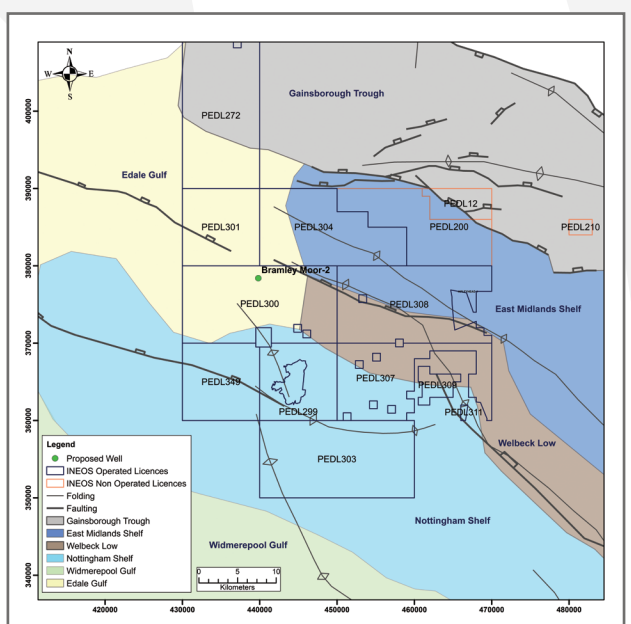
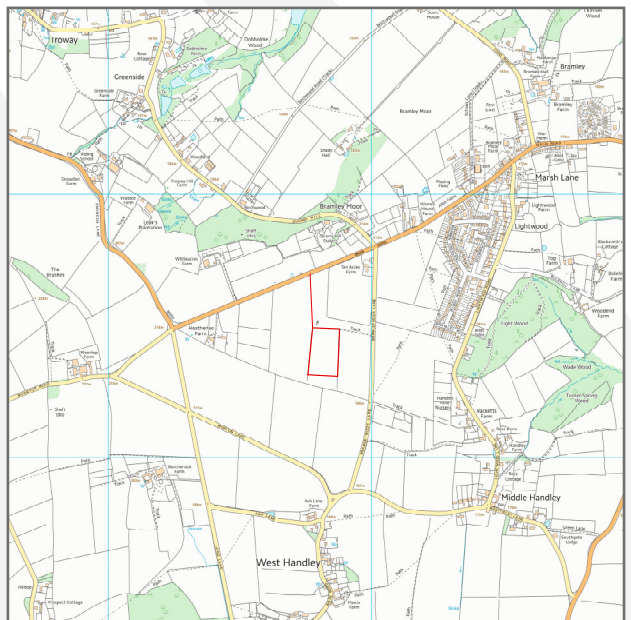
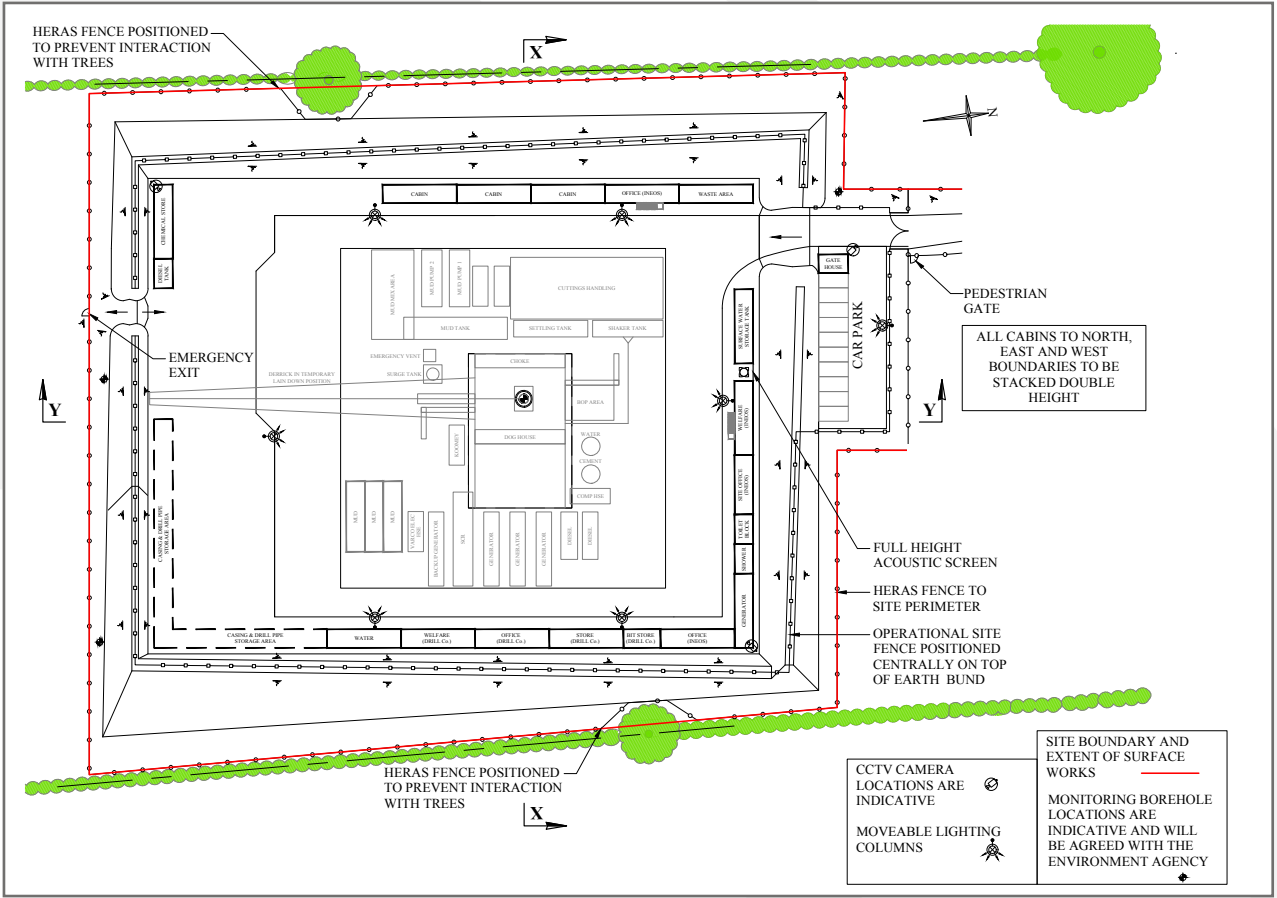


