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PHASE 12 - WOODSMITH MINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

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REPORT

Phase 12 - Woodsmith Mine Construction Environmental Management Plan

Woodsmith Mine Phase 12 - CEMP

Client: Sirius Minerals PLC

Reference: 40-RHD-WS-70-EN-PL-0045 REV 0

Revision: 01/Final

Date: 09 April 2020

Royal HaskoningDHV

Enhancing Society Together

HASKONINGDHV UK LTD.

Rightwell House
Rightwell East
Bretton
Peterborough
PE3 8DW
Industry & Buildings
VAT registration number: 792428892

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F
E
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Author(s): Charlotte Goodman

Drafted by: Charlotte Goodman

Checked by: Matthew Hunt

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1 Introduction

1.1 Purpose of Document

1.1.1 In 2014 a planning application (reference NYM/2014/0676/MEIA) was submitted to the North York Moors National Park Authority (NYMNPA) for permission to develop a polyhalite mine and underground Mineral Transport System (MTS). Planning permission was subsequently granted in 2015 subject to conditions, as varied in February 2018 by NYM/2017/0505/MEIA.

1.1.2 This Construction Environmental Management Plan (CEMP) has been prepared on behalf of Sirius Minerals plc (Sirius Minerals) for the Phase 12 Works at Woodsmith Mine (as described in paragraph 1.2.1 below).

1.1.3 This document is required to partially discharge condition NYMNPA-93. This planning condition states that:

Table 1-1 Condition NYMNPA-93: Construction Environmental Management Plan

NYMNPA-93	Compliance with Condition NYMNPA 93
Prior to the commencement of each Phase of Construction in accordance with the approved Phasing Plan at either Dove's Nest Farm or Lady Cross Plantation, an updated CEMP shall be based on the approved Construction Method Statement (CMS) and shall be submitted to and approved in writing by the MPA in consultation with the Environment Agency in respect of the area concerned. The CEMP shall include details of:	This version of the CEMP is for Phase 12 as defined in Section 1.2 below. Earlier versions of the CEMP have been produced for preceding works.
The size, location and design of any site compounds, including how any potentially polluting materials will be stored to minimise the risk of pollution;	Section 3.2, 3.3, Section 3.6 and Section 11.2 Phase 12 Construction Method Statement 40-SMP-WS-7100-PA-MS-00011
An Incident Response Plan to deal with any pollution that may occur during the course of construction;	Section 13
A protocol to deal with contaminated ground, should this be encountered, to ensure protection of water resources;	Section 10
Details of how surface water run off shall be passed through a settlement facility or settlement facilities prior to being discharged into any watercourse or soakaway;	Section 9.3 Section 9.4
Plant and wheel washing including that it shall only be carried out in a designated area of hard standing at least 10 metres from any watercourse or surface water drain and that washings shall be collected in a sump, with settled solids removed regularly and water recycled and reused where possible;	Section 3.6

NYMNPA-93	Compliance with Condition NYMNPA 93
A scheme for the recycling/disposing of waste resulting from demolition and construction works;	Section 11
Storage of waste not covered by the Mine Waste Directive;	Section 11
Measures to control the glare from on-site lighting;	Section 3.4
Measures to manage deliveries by HGV including routing and timing for deliveries and details of the penalty system for breaches of the agreed control;	Section 4
Temporary traffic management;	Not applicable to this Phase
The provision of a Dust Management Plan relating to Phase 1 of the construction period (earth works and bund formation) and Polyhalite handling and stockpiling to include dust generation modelling so as to identify sensitive receptors; likely dust generation and its disposition during the construction Phases and operation over time and under different weather conditions; the avoidance and mitigation measures required to ensure dust deposition levels at the sensitive receptors are maintained at the residual levels identified in the approved EIA, and monitoring arrangements. The Dust Management Plan must comply with the criteria set out in the 'Dust and Air Emission Mitigation Measures' best practice guidance for control of dust on construction sites from the Institute of Air Quality Management 2012. The monitoring arrangements will include dust deposition or dust flux or real-time PM_{10} continuous monitoring locations; baseline dust monitoring at least three months before construction commences; daily on-site and off-site inspections at monitoring locations with results recorded in a log to be made available to the MPA on request, and more frequent monitoring during periods of high dust generation;	Section 6
In the event that there is insufficient clay within the Lady Cross Plantation site to form the 1m deep basal layer beneath the spoil storage area, a contingency plan to address the importation of clay, including the source, quantity and quality of such material, and how adverse effects on the water environment would be avoided;	Lady Cross Plantation is not covered in this CEMP as works at that site have been deferred.
How the requirements of the approved CEMP will be disseminated to all relevant staff/contractors throughout the construction period;	Section 2.2
The location of the site notice board;	40-RHD-WS-70-EN-PL-0014 - Phase 3 CEMP

NYMNPA-93	Compliance with Condition NYMNPA 93
A scheme for parking, loading, unloading during construction;	Section 4.1.2
A scheme for security and lighting during construction;	Section 3.1 and 3.4
A protocol for the replenishment of tanks and containers including that all refuelling of vehicles, generators, plant and equipment shall be supervised and shall take place within a suitable bunded, impervious hardstanding;	Section 12.4
Contingency proposals for if fuel cannot be delivered for the generators, e.g. due to adverse weather;	40-RHD-WS-70-EN-PL-0014 - Phase 3 CEMP
How those artificial or historically straightened ephemeral surface water channels referenced in sections 15.7.22-15.7.24 of chapter 15 of part 2 of the ES are to be retained wherever possible, and enhanced to increase their capacity (e.g. through the introduction of meanders) and to increase their ability to capture sediment (e.g. through suitable planting);	40-ARI-WS-71-PA-RP-1050 – Phase 3 Surface Water Drainage Scheme Phase 3 CEMP
Proposals / contingency plans for waste not managed as part of the Mine Waste Permit comprising the storage and management of temporary mining waste stored on-site for less than three years (e.g. Pyritic Mudstone); non-inert and non-hazardous materials stored for less than one year, and unexpected hazardous waste stored for less than six months, including measures to prevent the dispersal of dust, leachate and surface water runoff;	Section 11
A Precautionary Method of Working for Site Clearance (PMWSP) which shall be submitted to and agreed in writing by the MPA prior to commencement of Preparatory Works and shall be adhered to thereafter. The PMSWP shall set out proposals for tree clearance and the demolition of structures and shall include that between March and September each year surveys of areas to be cleared should occur no less than 48 hours before clearance occurs so that occupied wild bird nests can be identified and prevented from being destroyed;	Section 7
Alarms fitted to mobile plant and vehicles for the purposes of warning pedestrians of their movements.	Phase 3 CEMP

1.1.4 Additional conditions addressed in this CEMP are detailed in **Table 1-2**.

Table 1-2 Additional Planning Conditions Addressed in the CEMP

Condition	Topic	Compliance with Condition
NYMNPA-52	Protected species	Section 7 Refer to Protected Species Management Plans: 40-RHD-WS-70-EN-PL-0010 Ph3 PSMP for Reptiles; 40-RHD-WS-70-EN-PL-0012 Ph3 PSMP for Birds; 40-RHD-WS-70-EN-PL-0042 Ph11 PSMP for Badgers; and 40-RHD-WS-70-EN-PL-0043 Ph11 PSMP for Bats. These remain applicable for Phase 12
NYMNPA-57	Landscape and ecological management	Section 7
NYMNPA-70	Trees and vegetation	Section 7
NYMNPA-76	Soil management	Section 10
NYMNPA-95	Archaeological written scheme of investigation	Section 8

1.1.5 This document details only the additional activities required for Phase 12 at Woodsmith Mine associated with the Sirius Minerals North Yorkshire Polyhalite Project ('the project'). It does not include any activities at Lady Cross Plantation as these Works have been deferred. Updates to this plan will be prepared for subsequent construction Phases and following any design or method change. The NYMNPA, as well as the Environment Agency and Natural England, agreed that they support this approach in meetings held in April 2016.

1.2 Phase 12

1.2.1 The scope of Phase 12 described by this document is as follows:

- Assembly and operation of Shaft Boring Roadheaders (SBRs) at both Service Shaft and Production Shaft;
- Installation of additional welfare cabins;
- Installation of segregated materials bunker;
- Creation of laydown area for segment and tubbing storage;
- Installation of lightning protection and canopy to Secure Storage Units (SSUs); and
- Installation of access control measures.

1.3 Scope of this Document

1.3.1 This CEMP details how the Phase 12 Works will be planned, monitored and managed in an environmentally responsible manner. It outlines the management framework for the environmental requirements, commitments, and performance targets associated with the planning and implementation of Phase 12 of the project.

1.3.2 This CEMP refers to several management plans, which have been prepared to partially discharge a number of planning conditions. Collectively these plans incorporate all mitigation measures relevant to Phase 12 (condition NYMNPA-06 refers).

1.3.3 This CEMP should be read in conjunction with the following previous CEMPs, as information within these previous documents remain relevant to Phase 12:

- Phase 3 CEMP 40-RHD-WS-70-EN-PL-0014;
- Phase 4 CEMP 40-RHD-WS-70-EN-PL-0023;
- Phase 4a CEMP 40-RHD-WS-70-EN-PL-0026;
- Phase 5 CEMP 40-CAR-WS-8300-PA-MS-00001;
- Phase 6 CEMP 40-RHD-WS-EN-PL-0028;
- Phase 7 CEMP 40-RHD-WS-EN-PL-0029;
- Phase 8 CEMP 40-RHD-WS-EN-PL-0033;
- Phase 9 CEMP 40-RHD-WS-EN-PL-0038; and
- Phase 11 CEMP 40-RHD-WS-EN-PL-0041.

1.3.4 The Phase 12 CEMP should also be read together with the documentation submitted to partially discharge the following conditions. Information provided in these documents is summarised in this CEMP where appropriate:

- Conditions NYMNPA-18 and NYMNPA-29: *Noise and Vibration Management Plan* (40-RHD-WS-70-EN-PL-0044 (Phase 12));
- Condition NYMNPA-34: *Construction Traffic Management Plan* (40-RHD-WS-70-CI-PL-0016 (Phase 12));
- Condition NYMNPA-46: *Hydrogeological Risk Assessment* (40-FWS-WS-70-WM-RA-0014) (Phase 12);
- Condition NYMNPA-52: *Protected Species Management Plans* (400-RHD-WS-70-EN-PL-0010 Ph3 PSMP Reptiles; 40-RHD-WS-70-EN-PL-0042 Ph11 PSMP Badger; 40-RHD-WS-70-EN-PL-0012 Ph3 PSMP Birds; 40-RHD-WS-70-EN-PL-0043 Ph11 PSMP Bats);
- Condition NYMNPA-46: *Ground and Surface Water Monitoring Scheme* (40-FWS-WS-70-WM-PL-0023) (Phase 11);
- Conditions NYMNPA-60 and NYMNPA-79: *Surface Water Management Plan Woodsmith Mine – Phase 12 Works – NYMNPA 60 and 79 Surface Water Drainage Scheme* (40-ARI-WS-7100-CI-RP-01008);
- Condition NYMNPA-70: *Arboricultural Method Statement* (40-RHD-WS-70-EN-MS-0002 (Phase 3);
- Condition NYMNPA-76: *Soil Management Plan* (40-ARI-WS-7100-CI-PL-01000 (Phase 11));
- Condition NYMNPA-91: *Emissions to Atmosphere* (40-RHD-WS-70-EN-RP-0006 (Phase 6a));
- Condition NYMNPA-92: *Construction Vehicle and Plant Management Plan* (40-RHD-WS-70-CI-PL-0012 (Phase 7));
- Condition NYMNPA-94: *Construction Method Statement* (40-SMP-WS-7100-PA-MS-00011) (Phase 12); and
- Condition NYMNPA-95: *Written Scheme of Investigation* (40-COT-WS-70-EN-PL-0002 (Phase 3)).

1.3.5 The CEMP will remain a live document, being reviewed and updated in consultation with the appointed Contractors or sub-Contractor(s) as required. Each of these updated CEMPs will be submitted to NYMNPA for approval prior to the start of each Phase of construction.

2 Environmental Management Framework

2.1 Structure and Responsibilities

2.1.1 This CEMP addresses those environmental matters within the responsibility of Sirius Minerals and the Contractors engaged on its behalf to deliver the Phase 12 Works. While overall responsibility for compliance with environmental and approvals requirements will remain with Sirius Minerals, the Contractors working on site are accountable for undertaking the construction activities in line with the requirements of this CEMP as well as all legal and other requirements imposed via permits and licences. All Contractors delivering this Phase confirm that this is the case.

2.2 Training, Awareness and Competence

Internal Communication

2.2.1 All staff and sub-contractors working on Site will be required to attend a Site Induction prior to commencing work. This will cover the key environmental aspects relating to the project and the roles and responsibilities of individuals.

2.2.2 Toolbox talks will be undertaken by the Environmental Manager or other nominated personnel throughout the project. The aim will be to communicate information to all staff and serve to educate, prompt and remind them of their responsibility to protect the environment during construction activities.

2.2.3 Additional details on staff training and awareness are provided in the Phase 4 CEMP (40-RHD-WS-70-EN-PL-0023).

2.2.4 Monthly progress meetings will be used to disseminate the results of monitoring and audit reports. At these meetings, a review of the environmental performance throughout the site to date will be undertaken and any improvements required during the construction phase will be identified. Details of where sustainable approaches to construction have been implemented or developed as the work proceeds will also be discussed and recorded. Their suitability for implementation at other areas of the site will be considered and applied where appropriate. Decisions about amendments required to the processes and procedures will also be agreed.

External Communication

2.2.5 Sirius Minerals will lead communication with members of the public, including adjacent landowners, local residents and businesses in line with the Community Stakeholder and Engagement Framework (CSEF) (**Appendix A**).

2.2.6 The CSEF includes provision for a quarterly Liaison Group Forum meeting, which are open to members of the public to attend. These Liaison Group Forum meetings provide a mechanism to provide project updates and to exchange feedback on all project matters, including environmental ones.

Traffic Management Liaison Group

2.2.7 A Traffic Management Liaison Group (TMLG) has been convened to oversee the implementation of the Construction Traffic Management Plan (CTMP), monitoring and enforcement of construction traffic movements. The TMLG will facilitate liaison between Sirius Minerals, planning authorities, highways authorities, and other key stakeholders in relation to the transportation aspects of the construction and operation of the project.

2.2.8 Full details of the remit of the TMLG, its membership and its operation can be found in the Phase 4 CTMP (reference 40-RHD-WS-70-CI-PL-0004).

2.3 Monitoring of Compliance

2.3.1 All construction and installation activities for Phase 12 Works will be supervised by the Contractors' Project Managers with the support of members of their teams on a daily basis using the same procedures as detailed in the Phase 4 CEMP.

2.4 Complaints Procedure

2.4.1 The implementation of the systems and procedures to protect the environment will, if implemented, effectively reduce or remove the risk of an environmental incident and/or exceedance of established thresholds. However, complaints may still be received and in this event the Complaints Procedure, which remains unchanged from that outlined in Appendix 6 of the Phase 3 CEMP (40-RHD-WS-70-EN-PL-0014), will be implemented.

