The daily staffing profile will therefore be 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)



- 4.3.2 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.
- 4.3.3 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.
- 4.3.4 Eight of the parking spaces will be suitable for disabled drivers, representing 5% of maximum staff on-site and making provision for visitors.
- 4.3.5 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.
- 4.3.6 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).



5.0 SHARED MOBILITY

5.1 Introduction

- 5.1.1 In many locations such as urban areas or city centres, an employment site with 250 staff would be supported by a Staff Travel Plan. However, as demonstrated in Section 3, the highly industrial nature of Teesport and the limited residential catchment within walking or cycling distance means that the Site is not well placed to promote walking or cycling as a first choice of more to travel to work.
- 5.1.2 A limited bus service is available which will be well known to all staff, but the Site is quite remote from the nearest rail station.
- 5.1.3 Notwithstanding the above, the Site is in an excellent location to minimise the movement of freight and materials by road due to its proximity to the port and rail freight network.
- 5.1.4 For this reason, the most effective means to reduce single-occupancy staff car journeys would be to promote and encourage shared mobility. In the case of the proposed Lithium Refining Facility, this means promoting car sharing and, if practicable and viable, operating a shuttle service (mini-bus) to and from Middlesbrough and Redcar.
- 5.1.5 The Operator would appoint a Staff Travel Co-ordinator (STC). This would not be a full-time post, but the STC (or STCs) would be available to staff full-time. The main functions of the STC would be:
- Advise new staff of travel options;
 - Advise existing staff of any changes to bus timetables etc;
 - Promote car sharing using resources such as www.liftshare.com/uk;
 - Manage car parking operation and allocation (if required);
 - Manage shuttle service vehicle(s) if practicable and viable.
- 5.1.6 The STC would be responsible for keeping records of staff travel choices and would liaise with the Council upon request, but no formal targets, surveys or monitoring would be undertaken.





6.0 DELIVERY AND SERVICING PLAN

6.1 Introduction

- 6.1.1 This Delivery and Servicing Plan (DSP) highlights the implications of the proposed redevelopment with regard to existing and also proposed servicing constraints. This report takes into consideration the adopted methods of good design practice. This DSP has been prepared in accordance with the Freight Transport Association document '*Designing for Deliveries*' and the guidance document "*Managing freight effectively: Delivery and Servicing Plans.*"
- 6.1.2 A DSP will aim to provide consideration of consolidation and collaborative delivery arrangements to help reduce the impact of commercial goods and servicing vehicle activity in and out of premises/developments.
- 6.1.3 A refined version of this DSP will be prepared in partnership with RCBC prior to the proposed facility being occupied; however, the structure, obligations and principles are included here for agreement prior to determination.

6.2 Freight

- 6.2.1 A large proportion of materials will be imported and exported by ship (as set out in Section 8). Material brought to or from site by road will be in bulk loads wherever possible in order to minimise the number of vehicle movements. All freight drivers employed by the Operator or appointed as part of a haulage contract will be provided with a copy of the DSP and informed that they will be expected to adhere to it.

6.3 Refuse collection

- 6.3.1 Any refuse will be collected under private contract. Refuse is expected to comprise a limited amount of packaging and general office/admin waste. At this stage it is not anticipated that a compactor will be necessary, but consideration will be given to the introduction of a compactor if required to minimise refuse vehicle trips and reduce service costs.

6.4 Consolidation

- 6.4.1 Where practicable, delivery vehicles for import of bulk raw materials and reagents, will also be used for the export of materials from site. However, due to the specific nature of the materials being imported and exported there are overriding health and safety reasons why this may not be safe and appropriate. Tankers, for example will not be permitted to deliver one import liquid and then re-fill with a different export liquid. As a result, whereas consolidation will be promoted where appropriate, there will inevitably be a high proportion of vehicles arriving or departing empty.

6.5 Hours of delivery

- 6.5.1 There are no restrictions on the hours of delivery to other residential or business premises served by the Teesport private access roads. There is therefore no need to restrict delivery hours.