The site off Bramley Moor Lane was chosen following analysis of existing geophysical and borehole data.



- Environmental designations and scheduling
- Agricultural land
- Restrictions in Local Plans
- Groundwater protection zones
- Flood risk areas
- Possible presence of protected species
- Local residences and buildings such as schools and hospitals.

PROPOSED DEVELOPMENT



Stages over the proposed five-year life of the site.

The plan shows the site at **Stage 2**.

Stage 1: Site Development and Establishment – approx. three months

Stage 2: Drilling and Coring – approx. three months

Stage 3: Maintenance of the Suspended Well Site – retained until restoration

Stage 3a: Possible workover of the Suspended Well – up to three weeks

Stage 4: Possible Listening Well operations – up to three weeks

Only if required

Stage 5: Well decommissioning and site restoration – approx. two months.

Safety

- Well safety equipment will include a blow-out preventer, vent for emergency venting of gas and methane and radon monitoring
- Emergency response plan would be in place
- Pollution prevention measures including bunding, spill kits and training of staff.

WELL DECOMMISSIONING AND SITE RESTORATION



Stage 5: Well decommissioning and site restoration

Well decommissioning

- Mobilisation of workover rig (up to 32m) with lighting, generators and low-level kit
- Cutting the casing 2m below ground level and plugging the well using cement in accordance with the Borehole Regulations.

Site restoration

- Removal of site hardstanding, concrete pad and cellar
- Removal of drainage perimeter pipe and site membrane
- Replacement of soils onto site in appropriate weather conditions
- Restoration of site to previous use (agriculture) including reinstatement of field drains
- Restoration of road modifications as agreed with landowner and Highways Authority.