3 Description of Site

3.1 Fencing and Security of the Site

3.1.1 Site fencing and security measures remain as per the Phase 9 CEMP (40-RHD-WS-EN-PL-0038).

3.1.2 A 3m high wooden environmental barrier is installed around the segment and tubbing laydown area to provide an acoustic barrier and screening from the B1416, as shown on drawing 40-ARI-WS-7100-CI-22-01067 Woodsmith Mine Phase 12 Masterplan and referenced in the Phase 12 Noise and Vibration Management Plan (40-RHD-WS-70-EN-PL-0044). The effectiveness of the barrier will be kept under review, with the possibility of increasing its height by up to 1.0m in order to ensure effective, non-intrusive screening.

3.1.3 Additional construction fencing will be installed around high hazard zones on site to provide access control, with designated pedestrian access points. The general location of the fencing is shown on drawing 40-ARI-WS-7100-CI-22-01067 Woodsmith Mine Phase 12 Masterplan.

3.2 Site Layout and Compounds

3.2.1 The site layout and compounds are detailed in drawing 40-ARI-WS-7100-CI-22-01067 Woodsmith Mine Phase 12 Masterplan and the Phase 12 Construction Method Statement (CMS) (40-SMP-WS-7100-PA-MS-00011).

3.3 Welfare Facilities

3.3.1 The welfare facilities detailed in the Phase 6 CEMP (40-RHD-WS-EN-PL-0028) remain unchanged for Phase 12. Additional cabins will be constructed close to each shaft location to provide facilities for underground teams, as described in the Phase 12 Construction Method Statement (CMS) (40-SMP-WS-7100-PA-MS-00011) and shown on drawing 40-ARI-WS-7100-CI-22-01067 Woodsmith Mine Phase 12 Masterplan.

3.4 Lighting

3.4.1 The Phase 12 Works will be illuminated when necessary through temporary, task-specific directional lighting. The additional cabins will be fitted with sensor-controlled, discreet perimeter lighting for safe access and egress. Windows will be fitted with shutters to prevent light spill during the hours of darkness.

3.4.2 Lighting within the MTS shaft will be contained within the headframe building and shaft collar doors and will therefore not spill to the exterior. Shaft lighting will be attached to the Galloway as described in the Phase 11 Construction Method Statement (40-SMP-WS-7100-PA-MS-00009).

3.4.3 All on-site exterior lighting will apply the following principles:

- Directional tower lighting with directional lanterns will be used, with lights directed down towards the area required to be lit and away from any areas of concern (e.g. roads);
- Task lighting will be used where appropriate to light up local areas of small works instead of mast illumination affecting a large radius. Where required for safety reasons, lighting may be required from crane or rig masts;
- All open excavations will be fenced off and have adequate general and task lighting to ensure that all open excavations are clearly visible;
- Lighting will be kept as low as safe and practicable for the Works taking place and for the specific use of areas of the site;
- Where safe and practicable, British Standards and guidance from the Institute of Lighting Professionals in the document 'Bats and Artificial Lighting in the UK' (September 2018) (https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/) will be followed where relevant (refer also to 40-RHD-WS-70-EN-PL-0043 Phase 11 Protected Species Management Plan (Bats)); and
- Lights will be switched off when not in use or will be sensor controlled.

3.5 Materials Storage

3.5.1 Onsite storage areas are shown in drawing 40-ARI-WS-7100-CI-22-01067 Woodsmith Mine Phase 12 Masterplan. Materials will be stored appropriately in accordance with the approach detailed in the Phase 4 (40-RHD-WS-70-EN-PL-0023) and Phase 5 CEMP (40-CAR-WS-8300-PA-MS-00001).

3.5.2 Grouting materials will be stored within the grout shed or in adjacent silos. The grout shed is shown on drawing 40-ARI-WS-7100-CI-22-01067 Woodsmith Mine Phase 12 Masterplan.

3.6 Wheel Washing Facilities

3.6.1 Wheel washing facilities are provided on the site access road. Spent water will be managed as described in the Phase 5 CEMP (40-CAR-WS-8300-PA-MS-00001).

3.7 Site Housekeeping

3.7.1 The implementation of a good site housekeeping policy is key to reducing the likelihood of accidents and environmental pollution incidents. Good housekeeping measures that will be implemented on site remain as for Phase 4 (40-RHD-WS-70-EN-PL-0023) and Phase 5 (40-CAR-WS-8300-PA-MS-00001).

4 Traffic

4.1 Construction Traffic Management Plan (CTMP)

4.1.1 A Phase 12 Construction Traffic Management Plan (CTMP; 40-RHD-WS-70-CI-PL-0016) has been prepared and submitted to partially discharge condition NYMNPA-34. The CTMP contains a range of measures for the management of transport during Phase 12.

Parking and Deliveries to Site

4.1.2 Deliveries and unloading arrangements at Woodsmith Mine remain unchanged from Phase 5 (40-CAR-WS-8300-PA-MS-00001).

4.1.3 During Phase 12, employees will use both the North Yorkshire County Council Park and Ride facility at Cross Butts, Whitby, and additional park and ride capacity at Scarborough Rugby Club, as set out in the Phase 12 CTMP (40-RHD-WS-70-CI-PL-0016). There will be limited designated spaces at the mine site for exceptional use.

4.1.4 To ensure that Sirius Minerals and its contractors can comply with the UK Government advice regarding social distancing (related to Covid-19), measures to control the number of employees travelling to site individually (as referenced in the Phase 12 CTMP (40-RHD-WS-70-CI-PL-0016)) may need to be temporarily suspended or amended.

Pedestrians and cyclists

4.1.5 The procedures set out in the Phase 5 CEMP (40-CAR-WS-8300-PA-MS-00001) are applicable to Phase 12.

4.2 Enforcement Systems for Breaches of Traffic Management Requirements

4.2.1 These remain unchanged from Phase 5 (see 40-CAR-WS-8300-PA-MS-00001).

5 Noise and Vibration

5.1 Noise and Vibration Management Plan

5.1.1 A Phase 12 Noise and Vibration Management Plan (40-RHD-WS-70-EN-PL-0044) has been prepared and submitted to the NYMNPA to partially discharge conditions NYMNPA-18 and NYMNPA-29 and includes details of noise and vibration management during blasting. It includes details of the noise and vibration sensitive receptors, agreed noise and vibration limits, monitoring to be undertaken and the mitigation measures to be implemented.

6 Air Quality and Dust Management

6.1.1 Measures developed to reduce the impact of construction on air quality and, as part of this, to manage dust, remain unchanged from Phase 5. They are set out in the Phase 5 CEMP (40-CAR-WS-8300-PA-MS-00001).

6.1.2 A mobile crusher will be used on site to break up concrete and excavated rock. The crusher will be operated in accordance with an Environmental Permit under the Environmental Permitting (England and Wales) Regulations 2016 (as amended), which will ensure that emissions of dust and particulate matter are minimised.

6.2 Construction Vehicle and Plant Management Plan

6.2.1 A Phase 7 Construction Vehicle and Plant Management Plan (40-RHD-WS-70-CI-PL-0012), was prepared to enable the partial discharge of planning condition NYMNPA-92, which remains applicable for Phase 12.

6.2.2 Mitigation measures identified in the Phase 12 CVPMP will be employed to minimise particulate emissions.

7 Nature Conservation

7.1 Protected Species and Precautionary Method of Working for Site Clearance

7.1.1 Protected Species Management Plans (PSMP) were produced for reptiles and birds to partially discharge planning condition NYMNPA-52 for Phase 3. These remain applicable for the Phase 12 Works, and the Precautionary Methods of Working will be applied.

7.1.2 The PSMP for Bats (40-RHD-WS-70-EN-PL-0043) was updated for Phase 11 to address the latest guidance and mitigation requirements relating to the impact of lighting on bats, and the PSMP for Badgers (40-RHD-WS-EN-PL-0042) was updated to include the latest badger survey data. The measures detailed in these PSMPs will be implemented in Phase 12.

7.2 Vegetation Clearance

7.2.1 There is no vegetation clearance required as part of the Phase 12 Works. Soil stripping for

the segments and tubbing laydown area and segregated materials bunker will be carried out as detailed in **Section 10**.

7.3 Landscaping and Ecological Management

7.3.1 A Landscape and Ecological Management Plan (LEMP) was produced for the Phase 3 Works (reference 40-RHD-WS-70-EN-PL-0008), which identified the following landscaping objectives:

- Assist in the mitigation of Phase 3 Works including protection of soil resources, water management and visual mitigation of B1416 views; and
- Protect and retain existing mature woodland cover where possible to provide visual screening during the mine construction phase.

7.3.2 These objectives remain applicable to the Phase 12 Works. Additional landscaping establishment practices were carried out for the Phase 11 works, as detailed in the Phase 11 CEMP (40-RHD-WS-70-EN-PL-0041), which will be maintained throughout Phase 12 as appropriate.

8 Archaeology

8.1.1 Earthworks required for the creation of the segment and tubbing storage area, the segregated materials bunker and Bund F will be carried out in areas previously surveyed; therefore, the potential for interaction with archaeology is low. However, should any archaeology be encountered, the principles outlined in the Phase 3 Written Scheme of Investigation (WSI) (40-COT-WS-70-EN-PL-0002) will be applied.

9 Hydrogeology, Water Quality and Drainage

9.1 Introduction and Generic Water Protection Issues

9.1.1 A range of watercourses run through the site. In addition, there are three different groundwater tables. To prevent pollution of the water environment the construction works will be undertaken in accordance with industry guidance set out in Pollution Prevention Guidance (PPG5) which was produced by the Environment Agency[1].

9.2 Groundwater Management

9.2.1 Groundwater will be monitored and managed in accordance with the Phase 12 Hydrogeological Risk Assessment (40-FWS-WS-70-WM-RA-0014) and Phase 11 Ground and Surface Water Monitoring Scheme and Groundwater Management Plan (40-FWS-WS-70-WM-PL-00234).

9.3 Surface Water Management

9.3.1 The Phase 12 Surface Water Drainage Scheme (40-ARI-WS-7100-CI-RP-01008) contains

[1] This Guidance has been withdrawn, but remains applicable in the absence of replacement guidance

details of how surface water will be managed on site.

9.4 Silt and Pollutant Management

9.4.1 Silt and pollutant management measures remain as per the Phase 4 CEMP (40-RHD-WS-70-EN-PL-0023). Additional silt fences were installed in Phase 11 along the eastern edge of an area of tree clearance to protect watercourses from additional runoff; all silt fences on site are shown on drawing 40-ARI-WS-7100-CI-22-01067 Woodsmith Mine Phase 12 Masterplan.

9.4.2 Grout spread during shaft sinking will be controlled by increasing the viscosity via the use of various additives, as described in the Phase 11 CMS (40-SMP-WS-7100-PA-MS-00009).

10 Soils and Contaminated Land

10.1.1 As part of Phase 12, soil will be stripped from the segregated materials area and segment and tubbing storage area. Soils will be deposited into existing soil storage areas and will be handled and managed in accordance with the Phase 11 Soil Management Plan (40-ARI-WS-7100-CI-PL-01000).

10.1.2 The approach for dealing with unexpected contamination found on site is described in the Phase 3 CEMP (40-RHD-WS-70-EN-PL-0014), which remains applicable for Phase 12.

11 Excavated Materials

11.1.1 The shaft sinking process will generate rock and water. Rock meeting specified criteria for re-use will be beneficially re-used in the creation of landscape mitigation screening. Water will be processed in the NDWWTP (see **Section 12.2**) and either discharged to Sneaton Thorpe Beck or tankered off-site. The Project holds an Environmental Permit, granted by the Environment Agency, for this activity.

11.1.2 Material excavated from the Lias Group which is acceptable for re-use will be placed in Bund F. If material is considered too wet, it will be placed in the materials handling area and mixed with dry rock until it reaches a suitable consistency.

11.1.3 Excavated material which cannot be re-used on site will be transported to the segregated materials bunker for storage prior to collection and disposal at a licenced facility.

11.1.4 Very small volumes of biodegradable hydraulic oil residue will be generated by the drill and blast works, in addition to trace concentrations of ammonia, nitrate and hydrocarbons from unspent blast arisings. The mitigation and controls for these substances are described in the Phase 11 Hydrogeological Risk Assessment (40-FWS-WS-70-WM-RA-0013).

12 Materials and Waste

12.1 Materials and Waste Storage

12.1.1 Details of the materials and waste materials stored on site are provided in the Phase 4 (40-

RHD-WS-70-EN-PL-0023), 4a (40-RHD-WS-70-EN-PL-0026) and 5 (40-CAR-WS-8300-PA-MS-00001) CEMPs and remain applicable for Phase 12.

12.2 Non-Domestic Waste Water Treatment Plant

12.2.1 Details of the volumes and types of waste produced in the NDWWTP are provided in the Phase 9 Construction Method Statement (40-SMP-WS-7100-PA-MS-00007). Solid waste will be tested against the chemical and geotechnical specification for the landscape screening earthworks and used within the construction of these features where acceptable. Any material failing suitability testing will be removed by a licensed waste carrier.

12.2.2 Other wastes from the NDWWTP will be stored appropriately for regular disposal off-site.

12.2.3 Condensate from the air compressors will be captured and either processed through the NDWWTP or tankered off-site for disposal.

12.3 Grouting

12.3.1 For the grouting process, bunded areas of sufficient size house all grout pumps, mixer, and wash out skips. All grout batching and mixing operations will be undertaken from within a containerised mixing unit with forced filtered extraction to control the loss and impact of airborne particulates. These are situated on the shaft platform, well away from any controlled waters.

12.3.2 Water used in drilling will be passed through settlement tanks, silt busters and a sand filter and re-used as far as practicable. When the water quality deteriorates beyond that required by the grouting contractor this water will be tankered off-site for disposal.

12.3.3 The residual grout/cleaning water will be treated in the NDWWTP and stored for removal off-site.

12.4 Fuel Oil Storage and Refuelling on Site

12.4.1 Delivery and refuelling will be supervised at all times and checks will be made to ensure that the correct type and volume is being delivered. Appropriate pollution mitigation measures (including drip trays and spill kits) will be employed. Refuelling will occur across the site with appropriate control measures in place, as detailed in the Phase 5 CEMP (40-CAR-WS-8300-PA-MS-00001).

12.4.2 Fuel will be stored in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001. All static fuel tanks and bowsers will be integrated bunded tanks. These will have a primary container manufactured with integral secondary containment that holds a minimum of 110% of the volume of the inner tank. The locations of storage areas are shown in drawing 40-ARI-WS-7100-CI-22-01067 Woodsmith Mine Phase 12 Masterplan.

12.4.3 Bund dewatering systems for the 11kV transformers will have their own oil retention system. As a secondary containment safeguard, the bund dewatering systems will be supported by a pumped water filtering system. The filtered water will be discharged to the site surface water

drainage system.