6.6 Route management

- 6.6.1 The site takes access from the Teesport private industrial roads which in turn take access from the primary road network (A66, A1053 and A174) . There are no height or weight restrictions which would affect this Site or result in HGV diversion routes.
- 6.6.2 As a principle, all drivers will be advised to use the highest category of road legally available to them and to avoid residential roads where practicable.

6.7 First time delivery

- 6.7.1 All deliveries will be pre-programmed with no speculative deliveries allowed. This will remove the need for drivers to be turned away and ensure every delivery vehicle is able to make a first-time delivery.



7.0 FRAMEWORK CONSTRUCTION TRAFFIC MANAGEMENT PLAN

7.1 Introduction

7.1.1 Prior to commencement on site, a final Construction Traffic Management Plan (CTMP) will be drawn up in partnership with RCBC and submitted for approval. A separate Construction Environmental Management Plan will be prepared to address the management of the Site during construction, but the CTMP is included here as a management document to control and regulate construction vehicle movements. The CTMP will comply with the guidance document '*Construction Logistics Plans: Making freight work for you*'. NYCC considers that Construction Logistics Plans are a key project in the County Freight Plan, alongside DSPs.

7.1.2 The Green Lithium Refining Limited CTMP will:

- Help the construction process comply with NPPF and the Traffic Management Act;
- Demonstrate that construction materials can be delivered, and waste removed in a safe, efficient and environmentally friendly way;
- Examine the feasibility and viability of using the port and rail network for the movement of demolition and construction materials and promote the use of water and rail transport where found to be feasible and viable;
- Identify deliveries that could be reduced, re-timed or even consolidated, particularly during busy periods;
- Help cut congestion on Teesside's roads and ease pressure on the environment;
- Improve reliability of deliveries to the site;
- Reduce fuel costs.

7.1.3 The CTMP must include:

- On-site management and design;
- Off-site management;
- Vehicle numbers;
- Vehicle types;
- Hours of delivery;
- Route management;
- Procurement strategy
- Operational efficiency;
- Waste management;
- Road trip reduction; and
- Targets and monitoring



8.0 TRIP GENERATION

8.1 Introduction

8.1.1 The impact of the proposed development is determined by comparing the net increase in journeys between the existing and proposed uses. Accordingly, the DfT Guidance on Transport Assessment (March 2007) advises at paragraph 4.7 that baseline traffic data should be derived as follows:

Baseline transport data

- *The quantification of person trips generated from the existing site and their modal distribution, or, where the site is vacant or partially vacant, the person trips which might realistically be generated by any extant planning permission or permitted uses;*

8.1.2 The Site has extant planning permissions relating to Port Logistics and Storage uses including use as a logistics terminal, car depot and storage. There are no restrictions on the number of vehicle movements to or from the Site so there is no upper limit on the number of vehicle movements the existing lawful uses could generate, but as part of the Teesworks industrial masterplan, assumptions were made in terms of traffic generation to inform the strategic transport modelling.

8.1.3 It has not been possible to undertake traffic surveys at the site and the TRICS® database does not hold surveys for suitably comparable developments. For this reason, vehicle trips have been calculated for the proposed facility and considered in terms of gross traffic demand rather than net change.

8.2 Proposed vehicle trips

8.2.1 Due to the nature of the proposed development, freight vehicle trips have been calculated from first principles based on the mass or volume of the material to be imported and exported, assigned to bulk tankers or trailers as appropriate. It is important to note that for a robust assessment, any material expected to be transported by either road or rail, has been assessed as being transported by road. Needless to say, if that material was transported by rail, there would be significantly fewer vehicle trips.

8.2.2 Table 8.1 below shows the HGV trips associated with the proposed facility. The term TPA means tonnes per annum and the term TPD means tonnes per day (based on 51 weeks per year and 5.5 days per week). Bulk tankers have an average capacity of 28,000 litres which, depending on the liquid, equates to an average of approximately 20 tonnes:

**Table 8.1 – Proposed facility, HGV trips**

Material	TPA	TPD	Transport	Veh load (t)	HGVs	HGV trips
Inputs (raw material)						
Spodumene concentrate	510,000	1818	Via port (sea)	-	-	-
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	28	1.5	3
					37	74

