CHAPTER 15 CONCLUSIONS AND SUMMARY

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INTRODUCTION

15.1. This chapter contains the overall conclusions of the EIA. The EIA has examined the potential impacts associated with the Proposed Development during both the construction and operational phases.

15.2. The EIA has been prepared in accordance with the Scoping Opinion issued by RCBC. The requirements of the Scoping Opinion are fully met by the EIA.

15.3. The conclusions from each topic assessed in the EIA are provided below.

DEVELOPMENT PROGRAMME AND CONSTRUCTION

15.4. This chapter identifies that the construction effects of the Proposed Development would be managed through the development of a project and site-specific Construction Environmental Management Plan. The CEMP would outline methods for contractor and general public liaison, hours of work, methods to deal with complaints, and outline management practices to control dust, traffic and access, waste, water resources and ecological effects, ensuring a high level of control throughout the construction works.

15.5. The procedures within the CEMP would ensure the delivery of a high level of environmental control throughout the construction phase, thereby minimising the potential for adverse effects.

AIR QUALITY

15.6. An assessment has been carried out to determine the local air quality impacts associated with the construction and operation of the Proposed Development.

15.7. A qualitative assessment of the impact of dust generating activities has been carried out in accordance with the Institute of Air Quality management Guidance. The significance of the impact on human and ecological receptor locations following the implementation of appropriate mitigation measures has been assessed as negligible.

15.8. The construction works on site would represent a low risk to dust soiling and human health effects. However, with the proposed mitigation measures incorporated into a Construction Environmental Management Plan (CEMP), the residual impact would be negligible.

15.9. Detailed air quality modelling using the ADMS Roads Extra dispersion model has been undertaken to predict the impacts associated with stack emissions from the HTI activities at the Site. As a worst-case, emissions from the stacks have been assumed to be at Environment Agency Inorganic Chemicals Sector emission limits. Actual emissions from the Site are likely to be significantly lower.

15.10. Predicted maximum receptor process concentrations are well within the short and long term air quality objectives for all pollutants assessed.

15.11. In accordance with the EPUK/ IAQM screening criteria, the increase in traffic associated with the Proposed Development is likely to have a Negligible impact to local air quality.

ECOLOGY

15.12. This chapter identified the value of the habitats residing on the Proposed Development site, and analysed the impact that the development would have on these environments, as well as the surrounding habitats from both the construction and operational phases of the development.

15.13. The closest designated site to the development is Teesmouth Estuary (SSSI, SPA, Ramsar), found approximately 500m north to the closest boundary. On site habitats include Mixed scrub, Other Neutral Grassland and Bare ground. These were all found on a 8.1 ha area to the southern extent of the site and totalled 47.48 BDU's.

15.14. The Proposed Development impact these BDU's, however compensation will be provided through a combination of onsite landscaping and, if necessary, an offsite scheme.

15.15. An agreed biodiversity and landscaping plan will be provided and agreed as condition of this outline planning consent.

15.16. The conclusion of this chapter was avoidance and further mitigation of the losses from development could be achieved through detailed design of the development.

FLOOD RISK, HYDROLOGY & DRAINAGE

15.17. The Water Quality and Hydrology assessment considers the potential effects of the Proposed Development on the water environment in the local area. The study area is defined as that generally within a 2km radius of the site, although a number of issues are considered at a greater distance or at the river catchment level, where necessary. The assessment of effects encompasses surface water and groundwater resources (in terms of water quantity), drainage and flood risk.

15.18. The key considerations are the potential effects on water quality, water resources, water supply, infrastructure, flood risk and surface water drainage.

15.19. The key potential effects during the construction and operation of the Proposed Development include contamination arising from general construction activities or through routine Site drainage. Mitigation has therefore been recommended through the preparation of a Construction Environmental

Management Plan (CEMP). With these implemented, the risk of contamination to surface water and groundwater will be minimised.

15.20. The Site is not located within floodplain and, therefore, there is little or no risk of the Site flooding from rivers or the sea. The Site is also not vulnerable to flooding from groundwater, sewers or reservoirs. Potential effects relevant to flood risk are associated with managing surface water runoff from the Site.

15.21. The potential effects of the Proposed Development on water resources are scoped out of this assessment due to the lack of active surface water and groundwater abstractions within a 2 km radius of the Site.

15.22. There is not expected to be a significant increase to surface water runoff from the Proposed Development due to the majority of the site currently existing on impermeable land.

15.23. In conclusion, given the location and nature of the receptors, the overall residual effects of the Proposed Development with regard to water quality, water resources, drainage and flood risk is considered to be Negligible.

LANDSCAPE AND VISUAL IMPACT

15.24. This Chapter assesses the likely significant effects of the Proposed Development in terms of Townscape and Views in the context of the Site and surrounding area. The area of the proposed Site is located in South Tees, which is heavily industrial in nature, sandwiched in between PD Teesport, large supermarket distribution centres and a natural gas supplier.