12.5 General Management of Non-Extractive Waste

12.5.1 The management of non-extractive wastes will remain as set out in the Phase 4 CEMP (40-RHD-WS-70-EN-PL-0023).

13 Incident and Emergency Planning

13.1.1 The Phase 3 CEMP (40-RHD-WS-70-EN-PL-0014) and the associated appendices detailed actions that will be taken to minimise the risk of pollution incidents occurring on site and identifies the actions to be taken in the event of a pollution incident. These procedures remain applicable to Phase 12.

Appendix A Sirius Minerals Community and Stakeholder Engagement Framework

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Community and Stakeholder Engagement Framework

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Community and Stakeholder Engagement Framework

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Community and Stakeholder Engagement Framework

1 Purpose and Scope

1.1 Background

There is widespread interest in the Company's North Yorkshire polyhalite project (the Project) at local, regional and national levels. This is demonstrated by the ongoing media and stakeholder enquiries, as well as the levels of participation during the planning consultations and at Company events.

Sirius Minerals (the Company) successfully engaged the community and other key stakeholders during this period, gaining widespread support for the Project. This has helped to provide the Company with a social license to operate. Maintaining this throughout the construction period is important to the successful delivery of the Project and is a key objective of the Company's board and management team.

This document has been updated since construction started at Woodsmith and Lockwood Beck, and the off-site highways improvement works were undertaken on the main transport route. During this eighteen months public support has remained high, with a relatively low number of complaints. The principles of the Framework therefore remain unchanged, with the addition of the good practice learnt over the last eighteen months.

1.2 Purpose

This Community and Stakeholder Engagement Framework (CSEF or the Framework) aims to set out a clear communications approach during the construction period which, when implemented correctly, can help to maintain the Project's social license to operate.

1.3 Scope

The Framework sets out an approach to community and stakeholder communications during the construction period. It outlines the overall strategy, identifies the main stakeholder groups and details the engagement objectives and activities. It sets out the roles and responsibilities of the Company and the principle construction contractors for implementing and managing its delivery.

It is not within the scope of this plan to include engagement with the planning authorities and other statutory bodies in relation to the compliance with planning obligations and further environmental requirements, other than those specifically regarding community engagement.

2 Engagement Strategy

2.1 Rationale

The strategy is based on the principle that the local community and key stakeholders will react best to being kept informed of developments and in advance of them occurring. The failure to communicate always leads to a communications vacuum and this in turn leads to misinformation and rumours which can negatively affect the perception of the Project.

Similarly, providing channels for feedback to the Company in the first instance allows local people or spokespeople to be engaged in matters that might affect them. It also allows them to be able contact the Company in the first instance. Over the last eighteen months the vast majority of questions or concerns about the Project have come directly to the Company, with North York Moors National Park Planning Authority receiving less than a dozen complaints during this period. This demonstrates the importance of developing and maintaining relationships 'on the ground'.

Keeping people informed is not just about notification of physical activities during the construction period, but is also about allowing a channel for feedback that might raise an issue or local knowledge that the Company or its contractor teams was not aware of. It also enables a channel to positively promote the benefits of the Project as well as engaging in other positive public relations activities.

Any materials that are prepared for public consumption to explain parts of the construction work are designed and drafted in a manner that promotes the understanding of works or issues in as clear and straightforward manner as possible.

2.2 Approach

1. **Conduct pre-briefings for key events or activities**
   Providing clear information before each phase of works commences at the Project sites detailing what construction will involve, when it will take place and the measures to limit impacts. Since construction started this has included newsletters, mailouts, direct face-to-face meetings, drop-in events, public meetings and press releases and notices in the local media.

2. **Have effective ongoing management of local communications**
   Providing ongoing updates about construction progress and establish mechanisms that enable concerns to be raised and acted upon. This includes participation in the various liaison groups and clear processes to manage incoming queries or complaints. These have worked well since construction started. We also operate a 24-hour community helpline.

3. **Community benefit initiatives**
   Undertaking and promoting regular initiatives that deliver community benefits such as education schemes and employment and business opportunity information sessions. These have been ongoing since construction started and have been well received by the community.

   Further details on the methodology for pre-briefings, ongoing management and community benefits initiatives are available in sections 4.2 – 4.4.

3 Stakeholder Identification

Stakeholder groups have been identified and engaged as the Project has developed and can be broadly categorised as follows:

1. **Local residents**
   Residential neighbours and or landowners close to the individual construction sites. This also includes those directly affected in other areas such as those living close to key transport corridors or junctions. Approximately 60 households have been identified as 'site neighbours' to the Woodsmith and Lockwood sites and regular contact has been maintained since construction commenced.

2. **Community representatives**
   This group includes elected representatives of the community including parish and town councils, local authority officers and councillors, and local MPs.

3. **Interest groups**
   Business networks, environmental bodies, other local clubs and groups.

4. **Education Institutions**
   This includes local schools, colleges, universities and other training providers.

5. **Media**
   All online, print and broadcast outlets and journalists are considered key stakeholders.

6. **General public**
   The wider public as accessed through media channels, the website or site signage etc.

4 Engagement Methodology

This section sets out how community and stakeholder communications will be handled.

4.1 Identify stakeholders

The broad stakeholder groups have been identified, together with specific stakeholders relevant to each of the construction sites that are most likely to be impacted by the works. This includes landowners and local residents in close proximity to the sites.

4.2 Pre-briefings for key events

Before each phase of construction starts, or before a specific construction activity that has the potential to impact stakeholders, it is important to provide information to the local community. For the purpose of this Framework these stages are defined as "construction events" (these are listed in Appendix 1). Each construction event triggers the requirement for pre-briefing activities. The level of pre-briefing activity will vary, taking into account the extent of the local impact anticipated.

The pre-briefing information will include details about what construction will involve and how people can contact the Company if they have questions or concerns. Reassurance will be given that measures will be taken to limit adverse impacts to an acceptable level and that planning conditions and other requirements are in place to ensure that this happens.

This will help to raise awareness of what to expect and demonstrate that concerns will be listened to and acted upon wherever reasonably possible. As a minimum, the pre-briefing activities will include:

- Letters – Letters and or emails should be sent to those that are likely to be immediately affected. This might include neighbouring residents or households and businesses on access routes. As a courtesy, the same information will be sent to the local Parish Council, borough and county councillors covering those areas.

- Visits and phone calls – In addition to letters, affected households and businesses will be visited, or at the very least receive a telephone call.

For construction activities that are more significant, in terms of their potential for stakeholders to be affected, the Company will use the following pre-briefing methods. The precise details and extent of pre-briefing will be a matter of judgement and as a result of discussions between the contractor and the Company and, where appropriate, the planning authorities. Activities may include:

- Newsletter / Leaflet – A short summary newsletter or leaflet about the works will be made available.

- Exhibitions / Open days – In the case of certain key events, such as the main shaft sinking, it will be appropriate to inform local residents and the wider general public through open days prior to works starting. This includes further information on exhibition boards and will be attended by key personnel from the Company and contractors, who are be able to respond to queries and provide reassurance on potential concerns. Four of these sessions have taken place since construction started.

- Press release – If appropriate (often where a wider audience is potentially affected or interested in the works planned) then a press release will be prepared detailing the key facts. Any press release needs to be signed off by the Company in a timeframe that makes sure newspaper deadlines are met. Where possible, coverage should always appear in the week prior to the proposed activities beginning. The local media has been particularly useful in instances where the community beyond the immediate site neighbours could be affected, such as public highways disruption.

- Website updates – Details of key events are uploaded to the Company website. Some works may also require more detailed information and documents to be uploaded.

- Social media updates – The Company will control its social media accounts. As above, the contractor will be expected to provide the relevant details to the Company in a timely fashion so the relevant information can be released through its social media channels.

- Stakeholder briefings – In some circumstances specific stakeholders will be individually briefed to inform them of key events. This may include elected representatives, local authority officers or interest groups. The Company will take the lead on such matters and will involve contractors where appropriate.

4.3 Ongoing management

Local residents and stakeholders will continue to be engaged throughout construction (i.e. general updates in addition to those covered under 'key events' in appendix 1). This will enable the Company to provide regular updates of the Project's progress, and that it is being delivered in accordance with planning consents and any other Company commitments. Alternatively, if the Project is not progressing as expected it is important that stakeholders are provided with an explanation and reassurance that corrective measures will be implemented.

In addition, on-going engagement will include a range of communication channels that enable stakeholders to raise issues and ask questions and for the Company to respond to these.

4.3.1 Liaison Group Forum

The Liaison Group Forum (LGF) was established prior to the commencement of construction and has met quarterly. There have been seven meetings to date and the LGF will continue to meet throughout the construction period. It is chaired by the Company and its membership includes representatives from the National Park Authority, parish and town councils and wider community stakeholder representation as appropriate. The meetings are open for the general public to attend and to ask questions.

The purpose of the group is to facilitate liaison between local stakeholders about construction, providing updates about progress, and to enable issues and concerns to be raised and resolved.

4.3.2 Traffic Management Liaison Group

The purpose of this group is to facilitate liaison between local authorities and other interested stakeholders in regard to construction traffic. The group oversees the management and monitoring of the Construction Traffic Management Plan (CTMP), and is chaired by the Company.

There is representation from the National Park Authority, highways authorities, local authorities, the police and other stakeholders as invited. There have been seven meetings since construction started and traffic issues raised by the LGF are addressed.

4.3.3 24-hour community helpline

To ensure that there are accessible points of contact for the local community and wider stakeholders a 24-hour community helpline has been established, which is delivered by a specialist contractor. In addition there is a community email address, which is managed by the Company.

4.3.4 Regular briefings and updates

Key individuals and organisations are regularly briefed and updated. Similarly to pre-briefings for key events, updates are communicated through the following channels:

- Public meetings and presentations – Parish council and town council meetings are regularly attended, together with presentations to local interest groups.

- Site visits and meetings – visits to the Project sites for key stakeholders have been an effective way to communicate progress. In addition, drone footage of the project sites is regularly used to show progress and is used in Project presentations and on the Company's website.

- Press releases – the print and broadcast media are utilised extensively to communicate with the wider community and at a regional and national level.

- Newsletters, website and social media – regular updates produced throughout construction via the website, leaflets, newsletters, social media and publications relating to specific issues, such as careers. Videos, including footage of the sites and interviews with key Project personnel have been an effective tool.

4.4 Community benefit initiatives

The Company has made a number of commitments to benefit the local area during construction such as providing employment and supply chain opportunities, training schemes, school outreach programmes and funding community projects. It important that these are implemented and widely promoted so that the community and stakeholders are aware that the Company's commitments are being delivered. The activities and initiatives, some of which are planning obligations in the S106 agreements, are outlined below:

- Funding to Scarborough Borough Council and Redcar and Cleveland Council to identify and prepare local people for employment opportunities.

- Funding to raise awareness of science, technology, engineering and maths (STEM) related careers in schools in North Yorkshire and Redcar and Cleveland.

- Targets specified in the S106agreement - take on 50 apprentices, recruit 15 local students on the Company's Undergraduate Programme and train 300 adults.

- Quarterly employment opportunity sessions to promote job opportunities to local people and meet the buyer events for local businesses.

- Education outreach initiatives, careers events and presentations.

- Funding community projects through the Sirius Minerals Foundation.

4.5 Protocols and guidelines

There are guidelines in place, as listed below, to ensure that communication methods are clear, consistent, responsive and appropriate to the audience when dealing with different situations. Contractors will be expected to adhere to these procedures.

- Complaints procedure

- Media protocol

- Crisis readiness

A clear communications approach is important should a major incident occur. The Company's will implement crisis management procedures following a major incident.

5 Roles and Responsibilities

This section provides a framework that identifies responsibilities for the delivery and management of community and stakeholder engagement, focusing on roles of the Company and the principle construction contractors. The Company will be responsible for community and stakeholder engagement during construction, supported by each construction contractor as required.

5.1 Sirius Minerals

The Company will be responsible for:

- Identifying key stakeholders likely to be impacted by the works.
- Undertaking pre-briefing activities before construction starts such as:
    - Open Days / exhibitions as appropriate.
    - Producing information outlining what is involved, impacts and mitigation, contact information, etc.
    - Direct correspondence with neighbours and landowners in regards to construction events such as blasting.
- Liaison with the planning authorities and community representatives, including chairing the Liaison Group Forum and Traffic Management Liaison Group.
- Media relations.
- Manage the complaints procedure.
- Producing project newsletters, social media and updating the website.
- Direct engagement and briefings with key stakeholders including local residents, community representatives and interest groups.

The Company's External Affairs Director has overall responsibility for all company communications and external relations. The External Affairs Director chairs the Liaison Group Forum and the Company's Logistics Manager chairs the Traffic Management Liaison Group.

The General Manager External Affairs, reporting to the External Affairs Director, manages the implementation of the approach detailed in the Framework. The Local Liaison Officer and Communications Officer both report to the GM External Affairs, and are further supported by the PA to the External Affairs Director.

5.2 Construction Contractors

Each of the construction contractors will be required to support the Company's stakeholder engagement approach as follows:

- Provide expected durations of phases or work, their potential impact on the local community and mitigation measures where required.

- Provide details of any expected public transport diversions, delays, planned road closures, impacts on highways, interrupted access for residents/ businesses, or other expected community disruption.
- Participate in employment opportunity sessions, meet the buyer events, and education outreach events as required.
- Cooperate with Sirius in media events and provide information to the Company for publications, the website, newsletters, etc.
- Adherence to Sirius' communications protocols and guidelines.
- Attend the liaison groups, parish/town council meetings and assisting Sirius as required.
- Ensure that all sub-contractors comply with stakeholder and community relations requirements.

Appendix A – Construction Events

The following provides a list of construction events which trigger the requirement for pre-briefing activities, as outlined in section 4.2. The list is not exhaustive and there may be other events or activities not listed here that could be classified as construction events as a result of discussions between the Company and its contractors.

The construction events for the purposes of this Framework are:

- Any significant geotechnical investigation or drilling works
- Main Woodsmith Mine shaft sink
- Main Lockwood Beck shaft sinking
- MHF construction
- Harbour construction
- Other construction activities with the potential to affect stakeholders including site neighbours or road users in regards to noise, light, disruption to the public highway, etc. Examples include an abnormal load arriving to site or a short period of piling.

Appendix B – Engagement Activities Summary

The table below provides an 'at a glance' overview of the main community and stakeholder engagement activities, together with the respective roles of Sirius Minerals and the construction contractors in delivering them.