- 8.2.3 This demonstrates that the proposed facility will be serviced by 37 HGVs arriving and departing each day, equating to 74 HGV trips. The facility will operate 24 hours a day but if traffic impact is based on a worst-case 12-hour daytime delivery window, the facility would generate just 6 HGV trips per hour.
- 8.2.4 If deliveries were 24 hours with two-thirds during the day and one-third overnight, this would equate to just 4 HGV trips per hour during the day and 2 HGV trips per hour overnight.
- 8.2.5 In either scenario, when distributed onto the highway network this level of freight traffic would be less than daily variation on any part of the private or public highway network and would be imperceptible to other highway users.
- 8.2.6 As stated earlier, the proposed facility will employ 250 staff of whom 100 would be on site at any one time. The working hours would be:
- 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)
- 8.2.7 The office-based staff would tend to arrive before and depart after the highway peak periods (0800-0900 and 1700-1800) but would represent up to 120 vehicle trips per day (subject to reductions due to shared mobility and bus use).
- 8.2.8 The operational staff represent a further 220 vehicle trips per day (subject to reductions due to shared mobility and bus use).
- 8.2.9 The combined staff travel demand equates to 340 trips per day by all modes. The worst-case peak travel demand would be 80 vehicle trips in an hour during a daytime shift change. This would be outside the highway peak periods and with an opportunity for the STC to reduce single occupancy car trips by means of promoting sustainable travel choices and shared mobility.



9.0 TRANSPORT EFFECTS

9.1 Net effects

- 9.1.1 The transport impact of the proposed development is derived by comparing the potential trip generation of the lawful use of the site and the predicted trips from the proposed use of the site. It is evident that the use of rail and sea to transport bulk goods will result in a low level of HGV movements for a site of this size; certainly much lower than conventional Use Class B8 storage and distribution and no more than the general assumptions made as part of the Teesworks strategic masterplan.
- 9.1.2 The number of staff trips equates to an average of 28 trips per hour, but in concentrated peaks at shift changes. This is still a relatively modest level of travel demand for a large site such as this and no greater than could reasonably be expected from the lawful uses of this site, particularly given the net reduction in car parking compared to the existing uses. Importantly, there are opportunities to minimise single occupancy vehicle trips by actively promoting sustainable travel choices and shared mobility.
- 9.1.3 The net transport effect of repurposing this existing industrial site for a Lithium Refining Facility would be negligible.



10.0 SENSITIVITY TEST

- 10.1.1 Prior to submitting this planning application, the applicant engaged in a formal scoping exercise with RCBC. The Council provided a scoping opinion on 21st September 2022 including comments from National Highways (NH). They stated that any Transport Statement submitted in support of this application should include a sensitivity test to examine the effects of all material being imported and exported by road.
- 10.1.2 It is important to note that the Site has been carefully chosen for the proposed facility, specifically because it has access to the port and a direct rail freight link. The Green Lithium Refining Limited MADA¹ process specifically requires good sea and rail access to ensure compliance with their objective to provide a low intensity carbon emissions plant. If the intention were to transport all material by road, there would be other sites with direct access to the trunk road network (and no sea or rail connections) that would have been chosen. It is economically advantageous to move large volumes of material by sea or rail and so the likelihood of all material arriving and departing by road is vanishingly small.
- 10.1.3 Notwithstanding the above, NH have requested a sensitivity test, so Table 10.1 below illustrates the HGV numbers should all material be transported by road:

Table 10.1 – Sensitivity Test, all HGV trips by road

Material	TPA	TPD	Transport	Veh load (t)	HGVs	HGV trips
Inputs (raw material)						
Spodumene concentrate	510,000	1818	Road (bulk trailer)	24	76	154
Inputs (reagents)						
Sodium carbonate	102,000	364	Road (liquid bulk tanker)	20	18	36
Calcium hydroxide	85,500	305	Road (liquid bulk tanker)	20	15	30
Hydrochloric acid	6,750	24	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	Road (liquid bulk tanker)	20	13	26
Analcime	714,000	2,545	Road bulk trailer	28	91	182
Salt	9,450	34	Road bulk trailer	28	1	2
					217	434

- 10.1.4 This demonstrates that if the rail and sea links were ignored, and all material were transported by road, the proposed facility would be serviced by 217 HGVs arriving and departing each day, equating to 434 HGV trips. The facility will operate 24 hours a day but if traffic impact were based on a worst-case 12-hour daytime delivery window the facility would generate 36 HGV trips per hour (18 arrivals and 18 departures). Even this very worst case, unrealistic sensitivity test would have no material effect when distributed onto the local highway network.
- 10.1.5 If deliveries were 24 hours with two-thirds during the day and one-third overnight, this would equate to just 24 HGV trips per hour during the day and 12 HGV trips per hour overnight.