15.25. The masterplan has been designed to assimilate with the surrounding industrial uses. A combination of mitigation measures including the articulation and orientation of buildings so that the visual scale and massing is minimised has been included. The appropriate building cladding colour palettes that help break up the visual massing has been utilised, as well as the avoidance of overly reflective material.

15.26. The following mitigation measures should be considered and controlled through the implementation of a CEMP where appropriate:

- Use of sensitively or storage of materials, overburden and out of use machinery in the least visible areas of the Site;
- Control of lighting to prevent unnecessary light spill and glare; and
- Advanced planting to ensure early establishment of planting and to soften construction activities.

15.27. No significant construction phase townscape or visual effects were identified.

15.28. No significant operational phase townscape or visual effects were identified.

WASTE MANAGEMENT

15.29. The plants operational phase has no true waste products, with the output producing two by-products, the largest of these is Analcime Sand which will have an output of 714,000 TPA with three process trains, and will be utilised as a recycled material in the aggregate industry. Salt will be the other by-product of the process, with 9,450 TPA expected. It is planned to be used for road grit and sold to the local council.

15.30. The main waste water stream once the site is operational will be sanitary. Any liquids that are arising that cannot be disposed of in sewer will be removed by specialist contractor and treated off site. The process utilises a ZLD process, meaning that there will no process effluent discharged to controlled waters from the operation of the plant.

15.31. The Lithium Refinery will require a permit to operate as a Part A(1) process regulated by the Environment Agency under the *Environmental Permitting (England and Wales) (Amendment) Regulations 2013.* As part of the permit application process the EA will require the operator to demonstrate that all wastes generated will be re-cycled, as far as is practicable, and that wastes are handled in accordance with best available techniques (BAT). In addition, it will be necessary for the Operator to satisfy the Environment Agency that their proposed techniques for collecting, handling and storing waste materials will be adequately controlled.

15.32. During the construction phase demolition rubble and excavated soils will be generated. Sustainable solutions will be implemented to enable, as far as applicable, the re-use of waste materials and avoidance of landfill disposal. All site waste management activities will be controlled through Site Waste Management Plan as part of a wider Construction Environmental Management Plan (CEMP).

15.33. The impacts of the Proposed Development are therefore considered to be Negligible in terms of waste management.

NOISE AND VIBRATIONS

15.34. This Chapter analysed the potential impact of noise and vibration on nearby receptors generated by the construction and operational phase of the development. Identified threshold limits for proposed fixed plant items have been used to estimate the emissions produced.

15.35. The nearest receptor to the development is found approximately 1.8km of the Proposed Development, with the proposed noise levels demonstrating a negligible impact to this receptor as well as all others through the modelling of both construction and operational effects.

15.36. Mitigation to control the impact of noise during the construction period includes using silenced plant equipment, fitting acoustic enclosures and operating at low levels. This will assist in ensuring no adverse noise values are experienced by the nearest receptors.

15.37. The effects due to operation of the Proposed Development will be negligible following appropriate consideration of fixed plant items. Fixed plant items will be specified during the progression of detailed design, such that effects from sound levels pertaining to such sources remain negligible.

CLIMATE CHANGE

15.38. An assessment of the potential climate change impacts has been carried out following the IEMA guidance. The findings of the assessment have been structured in accordance using Institute of Environmental Management and Assessment Assessing Greenhouse Gas Emissions and Evaluating their Significance.

15.39. The Proposed Development will provide a solution by refining spodumene which would otherwise be transported and processed in China.

15.40. The carbon assessment demonstrates that based on the current baseline, the development of the proposed project of a Lithium Refinery, would deliver carbon benefits over the current management method (baseline scenario) involving transport of spodumene to a Lithium refinery in China.

15.41. In the event that the Proposed Development utilises renewable energy generation, then the potential carbon equivalent saving that can be delivered by the development would be even greater.

15.42. The impact of the resulting GHG emissions from the project are considered to be **Beneficial**. The project's GHG impacts will provide an overall reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline.

CONTAMINATED LANDS

15.43. A Phase 1 geo-environmental assessment of the site concludes that the historical industrial refining and tank storage activities have the potential for contamination.

15.44. The geology of the Site shows Made Ground underlying the entire site, superficial deposits of Tidal Flat Deposits and bedrock geology of Mercia Mudstone Group.

15.45. The different current and historical contaminant sources include the following:

- General Made Ground;
- Teesport Oil Refinery;

- Fire Station;
- Railway Land;
- Depot;
- BOC Limited Works;
- Kimera Ltd Chemical Works;
- Historical Industrial Land Uses;
- Offsite Landfills;
- Teesport Docks; and
- Bransands Sewage works.

15.46. The construction of the proposed development will bring about effective land remediation and will minimise further leaching/mobilisation of residual soil and groundwater contamination located at depth and therefore provide a beneficial effect.