	Pre-briefing activities	Ongoing management	Community benefit initiatives
Sirius Minerals	• Establish Liaison Group Forum and Traffic Management Liaison Group • Project update newsletter • Media, website update, social media • Briefings with site neighbours, landowners, community representatives and other key stakeholders as identified • Produce leaflet detailing upcoming construction activities • Send letters to stakeholders likely to be immediately affected • Hold public open days / exhibitions	• Chair Liaison Group Forum and Traffic Management Liaison Group • Manage 24-hour community helpline and info@siriusminerals.co.uk • Attend parish and town council meetings quarterly • Regular updates to site neighbours, landowners, community representatives and interest groups • Site visits • Media, website update, social media • Manage complaints procedure	• Training targets and promotion of initiatives funded by the S106 • Promote activities of the Sirius Minerals Foundation • Organise meet the buyer events • Organise regular employment opportunity sessions • Deliver education outreach programmes
Construction Contractor	• Provide information to Sirius to be used in leaflets, letters, web content, etc., as required • Attend public open days/exhibitions and meetings with stakeholders as required	• Attend liaison groups, parish council and other meetings as required • Provide information to support on-going community and stakeholder relations • Participate in media events as required • Adherence to complaints procedure, media protocol and crisis response procedure	• Involvement in community benefit initiatives as required

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Woodsmith Mine Phase 12 Construction Method Statement (CMS)

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Woodsmith Mine Phase 12 Construction Method Statement (CMS)

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Woodsmith Mine Phase 12 Construction Method Statement (CMS)

1 Introduction

1.1 The purpose of this document

This document details the Construction Method Statement (CMS) for Phase 12 Site Works at Woodsmith Mine. This CMS is required to partially discharge condition 94 of the North York Moors National Park Authority (NYMNPA) planning permission NYM/2014/0676/MEIA (as subsequently varied by NYM/2017/0505/MEIA) and has been prepared in accordance with good practice.

This CMS details the works to be undertaken during the Phase 12 Site Works at Woodsmith Mine only. Further construction methods statements will be submitted to discharge condition NYMNPA 94 for subsequent Phases. The CMS will remain a live document, being reviewed, and updated as required.

1.2 Compliance with Condition NYMNPA 94

The wording of planning condition 94, and where the necessary material has been provided within the report, is set out in Table 1.1.

Table 1.1 : Details of NYMNPA Planning Condition 94

NYMNPA Condition 94	Compliance with Condition 94
Prior to the commencement of each Phase of the development at Dove's Nest Farm or Lady Cross Plantation in accordance with the approved Phasing Plan, a Construction Method Statement will be submitted for that Phase, and approved in writing by the MPA, in consultation with the appropriate Highways Authority. Each approved Statement will be adhered to throughout the construction period. The Statements will provide for:	This CMS is provided for Phase 12 Works at Woodsmith Mine only. Other Phases will have bespoke CMS documents.
(i) The parking of vehicles of site operatives and visitors clear of the highways;	Section 2.5
(ii) Loading and unloading of plant and materials;	Section 2.7
(iii) Storage of plant and materials used in constructing the development;	Section 2.8
(iv) Erection and maintenance of security fencing;	This type of work is not required in Phase 12.
(v) Wheel washing facilities;	Section 2.9
(vi) An outline construction method for sub-surface works including adherence to the 'rack and pillar' method of mining described in the SEI (14th February 2015) and the SRK Subsidence Memorandum (15th May 2013);	This type of work is not required in Phase 12.
(vii) Buildings and structures associated with the mine and tunnel shafts;	Section 3
(viii) Welfare/office building and security gatehouse;	Section 3
(ix) Screening bunds;	This type of work is not required in Phase 12.
(x) Hardstandings;	Section 3

NYMNPA Condition 94	Compliance with Condition 94
(xi) Shuttle Bus terminal;	Section 2.5
(xii) Park-and-Ride layby;	Section 2.5
(xiii) Emergency helipad;	This type of work is not required in Phase 12.
(xiv) Lighting columns;	Section 2.11
(xv) Internal access and haul roads;	This type of work is not required in Phase 12.
(xvi) Domestic wastewater (foul sewage) treatment plant;	This type of work is not required in Phase 12.
(xvii) Non-domestic wastewater treatment plant and settlement tanks;	Refer to Section 3.
(xviii) Surface water attenuation ponds, settlement ponds, swales and wetland areas;	This type of work is not required in Phase 12.
(xix) Temporary spoil and Polyhalite storage areas;	Refer to Sections 3.3
(xx) Road widening and provision of right-hand turn areas;	This type of work is not required in Phase 12.
(xxi) Removal of any temporary structures; and	This type of work is not required in Phase 12.
(xxii) Formation spoil mounds and the establishment of vegetation on them	Refer to Section 3
The CMS will contain a construction timetable and order of works noting any construction dependencies, refer to any inherent mitigation measures required to address adverse impacts identified in the EIA and cross refer to the CEMP in relation to any additional avoidance or mitigation measures	The CMS relates to the Phase 12 Works at Woodsmith Mine only and all required mitigation has been included in a Construction Environmental Management Plan (CEMP), which is required to discharge condition 93.

Table 1.2 : Details of NYMNPA Planning Condition 97

NYMNPA Condition 97	Compliance with Condition 97
Prior to the commencement of shaft sinking, details of final expected internal diameters for the Production Shaft, Service Shaft and Mineral Transport System Shaft shall be submitted to the MPA for written approval. Such details shall be accompanied by information demonstrating the expected total volume and tonnage of spoil and a breakdown of the volume and tonnage of the principle types of spoil expected to be generated during the sinking of each shaft and include updated information on the intended arrangements for the management of the spoil in accordance with the requirements of this permission.	Section 3

2 Project Overview and Description of the Works

2.1 Project overview

Sirius Minerals Plc is developing a new mine surface development south of Whitby in North Yorkshire to extract polyhalite and transfer it to a processing and port facility on Teesside (the port facility is covered by a separate consenting regime). A full and detailed description of the project can be found in the Environmental Statement. This CMS relates to the Phase 12 Works at Woodsmith Mine only. This document builds on the CMS documents produced for Phases 1-11 and further versions of this live CMS will be produced for subsequent Phases as outlined in Section 1.1.

2.2 CMS overview

The CMS provides an overview of the resource requirements and the plant and materials that are anticipated to be used during the Phase 12 Works. It includes the measures to be taken to ensure that the works are carried out in accordance with the requirements of both the planning permission and of Sirius Minerals Plc and, above all, are carried out safely and in compliance with all statutory obligations.

2.3 Description of the works

The Phase 12 works comprise:

- Assembly and operation of Shaft Boring Roadheaders (SBRs) at both Service Shaft and Production Shaft;
- Installation of additional welfare cabins;
- Installation of segregated materials bunker;
- Creation of laydown area for segment and tubbing storage;
- Installation of lightning protection and canopy to SSUs; and
- Installation of access control measures.

These works are further detailed in Section 3.

2.4 Contractor's offices/compounds

All contractors will continue to use the facilities already established in earlier Phases, namely the main site welfare facility established in Phase 3 and extended in Phase 6.

In this Phase, additional cabins will be constructed close to each shaft location to provide the necessary facilities for the underground teams. These will comprise prefabricated units, two storeys high, situated adjacent to the temporary winder houses for each shaft and will contain mining dry facilities and additional office space. The units will be painted either Brown Green (RAL 6008) or Juniper Green (RAL 160 20 10). The dimensions will be approx. 6m x 30m area and less than 7m high.

2.5 Parking of cars

There are 187 spaces at Cross Butts Park and Ride that came into use in October 2018 and will continue to be used, as agreed with the NYMNPA and the North Yorkshire County Council Highways department.

There will be no parking on site with the exception of limited designated spaces for exceptional permitted use.

As part of the parking management strategy, a shuttle bus is now operational and runs between the Cross Butts P&R facility to a drop-off point adjacent to the welfare facility.

2.6 Mobilisation

All equipment, plant and materials will be delivered to site using the approved traffic routes as per the Phase 12 Construction Traffic Management Plan (**Ref: 40-RHD-WS-70-CI-PL-0016**).

All HGVs and abnormal loads will drive directly to site and will not stop / wait on the public highway.

All welfare & storage units will be painted RAL6008 (brown/green) or equivalent prior to arrival on site.

Fewer than 10 abnormal loads per month are expected during this Phase.

2.7 Unloading and loading of materials

The areas for storage have been planned to prevent excessive handling of material and to facilitate loading and unloading.

2.8 Storage of plant and materials

Materials will be stored in accordance with the approach established for Phase 2 and implemented throughout all subsequent Phases.

Plant and materials will be stored in designated areas as close to the works as possible. All storage areas will be on hardstanding appropriate to the plant and materials and away from sensitive receptors. COSHH and fuel storage will be as per the Construction Environmental Management Plan (CEMP) submitted for Phase 12 (**Ref: 40-RHD-WS-70-EN-PL-0044**).

2.9 Wheel wash

Vehicles entering site will stay on hardstanding already installed in previous Phases. No plant will travel off site other than by specialised plant moving transport.

Vehicles exiting the site and on-site plant will use the wheel wash as described in the approved documents for Phase 3.

2.10 Internal access routes

Haul roads and internal access routes within the Phase 12 working area will be demarcated and separated from pedestrians as per previous Phases. Speed limits will be enforced as per the site limits.

2.11 Lighting columns

No permanent lighting columns will be installed in this Phase of Works. Only temporary task lighting will be used, as described in the Phase 12 CEMP (**Ref: 40-RHD-WS-70-EN-PL-0044**). Additional welfare cabins will be provided with sensor controlled discreet perimeter lighting for safe access / egress.

3 Construction Method Statements

The shaft sinking contractor – DMC Mining Services – will use two 60m Shaft Boring Roadheader (SBR) machines to safely perform their shaft sinking operations of the Service Shaft and Production Shaft at Woodmsith Mine Site, as detailed below.

This Phase of works is detailed to include the operation of the SBR's, for each shaft, from the base of the pre-sinks (previously discharged), to the base of the Lias Group formation.

Additional site construction activities necessary for this Phase of works are also detailed below.

3.1 Assembly and operation of Shaft Boring Roadheaders (SBRs) at both Service Shaft and Production Shaft

The main shaft sinking of both the Service Shaft & Production Shaft will be done using SBR machines. These will be assembled in, and launched from, their respective pre-sunk shafts, within each head chamber, to facilitate the excavation and construction of the shaft from approx. 120 metres below ground level (BGL) to the Polyhalite seam, almost 1600mbgl.

The SBR for the Service Shaft arrived at the Woodsmith site in August 2019 and the one for the Production Shaft arrived in early 2020. The are expected to launch in quarter 4 2020 and quarter 2 2021 respectively.

The SBR is a development for mechanized excavation of vertical deep shafts. The SBR system represents a substantial departure from traditional shaft sinking operations. It will eliminate most of the requirement for personnel on the shaft bottom and largely eliminate the cyclical nature of sinking operations. Once established, sinking operations with the SBR will be quite routine.

The excavation process is based on the use of a Roadheader Cutting Boom, similar to Roadheaders used in tunnelling or mining applications. The cutting boom repeatedly cuts trenches from the centre of the shaft to the circumference - the shaft wall. It then advances, allowing follow on shaft construction activities; probe drilling, grouting as required, ground support, concrete lining and service installation, to be completed by the working crews from a series of work decks.

3.1.1 Hoists, Winches & Surface Infrastructure

In order to support and control each SBR, which will essentially hang in each shaft, infrastructure has been constructed at surface as per previous work Phases. This comprises the; Headframe (within head chamber) and Hoisting plant (winches and temporary winders), for each shaft.

Upon completion of the Headframe and Hoisting plant installation, the winches and winders will be roped up as per the Phase 11 CMS (**Ref. 40-SMP-WS-7100-PA-MS-00009**). This allows the compartmentalised sections of the SBR, currently at ground level, to be lifted, by crane, into the head chamber, where they will be connected and lowered into the main shaft.

For this operation, a railed trolley will be installed to the base of the Head chamber. This will be lifted in by a 750ton crane. After the SBR assembly is complete, this will be removed and the crane de-mobilised.

Once all sections have been connected, roped up and commissioned, the SBR can be launched.

3.1.2 SBR Work Deck Breakdown & Access

The SBR can be broken down to a series of work decks, as below. These house all infrastructural components and tools required to operate the machine and to perform the necessary tasks, like lining.

Below these decks sits the cutting drum. This is a hydraulically driven boom and head controlled by the core machine, powered by the Woodsmith main drawing from the LNG plant supply on site.

Adjacent to this are retractable drills required for probe drilling and grouting operations. Behind the cutting drum is a pneumatic head which will transfer excavated material from the face to muck buckets.

In a similar manor to the MTS shaft sinking methodology detailed in the Phase 11 CMS (Ref. 40-SMP-WS-7100-PA-MS-00009), materials will be transported to surface via muck buckets

Access to, and egress from, the SBR will be via the headframe building and man riding baskets, designed to travel though the SBR to the working decks.