¹ MADA – Multi-Attribute Decision Analysis, showing all available site locations within the UK



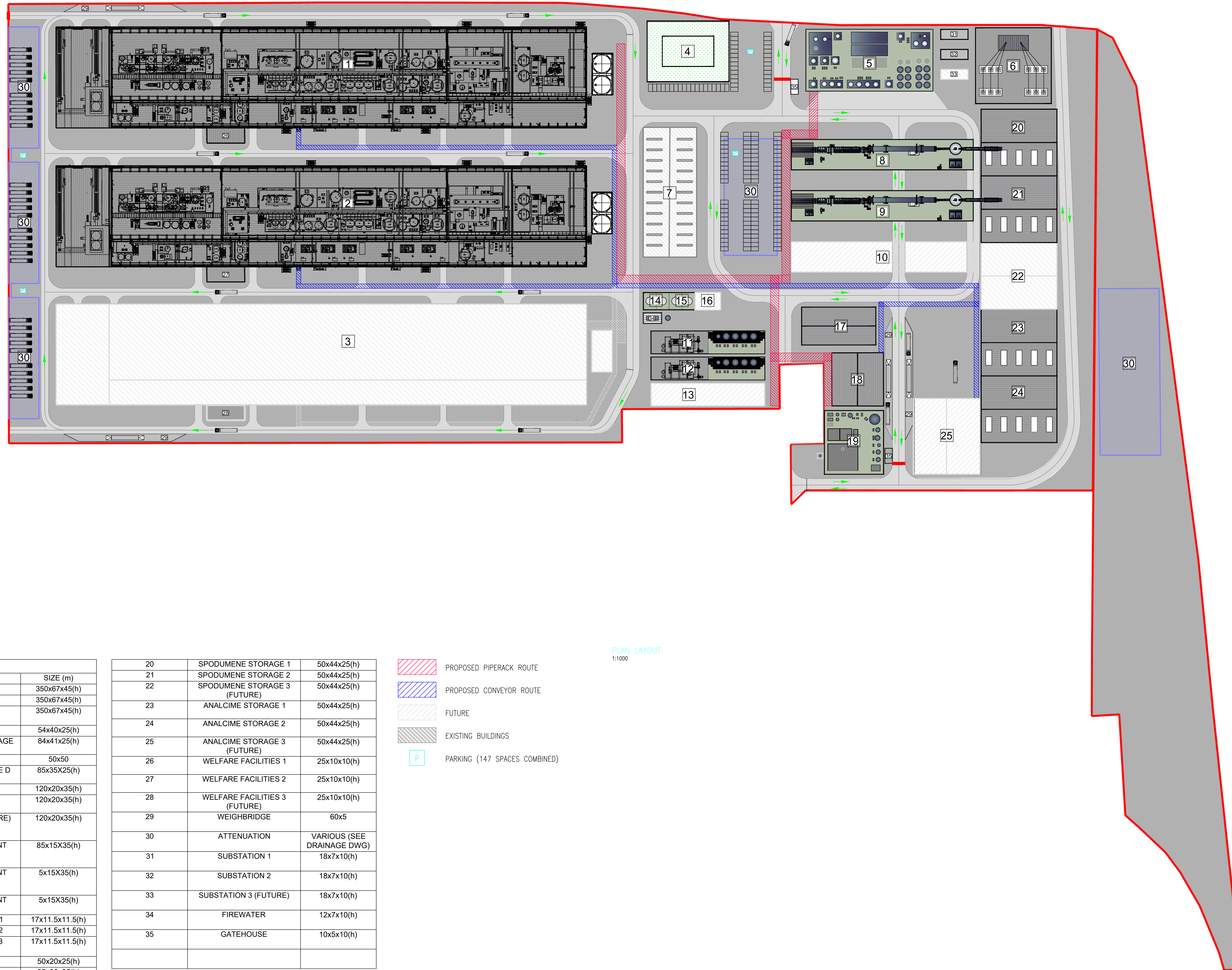
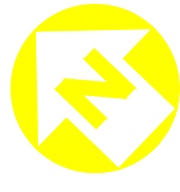
11.0 SUMMARY AND CONCLUSIONS