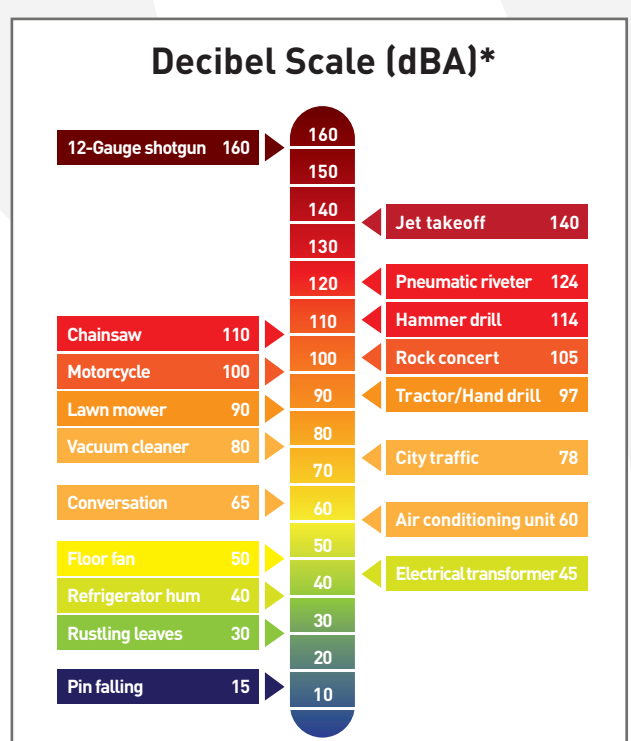
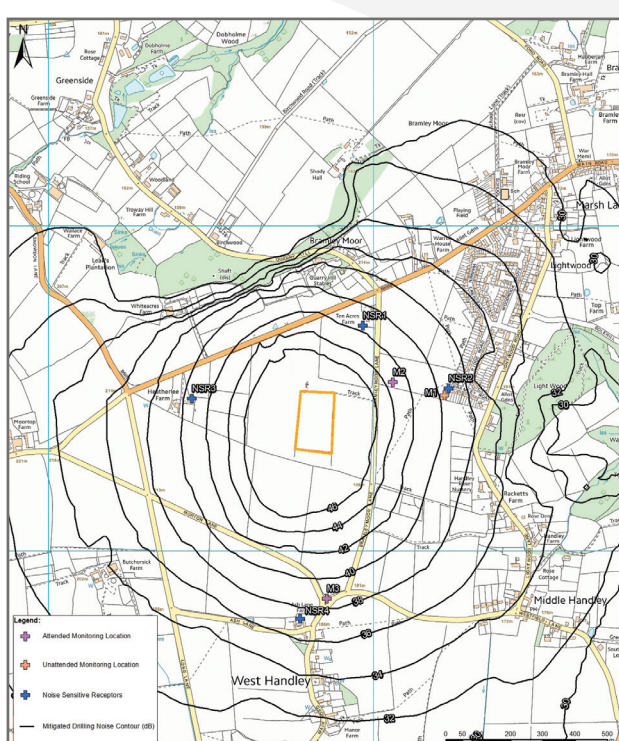
NOISE IMPACTS

A noise assessment was undertaken covering construction, drilling and coring activities.

Construction noise may be audible at times but will not exceed regulatory thresholds.

Noise from construction traffic likely to be imperceptible from existing traffic noise.

The proposal has no significant adverse impacts to quality of life.



The project has been designed to have noise levels within the night time noise threshold of 42dB. This is also well within the evening and daytime noise thresholds at the nearest house.

Mitigation measures:

- Use of bunds, screens and double stacked cabins
- Positioning and rotating equipment;
- Use of silencers, low noise equipment or enclosures
- Management of vehicle movements and audible vehicle reversing alarms
- Regular maintenance to minimise noise generation.

TRAFFIC MOVEMENTS

- <7.5 Tonnes (light vehicles and crew buses) c.31%



- >7.5 Tonnes (HGV's) c.68%



- Abnormal loads c.1%.