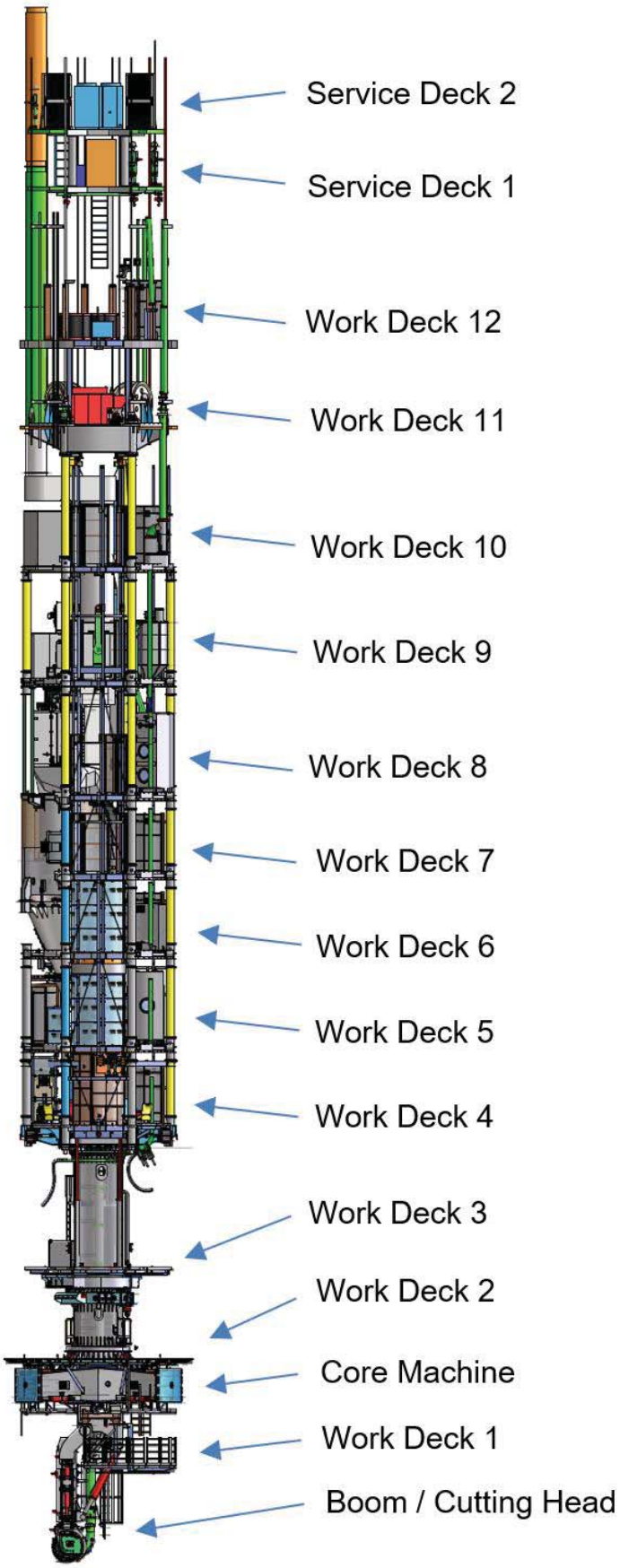


Figure 1: SBR Section View

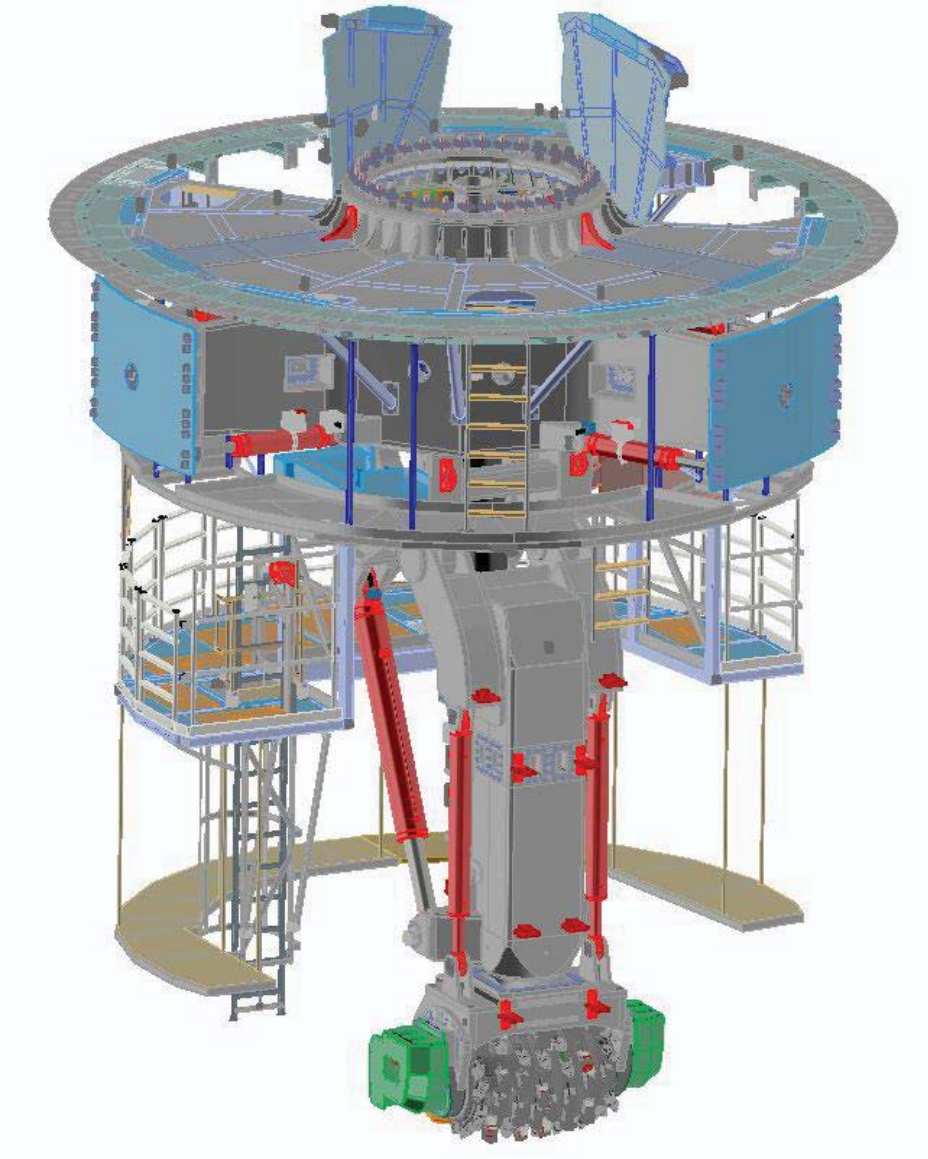


Figure 2: Core Machine & Cutting Head

3.1.3 SBR - Shaft Sinking Process

The SBR is suspended from, and controlled by, ropes connected to winches in the temporary winder house at surface. The SBR will be lowered as the shaft advances by cutting as follows;

- A rotating cutting drum creates a cut of up to 200mm in depth;
- Sections are cut clockwise from the shaft centre to the shaft wall;
- After five cycles, the shaft is one metre deeper;
- Permanent shaft lining is inserted and secured from an upper working deck;
- The excavated material is removed from the shaft bottom via a pneumatic mucking system and is transferred to kibbles 20m above the working level;
- Kibbles then hoist the excavated material to surface where it will be incorporated into the landscape screening bunds around the perimeter of the Woodsmith site.

3.1.4 Construction Sequence

The construction sequence utilizing the SBRs involves probe drilling, grouting as required, excavation, shaft lining and installation of services. Construction requirements are divided into these more manageable work packages to improve schedule efficiency and to mitigate risks.

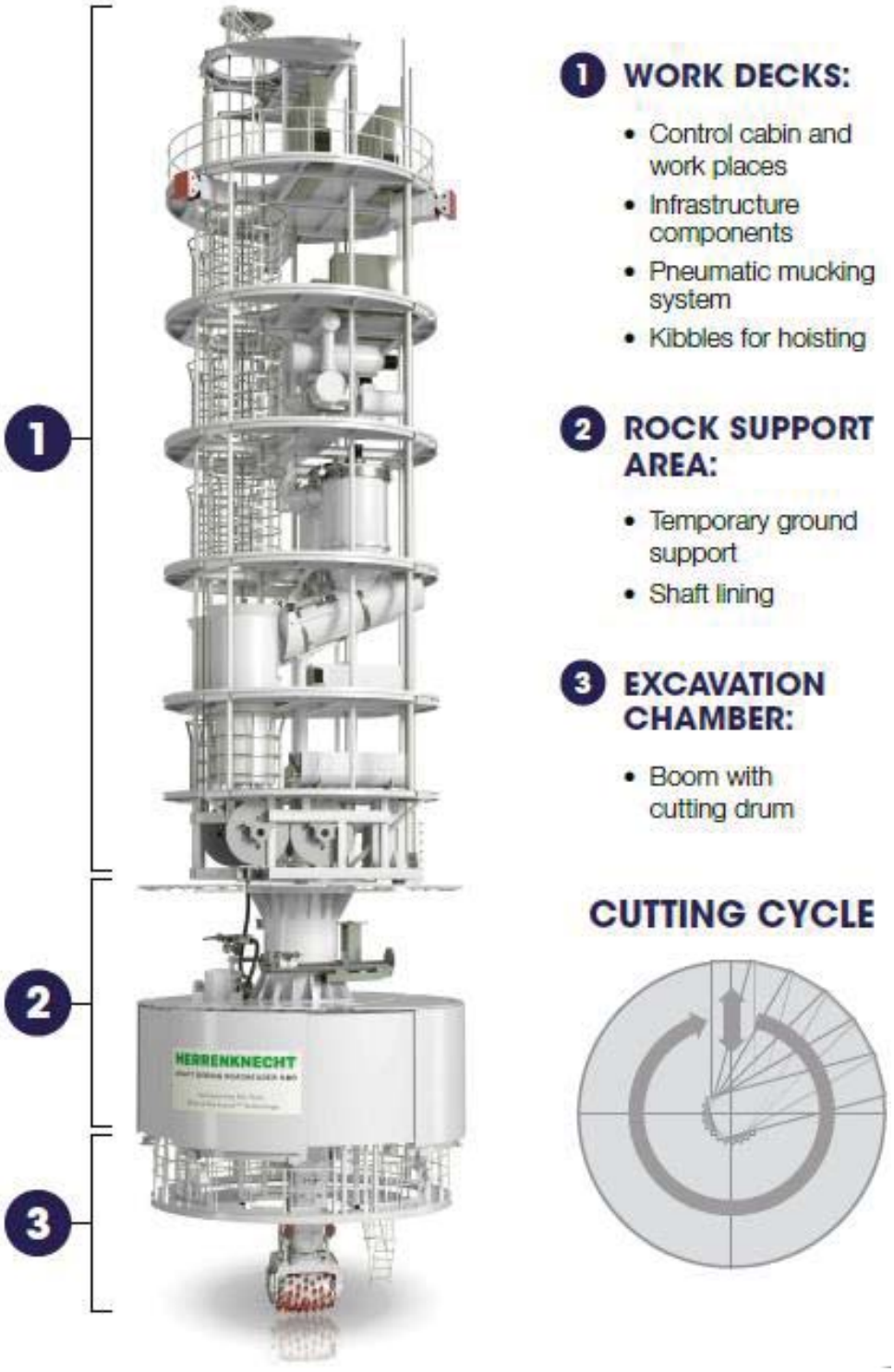


Figure 3: SBR Sections

3.1.5 Probe Drilling & Grouting

As per the Phase 11 CMS (**Ref. 40-SMP-WS-7100-PA-MS-00009**, *Section 3.3*), probe drilling & grouting may be required for groundwater control through the sandstone units of the Cleveland Ironstone Formation, Staithes Sandstone and localised fractured horizons in the Redcar Mudstone Formation.

A grouting decision matrix will be used to determine when to grout and what steps should be taken.

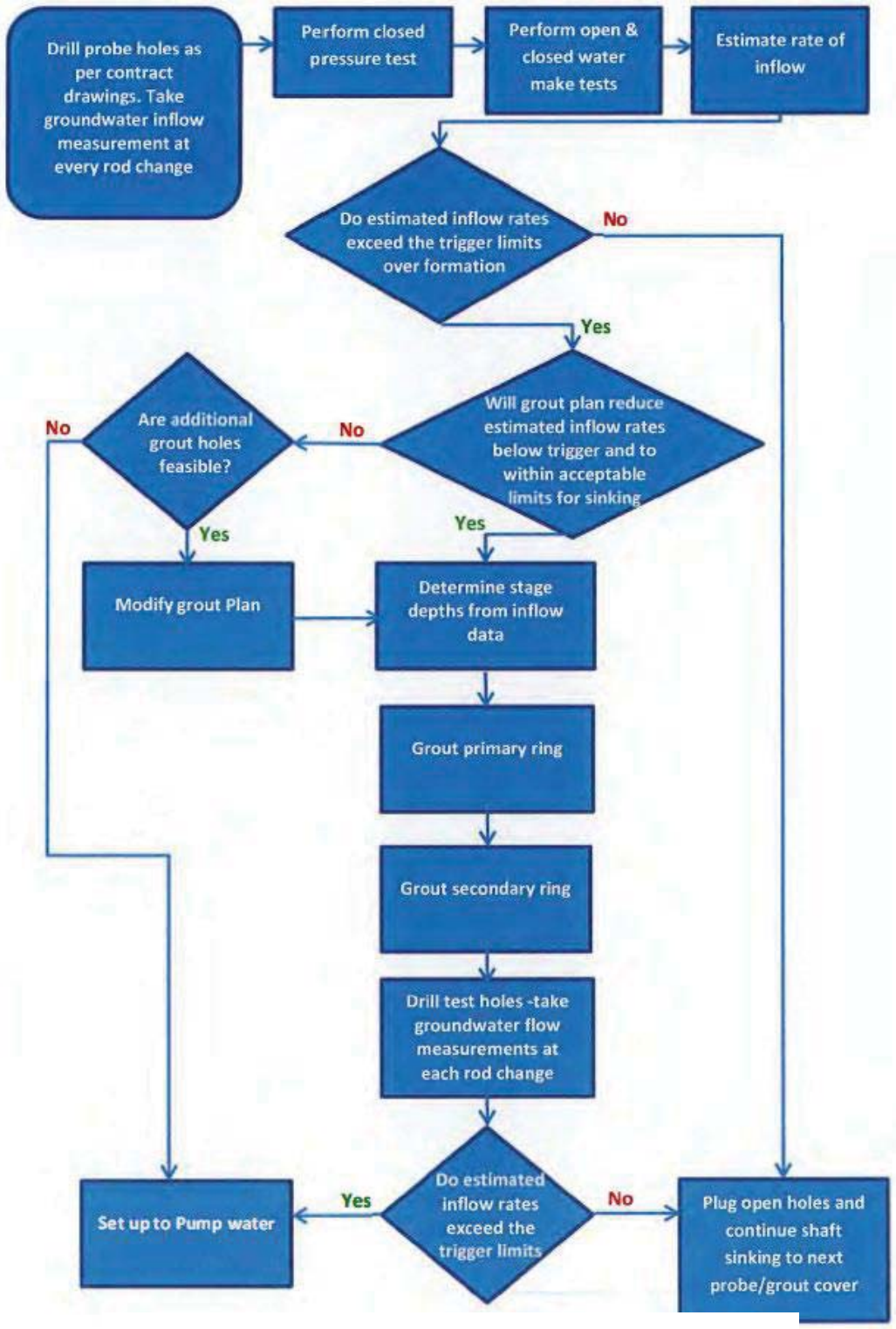


Figure 4: Example of grouting matrix

Drilling will be performed using the Jumbos attached to the SBR. These are drilling masts attached with a 'Down the Hole hammer' drilling technique. These works are broadly the same as for the MTS shaft sinking, utilising the same plant and equipment as detailed in the Phase 11 CMS.

Standpipes with blow out preventers (BOP's) are an important requirement for these drilling works. These will be fitted into the shaft circumference prior to any drilling to facilitate groundwater inflow mitigation and control.

Grout will be mixed within the SBR, avoiding the need to mix at surface. Grouting will proceed in accordance with the methodology previously described in the Phase 11 CMS.

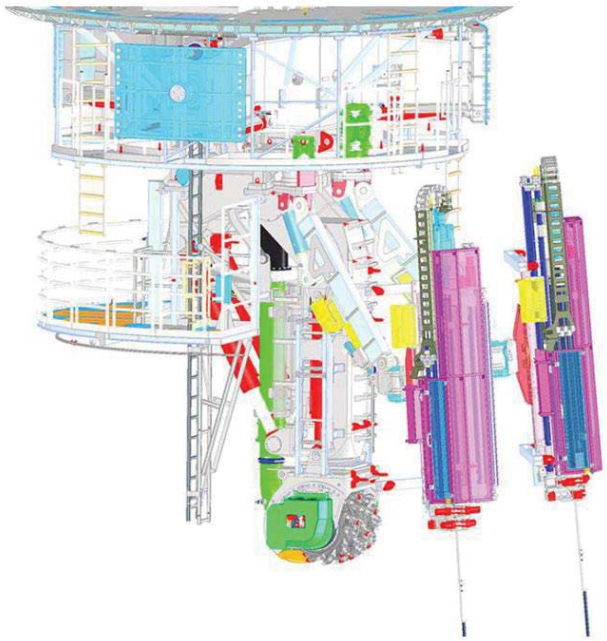


Figure 5: SBR Drilling Jumbos

3.1.6 Excavated Material

The pneumatic head of the SBR extracts excavated material from the cutting face into a muck bucket which is brought up to the head chamber level, via the winch system, where it is transferred to the *Vertical Conveyor* (see overleaf) and brought to the surface to assess its geotechnical condition.