15.47. The conclusion of the ES is that Proposed Development has an overall **negligible** impact, with none of the Environmental Impact Assessments carried out in support of the application identifying any specific areas of concern.

15.48. Further detailed assessments will be carried out as part of each phase of the Reserved Matters Application.

15.49. The Site has no habitat designations, with the closest designation (The Teesmouth Estuary) being approximately 500m north of the Sites boundary. Impacts on the Teesmouth Estuary and surrounds have been assessed through an HRA assessment and it has been confirmed that the proposed development will not have any adverse impacts on any designated sites within 10km.

15.50. Table 15.1 overleaf shows a summary table of the residual effects of the development at both construction and operational phases for each of the studied topics.

Table 15.1 Summary of Residual Effects		
Receptor	Significance of Residual Effect	Mitigation Measure
Air Quality		
Construction		
Construction / Demolition Phase Dust	Negligible	Construction Environment Management Plan (CEMP) will have measures for minimising dust generation and associated impacts
Construction Phase Traffic	Negligible	No additional mitigation required
Operation		
Point Source Emissions	Negligible	No additional mitigation required
Operational Dust Emissions from Traffic	Negligible	No additional mitigation required
Ecology		
Construction		
Teesmouth and Cleveland SPA / SSSI / Ramsar	Negligible	No additional mitigation required
Habitats on site: Including Other Neutral Grassland and Mixed scrub	Negligible	Sufficient on site landscaping as well as offsite compensation, will be detailed in the Reserved Matters Planning Application to appease biodiversity obligations
Species: Dingy Skipper	Negligible	No additional mitigation required
Operation		
Teesmouth and Cleveland SPA / SSSI / Ramsar	Negligible	No additional mitigation required
Flood Risk, Hydrology and Drainage		
Construction		
Increase in Surface Water Runoff	Negligible	Installation of drainage works and attenuation measures

Interruption of Groundwater Flows	Negligible	Groundwater monitoring will be undertaken prior to construction
Contamination from general construction activities	Negligible	Implementation of CEMP, Construction Vehicles properly maintained, Drainage will comply with BS6031:2009
External Flood Risk	Negligible	Groundwater monitoring will be undertaken prior to construction, Dewatering of excavations
Remobilisation of Contamination to controlled waters	Negligible	Intrusive site investigation and appropriate remediation carried out prior to construction; Foundation works risk assessment including piling method statement
Operation		
External Flood Risk	Negligible	Groundwater monitoring to be undertaken prior to construction
Control of Surface Water Runoff	Negligible to Minor Beneficial	Compliance with the Surface Water Drainage Strategy
Contamination of Controlled Waters from Routine Site Drainage	Negligible	No additional mitigation required
Water Demand	Negligible	No additional mitigation required
Foul Drainage Demand	Negligible	No additional mitigation required
Landscape and Visual Impact		
Construction		
Physical Landscape Features	Negligible	No additional mitigation required
Character of the Site	Minor	New Planting
Landscape Character	Negligible	No additional mitigation required
Visual Receptors	Negligible	No additional mitigation required
Operation		
Physical Landscape Features	Negligible	No additional mitigation required

Character of the Site	Minor	No additional mitigation required
Landscape Character	Negligible	Inclusion of appropriate building cladding to assimilate into the surrounding context, Avoidance of overly reflective materials to avoid glare or adverse visual effects, Tree Lined Streets
Visual Receptors	Negligible	No additional mitigation required
Waste Resources		
Construction		
Waste generated through the construction phase	Negligible	No additional mitigation required
Wastewaters generated through the construction phase	Negligible	No additional mitigation required
Operation		
Wastewaters generated during the operational phase of the Proposed Development	Negligible	No additional mitigation required
Operational Solid Wastes	Negligible to Minor Beneficial	No additional mitigation required
Noise		
Construction		
Construction noise emissions	Negligible	Implementation of Best Practicable Means to control noise emission
Construction vibration	Negligible	Implementation of Best Practicable Means to control vibration emissions
Operation		
Noise from fixed plant	-	Appropriate mitigation to be determined during detailed design
Climate Change & GHG		
Construction		

Greenhouse Gas Emissions	Negligible	No additional mitigation required
Operation		
Greenhouse Gas Emissions	Beneficial	Options to reduce natural gas dependence and move to utilising hydrogen will be undertaken during operation
Contaminated Lands		
Construction		
Effects on human health	Minor Beneficial	Construction Environmental Management Plan
Contamination of Controlled Waters	Minor Beneficial	Site Investigation and Remediation. Construction Environmental Management Plan. Foundation Works Risk Assessment.
Operation		
Effects on human health	Negligible	Site Investigation and Remediation, use of engineering design (barriers and clean break layers).
Contamination of Controlled Waters	Negligible	No additional mitigation required
Buried Structures and Services	Negligible	Site investigation and remediation Selection of appropriate construction materials and water pipes
Effects on Vegetation from Ground Contamination	Negligible	Site investigation and remediation Use of engineering design (barriers and clean break layers)