- 11.1.1 This Transport Statement (TS) has been prepared by Entran Ltd in support of a planning application for the redevelopment of an existing logistics terminal (industrial/storage) site within Teesport to provide a Lithium Hydroxide Refining Facility.
- 11.1.2 This TS has been prepared alongside a Delivery and Servicing Plan and Framework Construction Traffic Management Plan to actively manage the movement of goods and materials to and from the Site during construction and operation. The Operator will also appoint a Staff Travel Co-ordinator who will promote sustainable travel choices and shared mobility which provides the opportunity to reduce dependence on travel by private car and seeks to influence travel to and from the site rather than merely assessing its impact.
- 11.1.3 The development comprises the construction of a low carbon lithium hydroxide monohydrate refinery for the production of high purity lithium hydroxide monohydrate and associated by-products. The proposed development will repurpose the existing container storage yard adjacent to the PD Ports dock and will utilise the associated dockside unloading facility to import and process up to 510,000 tonnes per annum if a third line is developed, to manufacture approximately 75,000 tonnes per annum of Lithium Hydroxide.
- 11.1.4 The Site has been carefully chosen for this proposed facility as it has dockside access (via conveyor belt) and a rail connection, thereby allowing bulk materials to be imported and exported by ship or train. This is the most efficient and cost-effective means to transport bulk materials and has the beneficial effect of reducing vehicle movements to and from the Site.
- 11.1.5 The proposed facility will provide sufficient on-site parking to accommodate peak demand during shift changes. The 148 spaces represents a net reduction in staff parking when compared to the existing uses. Parking will be provided for disabled drivers and EVCP will be provided in 20% of spaces from the outset with passive provision for a further 20%.
- 11.1.6 An assessment of freight trips demonstrates that the proposed facility will be serviced by 37 HGVs arriving and departing each day, equating to 74 HGV trips. The facility will operate 24 hours a day but if traffic impact is based on a worst-case 12-hour daytime delivery window, the facility would generate just 6 HGV trips per hour. If deliveries were 24 hours with two-thirds during the day and one-third overnight, this would equate to just 4 HGV trips per hour during the day and 2 HGV trips per hour overnight.
- 11.1.7 The combined staff travel demand equates to 340 trips per day by all modes. The worst-case peak travel demand would be 80 vehicle trips in an hour during a daytime shift change. This would be outside the highway peak periods and with an opportunity for the STC to reduce single occupancy car trips by means of promoting sustainable travel choices and shared mobility.
- 11.1.8 When compared with the existing and lawful uses of the Site, the net transport effect of repurposing this existing industrial site for a Lithium Refining Facility would be negligible.
- 11.1.9 A Sensitivity Test demonstrates that in the highly unlikely scenario where the rail and sea links were ignored, and all material were transported by road, the proposed facility would be serviced by 217 HGVs arriving and departing each day, equating to 434 HGV trips. Again, if deliveries were 24 hours with two-thirds during the day and one-third overnight, this would equate to just 24 HGV trips per hour during the day and 12 HGV trips per hour overnight. Even this very worst case, unrealistic sensitivity test would have no material effect when distributed onto the local highway network.
- 11.1.10 For the reasons set out in this Transport Statement there is no reason why the proposed development should be refused on grounds of highway capacity or safety, impact on the transport network or sustainability.