The shaft sinking process will generate two excavate streams, rock and water. Rock will be managed via the *Surface Materials Bunker* (see below) and will be used in the construction of permanent landscape bunds. Water will be managed via the *Screw Tank* (see overleaf) and forwarded (by pumping) on to the Non-Domestic Wastewater (NDWW) Treatment Plant (discharged in a previous Phase) for processing, where it will be managed for disposal off-site by means of tanker or discharged to Sneaton Thorpe Beck. The water flow discharged from each shaft will be monitored and recorded.

For excavation of the Lias group, material determined acceptable will be transported for placement in Bund F as detailed in section 3.5.1 '*Development of landscape mitigation screening*' of the Phase 11 CMS (**Ref. 40-SMP-WS-7100-PA-MS-00009**). Materials considered too wet, will be managed via the materials handling area (as discharged in the Phase 11 submission) where it will be mixed with dry rock to a suitable consistency to be worked onto the landscape mitigation screening.

Figure 6: Example Excavate Grade

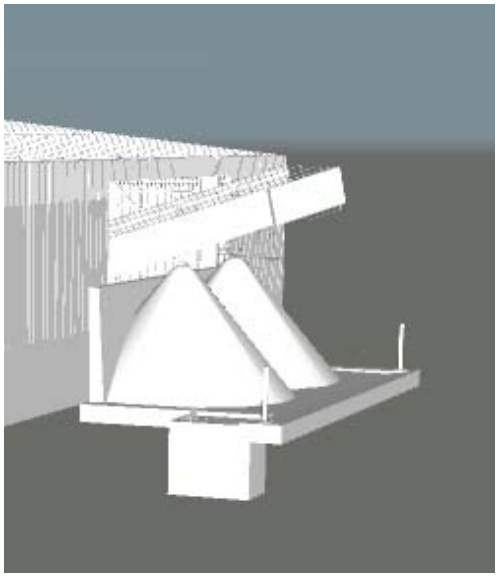


Figure 7: Surface Materials Bunker

Any excavated material designated for disposal as off-site waste, as defined by the Groundwater Activity Permit Working Plan (**Ref. 40-ARI-WS-7600-EN-PE-01001**) or following a pollution incident (e.g. burst hydraulic hose), will be transported to the '*Segregated Materials Bunker*' (**section 3.3**) where it will be stored prior to collection and disposal by a licenced facility.

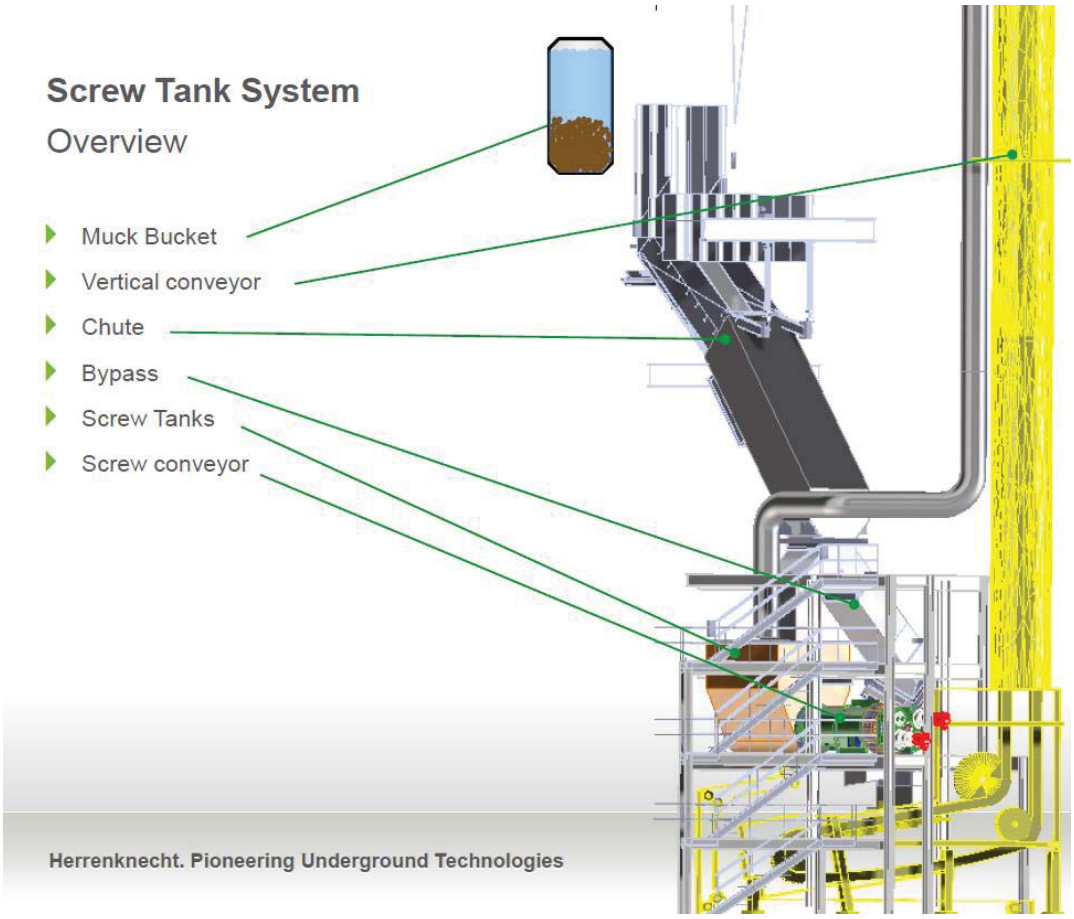


Figure 8: Screw Tank System & Vertical Conveyor

3.1.7 Shaft Diameter & Liner

The shafts generally have an internal diameter of 7.25 - 6.75m however, this varies over depth and through certain ground strata to satisfy design needs. As such, the external diameter varies over to meet the required internal diameter and design liner thickness. In summary:

- The shaft lining in the Production and Service Shafts can be broken down as shown in *Figure 9.*
- For this Phase, the shafts will be sunk from the base of the pre sink, 120mBGL, to the base of the Lias group, approx. 490mBGL.
- The liner is a conventional concrete liner.
- Each shaft will produce approximately 15,000 – 20,000m^3 material (un-bulked) to be placed onto bund F.
- Through the Lias group, the geology mainly consists of Whitby Mudstone, Cleveland Ironstone, Staithes Sandstone and Redcar Mudstone.

To cast the liner the SBR and shaft will be fitted with a concrete slickline, an 8" steel pipe that extends straight from the collar to the SBR, to feed concrete from the surface to the SBR.

The top of the slick line will be connected to a hopper where concrete will be poured in at surface and the bottom will be linked to the SBR holding & re-mix tanks. From here, the concrete will proceed through the concrete distribution system within the SBR where it will be delivered to the shaft forms.

Concrete by slick line will be delivered in 3m^3 amounts at a time and the reinforcing fibres will be added to the concrete in the mixing tank on the SBR as required.

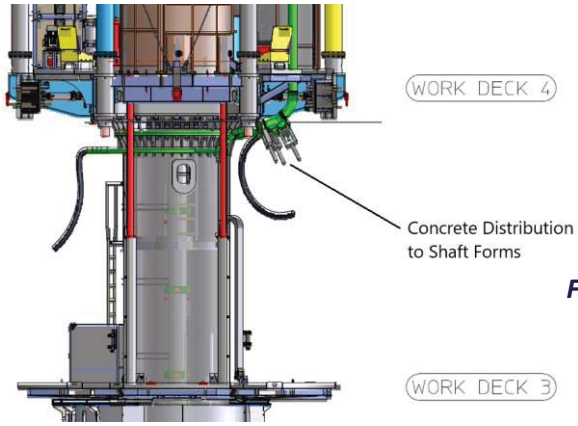


Figure 10: SBR concrete distribution system

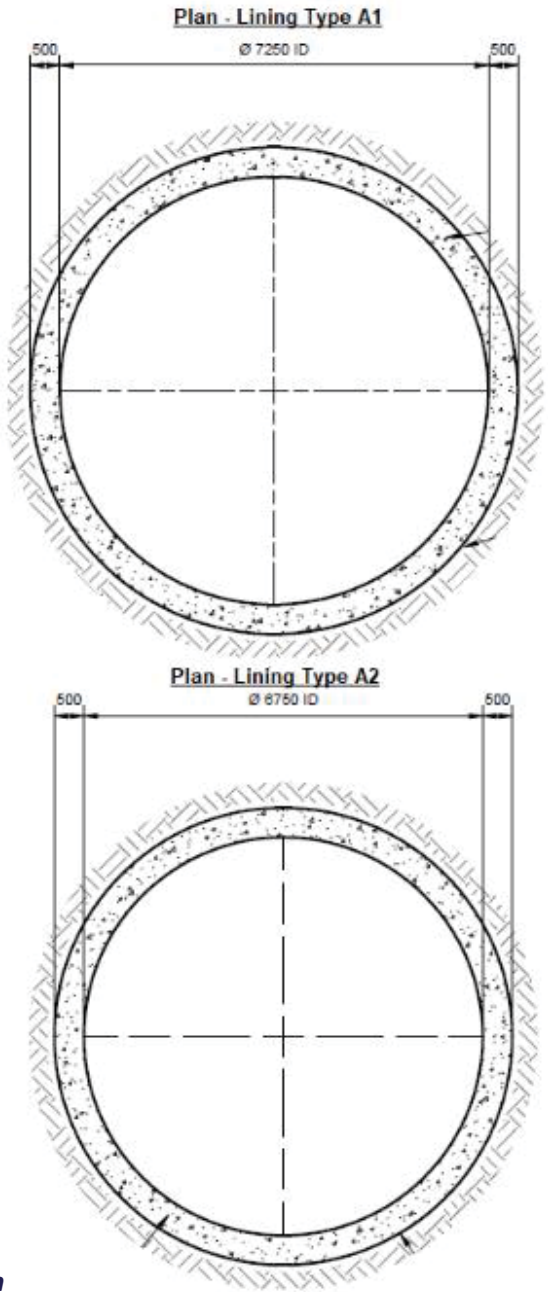
Figure 9: *Woodsmith Production Shaft Preliminary Long Section* ***(40-ARS-WS-1100-CI-43-20001)*** *& Woodsmith Service Shaft Preliminary Long Section* ***(40-ARS-WS-1200-CI-43-10001)***

Key (Shaft Liner, Below Pre-Sink):

Service Shaft, Above MTS Level
Plan - Lining Type A1

Service Shaft, Below MTS Level
Plan - Lining Type A2

Production Shaft
Plan - Lining Type A1



3.1.8 Site Services

Site services will consist of all support services that will be required for the sinking operation.

This will include compressed air, ventilation, water supply, dewatering, electrical power and communications infrastructure that has been installed as part of earlier Phases.

There is an independently powered Auxiliary Hoist. In the event of a power failure this will ensure a means of evacuating shaft crews safely.

Ventilation supply is designed to supply the air requirements while sinking.

All above required equipment has been installed on site, as detailed in previous Phases.

3.1.9 Staffing

It is anticipated that this scope of work will either be completed utilising two shifts; day and night working:

Day Shift	*07:00-19:00*
Night Shift	*19:00-07:00*

OR three shifts; day, afternoon and night working:

Day Shift	*6:30AM - 4:30PM*
Afternoon Shift	*3:30PM - 12:30AM*
Night Shift	*11:30PM - 7:30AM*

Deliveries are only permitted between the hours of 07:00 and 19:00.

Staff mobilised for this section of the Phase 12 works will comprise DMC staff and subcontractors. Forecast staff numbers for the period including the Phase 12 works do not exceed permissible limits.

Total DMC Required: Wave 1 Operating Service Shaft	-	*150*
Total DMC Required: Wave 2 Operating Production Shaft	-	*50*
Total HK Required	-	*15*

3.2 Installation of additional welfare cabins

In this Phase, additional shaft welfare is required at each designated shaft working area; the MTS Shaft, Production Shaft and Service Shaft. These will be cabins of a similar nature to those discharged in Phase 10 (**40-SMP-WS-7100-PA-MS-00008** - *Installation of drying rooms adjacent to the existing welfare facility*), to be located adjacent to temporary winder houses at each shaft.

These will be modular units, double height, connected to give a plan footprint area of approx. 180m^2. The units will not exceed 7m height and will be lifted into place by a site mobile crane or HIAB.

Units will be painted RAL6008 (brown/green) or equivalent prior to arrival on site. Discreet, sensor-controlled perimeter downlighting will be fitted to provide safe access and egress and all window will be fitted with shutters.