Appendix A

Proposed site plans



PLAN LAYOUT
1:1000

TABLE 1		
ID	DESCRIPTION	SIZE (m)
1	TRAIN 1	350x67x45(h)
2	TRAIN 2	350x67x45(h)
3	TRAIN 3 (FUTURE)	350x67x45(h)
4	ADMIN BUILDING	54x40x25(h)
5	REAGENT/PREP/STORAGE	84x41x25(h)
6	GRID CONNECTION	50x50
7	EXISTING WAREHOUSE D	85x35x25(h)
8	CALCINATION 1	120x20x35(h)
9	CALCINATION 2	120x20x35(h)
10	CALCINATION 3 (FUTURE)	120x20x35(h)
11	EFFLUENT TREATMENT PLANT 1	85x15x35(h)
12	EFFLUENT TREATMENT PLANT 2	5x15x35(h)
13	EFFLUENT TREATMENT PLANT (FUTURE)	5x15x35(h)
14	COOLING TOWERS 1	17x11.5x11.5(h)
15	COOLING TOWERS 2	17x11.5x11.5(h)
16	COOLING TOWERS 3 (FUTURE)	17x11.5x11.5(h)
17	CARBON CAPTURE	50x20x25(h)
18	Co ² ENRICHMENT	35x30x25(h)
19	UTILITIES	42x39x25(h)

20	SPODUMENE STORAGE 1	50x44x25(h)
21	SPODUMENE STORAGE 2	50x44x25(h)
22	SPODUMENE STORAGE 3 (FUTURE)	50x44x25(h)
23	ANALCIME STORAGE 1	50x44x25(h)
24	ANALCIME STORAGE 2	50x44x25(h)
25	ANALCIME STORAGE 3 (FUTURE)	50x44x25(h)
26	WELFARE FACILITIES 1	25x10x10(h)
27	WELFARE FACILITIES 2	25x10x10(h)
28	WELFARE FACILITIES 3 (FUTURE)	25x10x10(h)
29	WEIGHBRIDGE	60x5
30	ATTENUATION	VARIOUS (SEE DRAINAGE DWG)
31	SUBSTATION 1	18x7x10(h)
32	SUBSTATION 2	18x7x10(h)
33	SUBSTATION 3 (FUTURE)	18x7x10(h)
34	FIREWATER	12x7x10(h)
35	GATEHOUSE	10x5x10(h)

- PROPOSED PIPERACK ROUTE
- PROPOSED CONVEYOR ROUTE
- FUTURE
- EXISTING BUILDINGS
- PARKING (147 SPACES COMBINED)