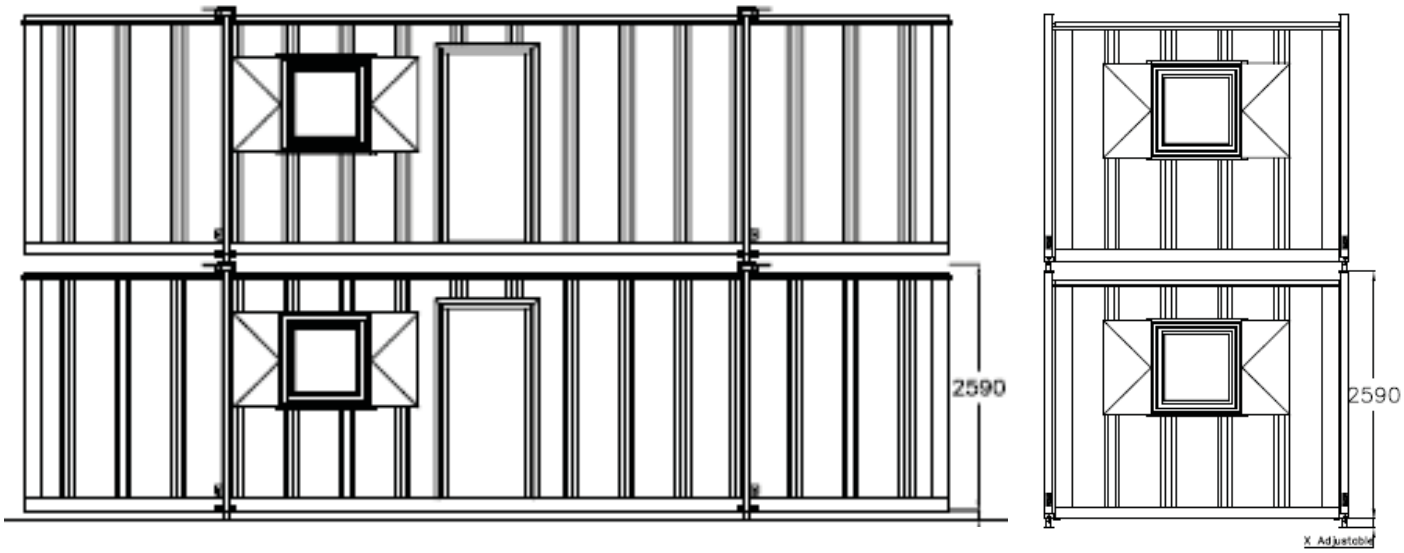


Figure 11: Welfare – Section View

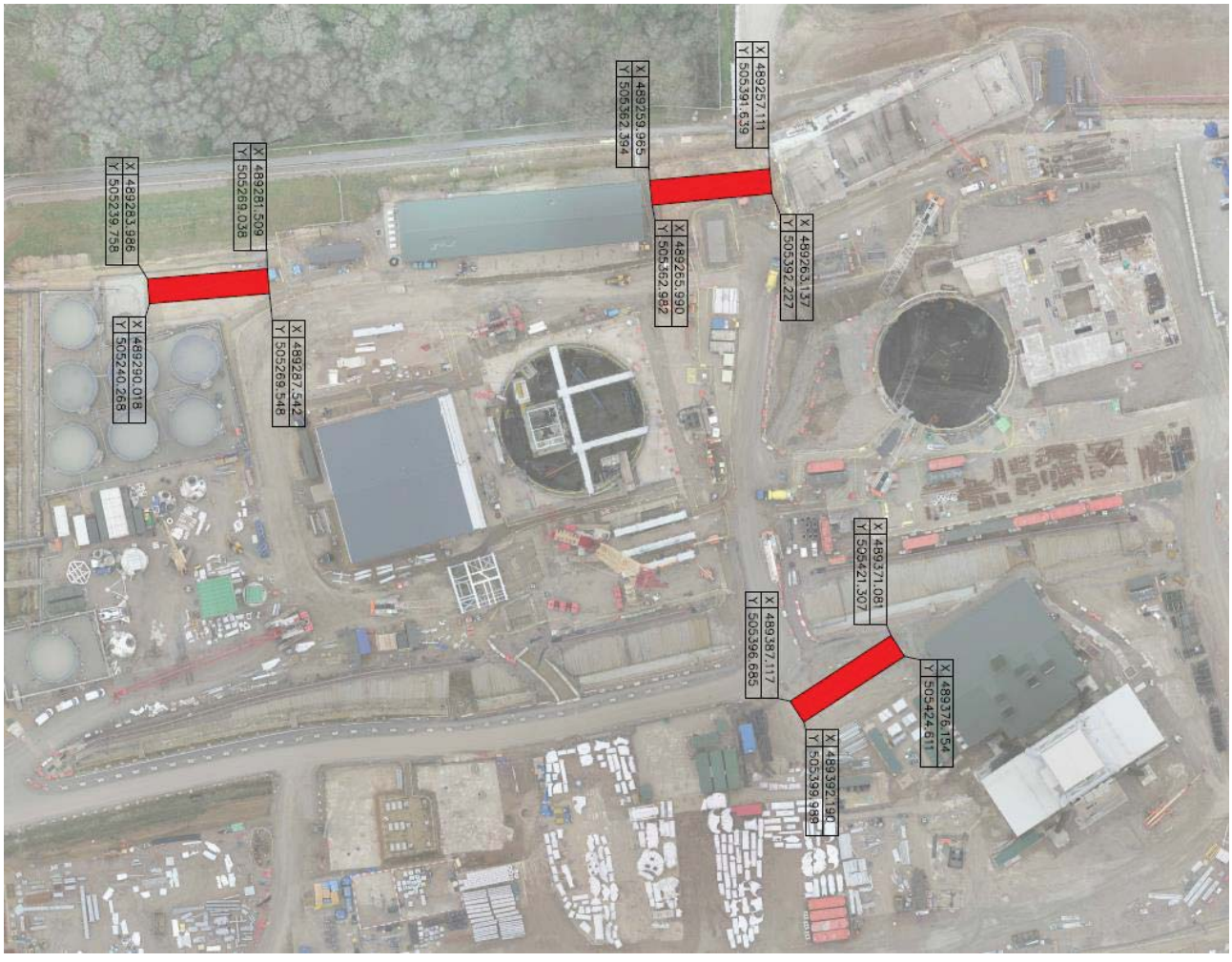


Figure 12: Welfare – Site Locations

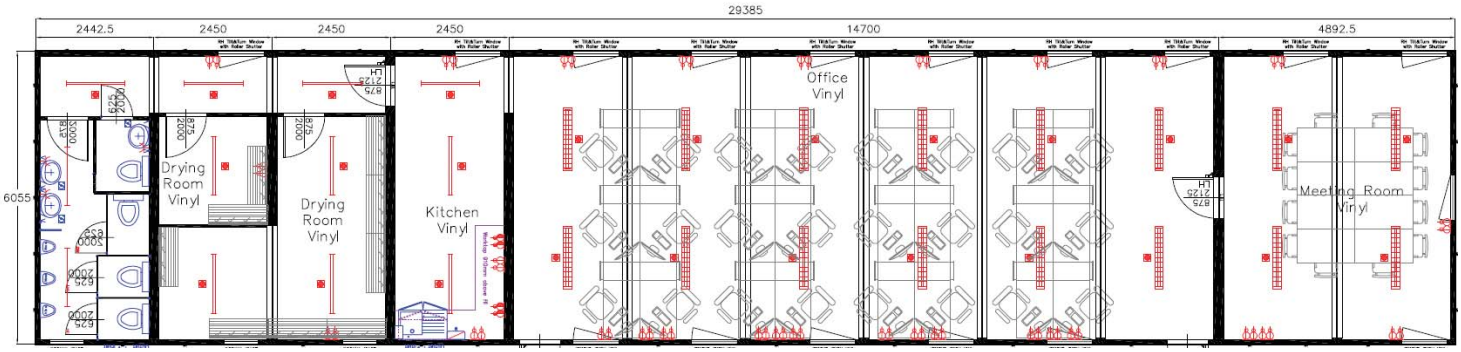


Figure 13: Welfare – Plan View

3.3 Installation of segregated materials bunker

This is for segregated (bunded and covered) excavated material storage, for storage prior to disposal as off-site waste (where classified). This will be located adjacent to the site security welfare. Through access will be provided off the existing site tarmac road as shown in *Figure 15.*

The base will be concrete sealed with an internal drainage system incorporating an attenuation tank to allow for drained leachate testing prior to disposal. As deemed necessary, by testing, water will be pumped to the NDWW treatment plant for processing or directly disposed off-site to a licensed facility.

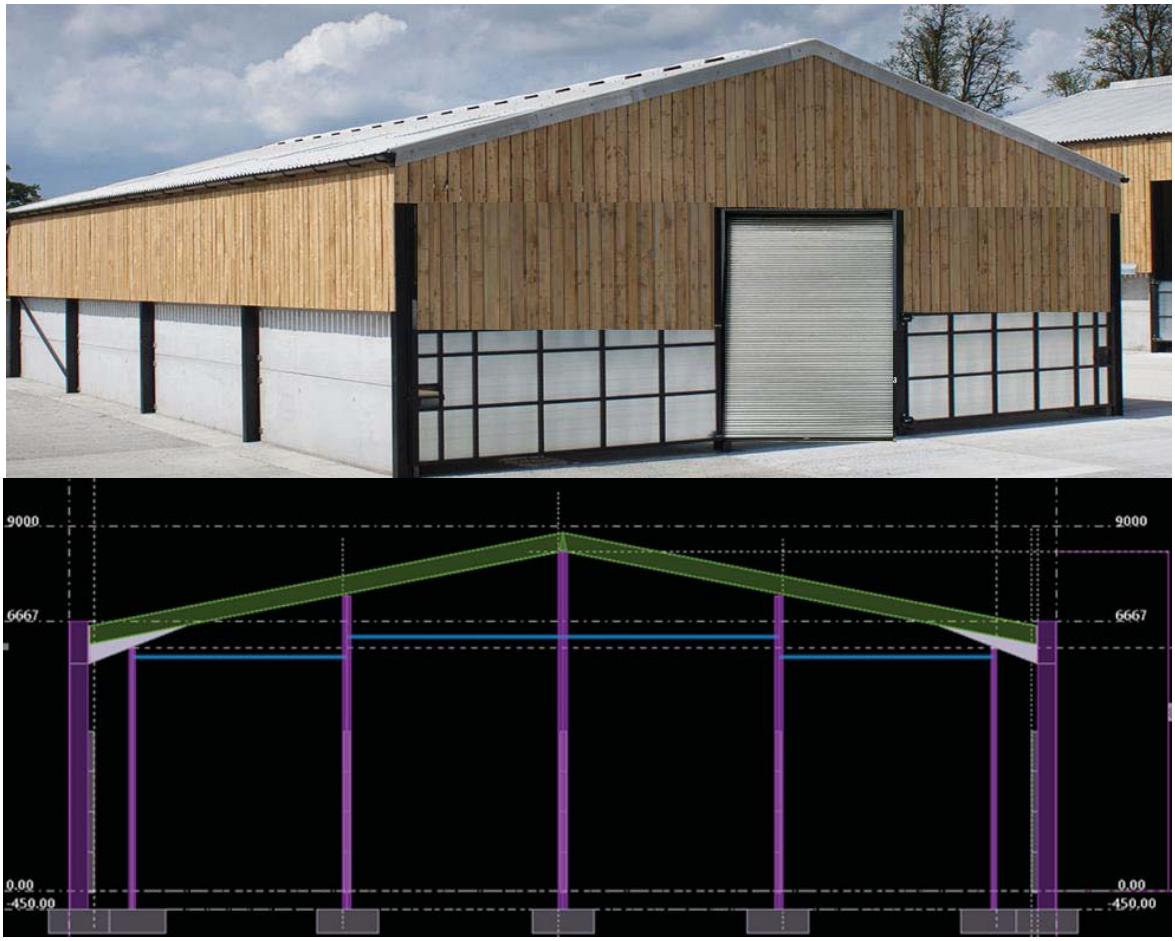


Figure 14: Example segregated materials bunker

Externally, the bunker will be covered to prevent additional rainwater ingress. Rainwater drainage will be to the swales. The cover will be no higher than 7m at eaves height and 9m at the ridge. The building will be cladded with wood paneling in a similar manor to the Service & Production Shaft buildings and will be accessed via 3 roller doors (1 x end and 1 x each side). Two emergency door exits will also be included. The footprint for the building will be approx. 25m x 50m on a 3000m^2 cleared pad.

Concrete bunker walls will be constructed internally, sealed concrete base, to allow stockpiling and segregation of material.

The segregated materials bunker area needs to be stripped of soil and a platform build as required.

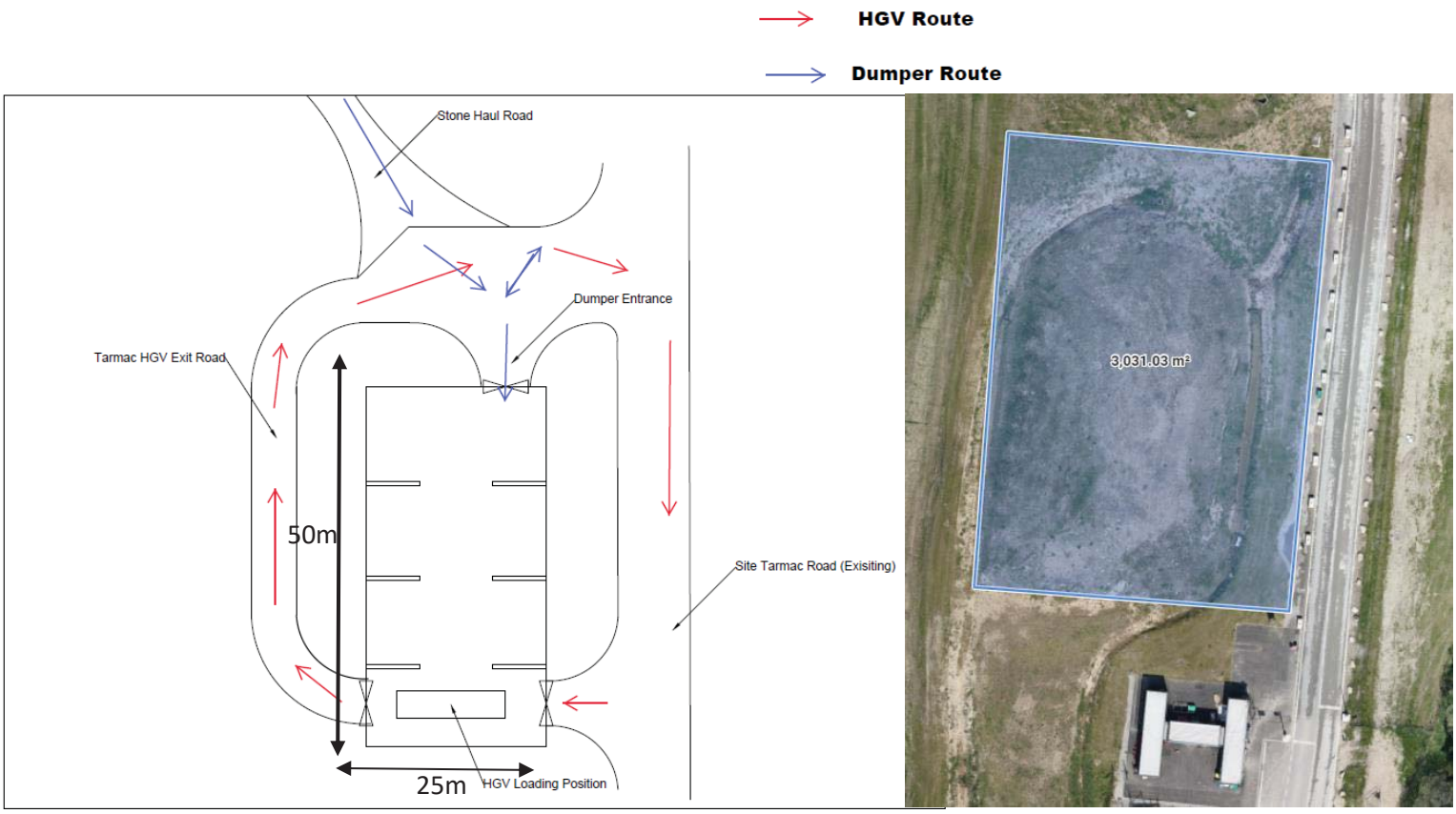


Figure 15: Segregated Materials Bunker Access Arrangements & Approx. Layout

3.4 Creation of laydown area for segment and tubbing storage

Additional hardstanding is required for laydown and storage, mainly for shaft liner 'tubbing' segments necessary for the shaft lining and tunnel liner segments. The area defined is adjacent to the previous Reinjection Pad (adjacent to Bund C & the current Lorry Park). This area was partially cleared under agreement with the authorities towards the end of 2019. The area is surrounded by wooden perimeter fencing, 3m in height, to provide an acoustic barrier and screening from the B1416.

Figure 16: Example Forks for moving segments

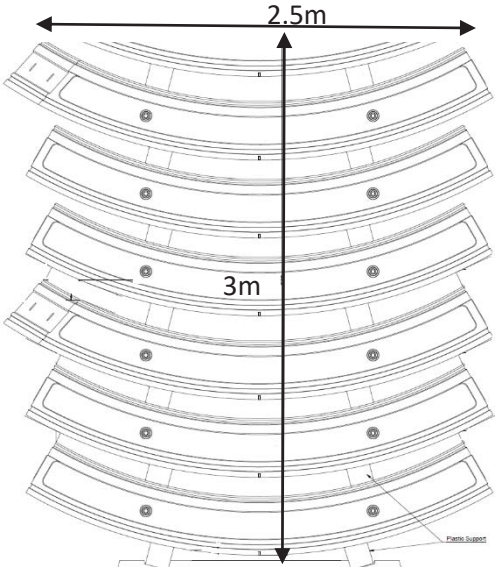


Figure 17: Example stack of tunnel segments

The effectiveness of the barrier will be kept under review, with the possibility of increasing its height by up to 1.0m in order to ensure effective, non-intrusive screening.

The Laydown platform is proposed to drain towards a new filter drain, swale and outfall on the north side to feed into the main site attenuation ponds. No oil interceptor is provided as this is area is to be allocated for Laydown and storage only, not a working platform. Any machinery working in this area will be provided with a spill kit and procedure to follow to prevent issues in the event of a plant leak.

Shaft segments will be offloaded and placed by a mobile city crane, or similar, with a retractable / laydown Jib that will be positioned down when not in use (i.e. outside of delivery / placement hours). Segments will be stacked where possible and moved by forklift style vehicles. Tubbing will either be containerised, as shown in *Figure 18*, or stored as segments.

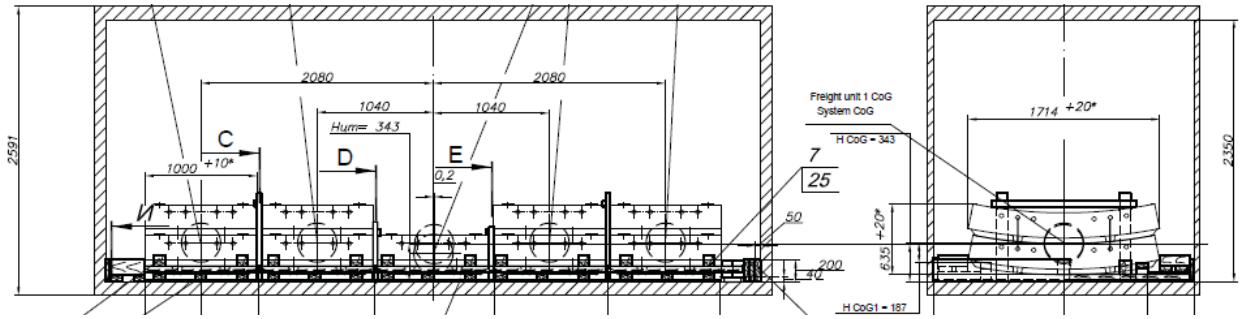


Figure 18: Example shaft 'tubbing' segment storage arrangement

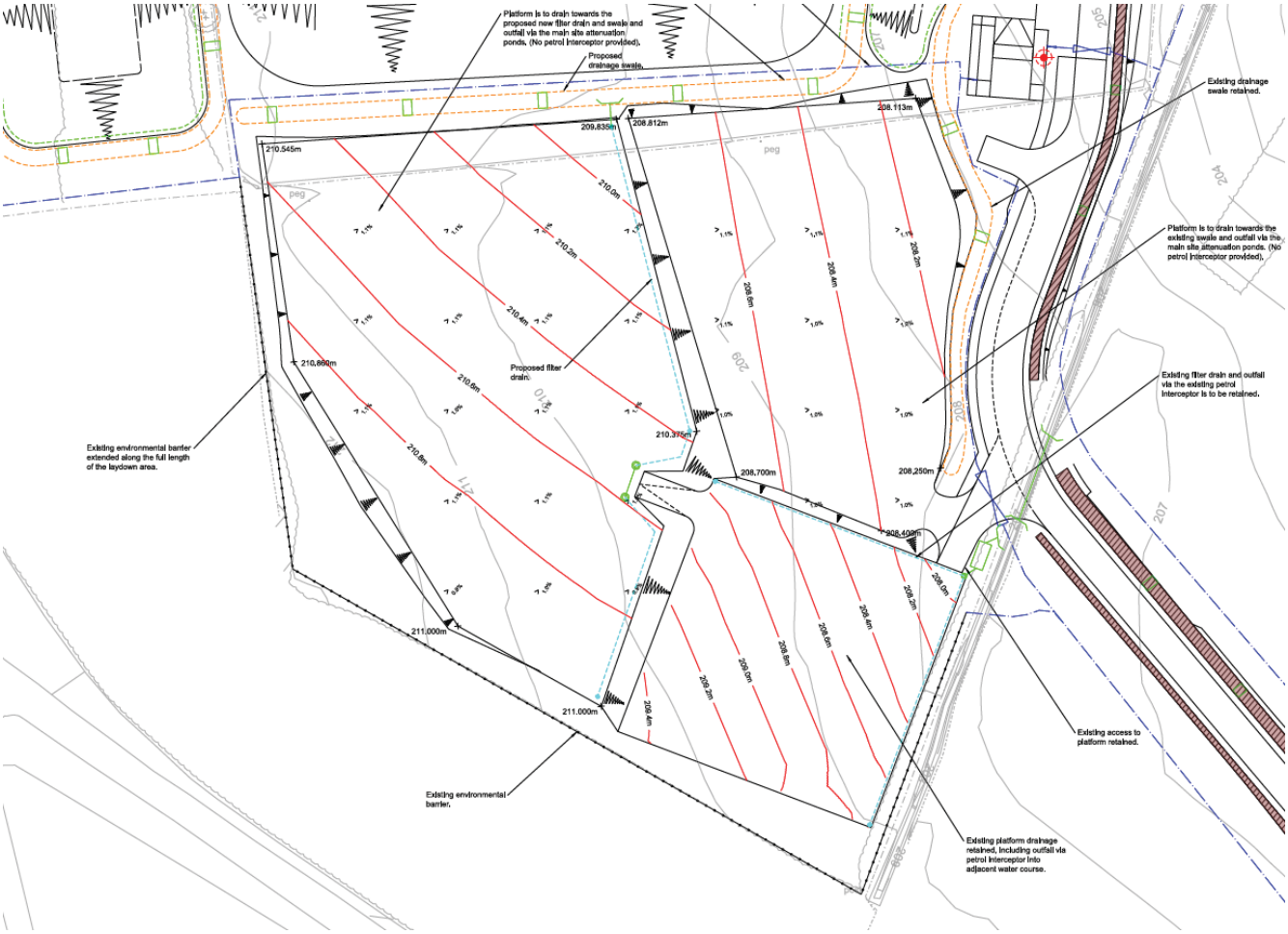


Figure 19: Laydown hard standing indicative design

3.5 Installation of lightning protection and canopy to SSUs

The Secure Storage Units approved and constructed under a previous Phase require the installation of lightning protection and a covered work area for loading and unloading of materials. These requirements have been confirmed by Her Majesty's Inspectorate of Mines. Details below;

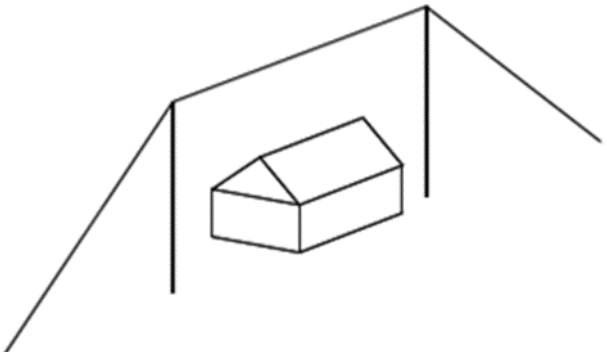


Figure 20: Diagram showing an overhead wire system used for lightning protection

Figure 21: Example of lightning protection over a shed

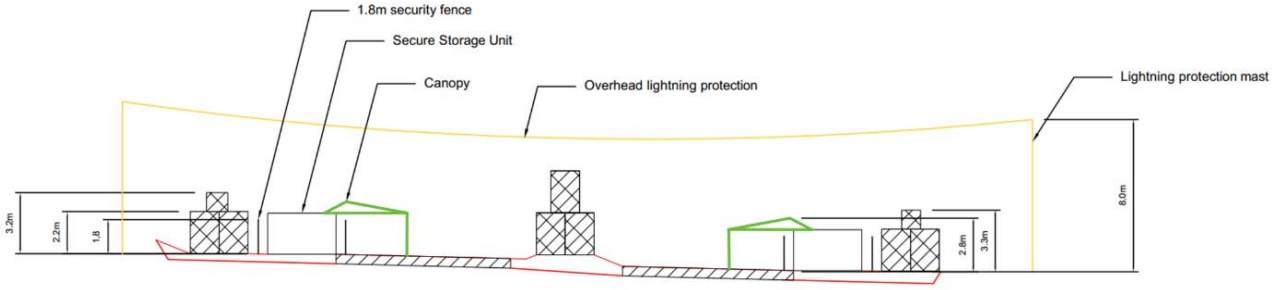


Figure 22: Side view of the SSU area

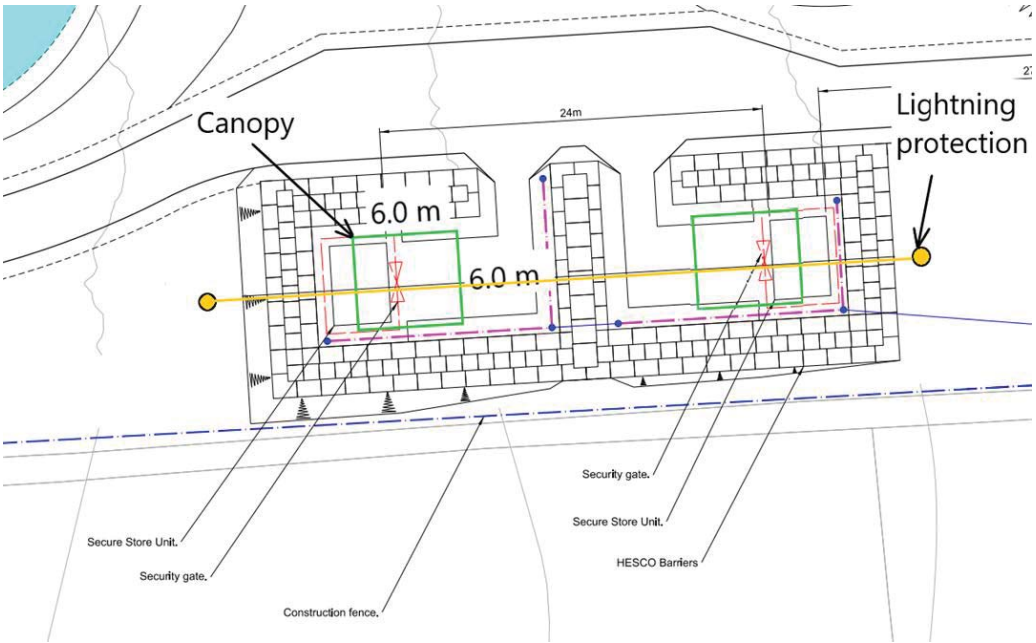


Figure 23: Plan view of the SSU area

3.6 Installation of access control measures

The commencement of shaft sinking requires the installation of enhanced access control to ensure that staff and visitors can move around the Woodsmith site without risk of exposure to major hazards.

To this end, the site has been spilt into one of three types of 'Zone':

- Non-PPE zone (welfare, car park);
- PPE zone (construction area); and
- High hazard zone:
    - Service Shaft
    - Production Shaft
    - MTS Shaft
    - HV Switch Gear
    - Secure Storage Units
    - LNG Plant

In order to achieve this, a 1.8m – 2.4m high fence will be installed around high hazard zones to provide construction phase access control (*Figure 25*).

Access for pedestrians to each zone will be controlled by waist high, tripod turnstiles. At the main welfare, covered turnstiles of up to 2.4m in height will be installed (location marked *1* and *3* on *Figure 24*). The canopied turnstiles are to manage access from the bus stop and car park, facilitating alcohol testing and registering as being present on site.

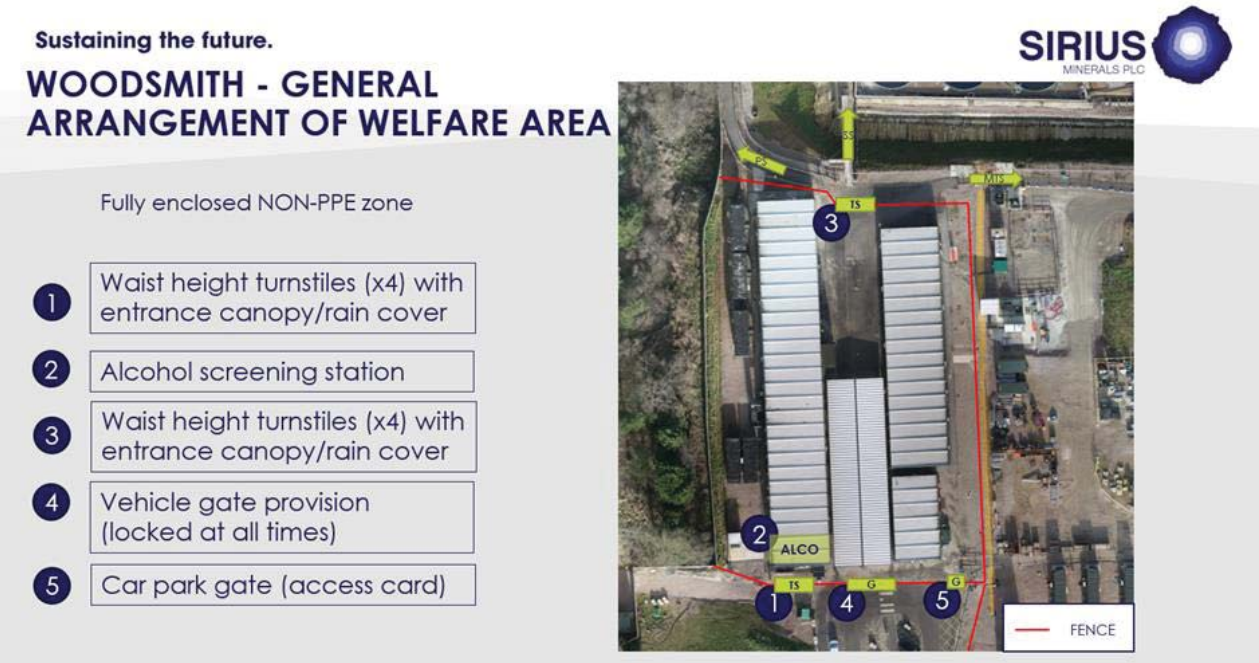


Figure 24 – Woodsmith Mine Site Welfare Area, General Arrangement Access Control

Figure 25: Woodsmith Mine Access Control – Construction Phase Access Control Fencing

Figure 26: Example section of fence to be installed