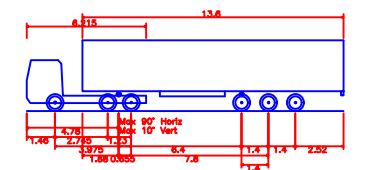
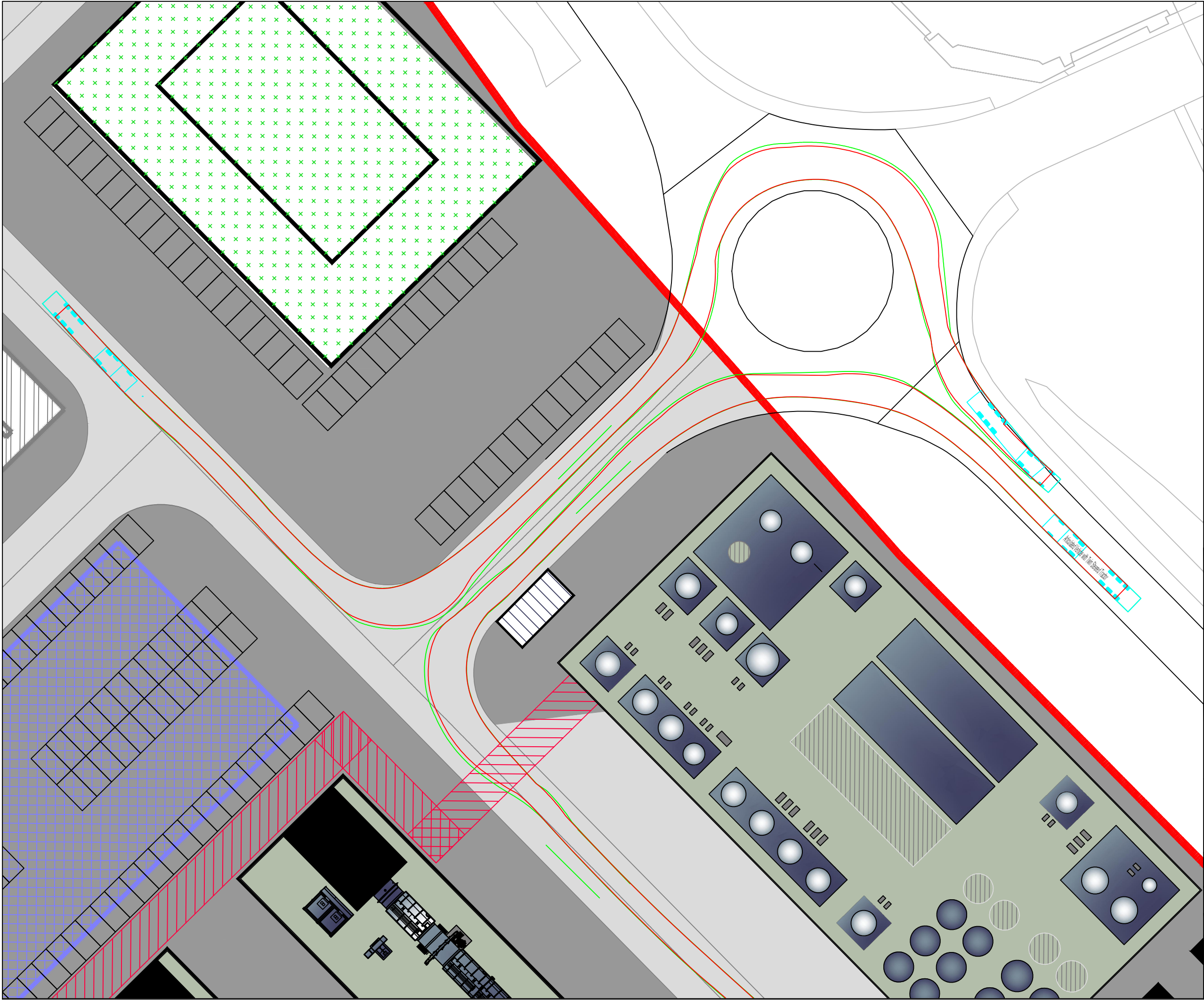
REV	DATE	ISSUED FOR USE	REVISION DESCRIPTION	DRAWN	DRAFT CHK	DESIGNED	ENG CHK	APPROVED	CUSTOMER	REF DRAWING No	REFERENCE DRAWING TITLE
A	06.03.23	ISSUED FOR USE		AD	ATD	DW					

AD SHEET SCALE: 1:1000	ENGINEERING AND PERMIT STAMPS (As Required)	CUSTOMER	DRG TITLE
			GREEN LITHIUM REFINERY PROJECT PRELIMINARY PLANT LAYOUT STUDY
Worley PROJECT No: 215005-00740			DRG No: 215005-00740-CI-DAL-0001
<small>This drawing is prepared solely for the use of the contractual customer of Worley and Worley assumes no liability to any other party for any representations contained in this drawing.</small>		REV	A



Appendix B

Swept path analyses



Articulated Vehicle with Twin Steered Tractor
 Overall Length 13.800m
 Overall Width 2.550m
 Overall Height 3.691m
 Min. Body Ground Clearance 0.425m
 Max Track Width 2.500m
 Lock to lock time 6.00s
 Kerb to Kerb Turning Radius 6.987m

REV	DATE	REVISION DETAILS	BY



2nd & 3rd Floors | Northgate House | Upper Borough Walls | Bath | BA1 1RG
 TELEPHONE : 0117 937 4077

PROJECT TITLE
**Green Lithium
 Middlesbrough, Teesport**

DRAWING TITLE
**Main Access
 Swept Path Analysis**

CLIENT / ARCHITECT

STATUS
PRELIMINARY

SCALE 1:500	AT A3	DRAWN RG
CHECKED RAF		APPROVED RAF

DRG SIZE A3	DATE Mar 2023	DRAWING NUMBER SK01	REV -
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