- Maximum daily HGV movements 60 (30 vehicles)

Stage	Movements*	Average Daily	Peak Daily	Total days
Construction	2,200	26	70	84
Drilling, Coring & Suspension	2,500	30	70	84
Restoration	1,700	40	60	42
Intervention**	450	28	51	16
Listening operation**	500	24	47	21

* Movement equals one journey into site and one journey off the site. Divide by two for number of vehicles.

**Intervention and Listening Operations only if required.

NEXT STEPS

- 
- Consider feedback from exhibition
 - Pre-application discussions with County Council
 - Finalise application documents
 - Submit planning application
 - County Council public and regulator consultation
 - Officer report on application
 - Presentations to Planning Committee by company and supporters/objectors
 - Decision made on application.

Measures to protect the environment

Easements for utilities

A 3m standoff from pipelines. Underground cabling will be fenced off. Easements of 3m for overhead powerlines and 1m from roads will also be maintained for all works. A full utility search will be carried out at the site.

Surfacing and lining of site

The site will be lined with a protective geotextile and impermeable geomembrane covered with aggregate. The liner will be installed by a specialist subcontractor and weld jointed to ensure it is watertight. A concrete pad/hardstanding and wellhead cellar will be developed in the site centre for the rig and core well. These will be bunded and separate from the site perimeter drainage system. The cellar will be welded to the membrane to maintain membrane integrity.

Chemical storage

Drilling muds and fuel for the rig and generators will be stored in double skinned steel tanks. Drip trays will be provided under refuelling points and standing machinery.

Site drainage

Surfaces graded to 1/100 fall to ensure that fluids do not pool and become a hazard. Site and drainage sized for a 1 in 100 year flood event. Surface water run-off from the drill floor or spilled fluids will be channelled to a dedicated tank. Surface water run-off from the remainder of the site will flow to a drainage and water storage pipe at the perimeter and collect in a sump/catch pit from where it will be pumped into a double skinned tank. Drainage pipework installed and backfilled with granular material in layers to required depths. Catch pits formed with uPVC inspection chambers and covers. All water will be removed from the site for treatment.

Public Road

Junctions would have appropriate visibility splay for the largest site vehicles.

Boundary treatments

A 2 m high Heras security fence, painted in a recessive colour, will be provided around the site perimeter, which will be anchored in the ground. Between the fencing and the site compound, soil bunds up to 2m high and 6m wide with 45 degree batters will be constructed. The bunds will be covered with a grass seeded geotextile blanket. 2m high security fencing will be placed on top of the bund.

Lighting and security

Low level security lighting will be present on the site throughout the lifetime of the permission. This will include a mobile unit with sensor at the main gate (only externally facing light), and mobile, sensor controlled units to light the compound floor as needed (approx. 5-9 m tall). Lights will be designed to have minimal upward light output rating. Lighting will be angled down and into the site. CCTV will be installed at the site.

Waste management

All waste materials and fluids will be stored in dedicated areas. Any skips would be covered to prevent wind blow of litter or dust.

GENERIC FEATURES OF THE PROPOSED VERTICAL CORE WELL SITE THAT WOULD BE CONSTANT THROUGHOUT OPERATIONS

N.B. Photograph shows features that would not be present throughout operations, but illustrate a standard, similar site at one stage (drilling – Stage 2).

Features of the vertical core well site during construction

Vegetation removal and stripping topsoil

All soil will be kept separate from other construction activities for restoration. Top 300mm of topsoil will be used for bunding.

Lighting

During construction site lighting will be supplemented with additional mobile, construction lighting masts.

Monitoring boreholes

Installed to allow ongoing monitoring of groundwater.

Site area

The site area has been designed with 1 in 100 falls to channel water to drainage/ water storage on site. Ramps developed for safe access and egress from hardstanding areas. Pedestrian segregation fencing placed on all sides of hardstanding area. Concrete pad developed in centre of site for rig. Drilling platform will comprise 300mm deep reinforced concrete strips lying on waterproof HDPE liner and geotextile membrane.

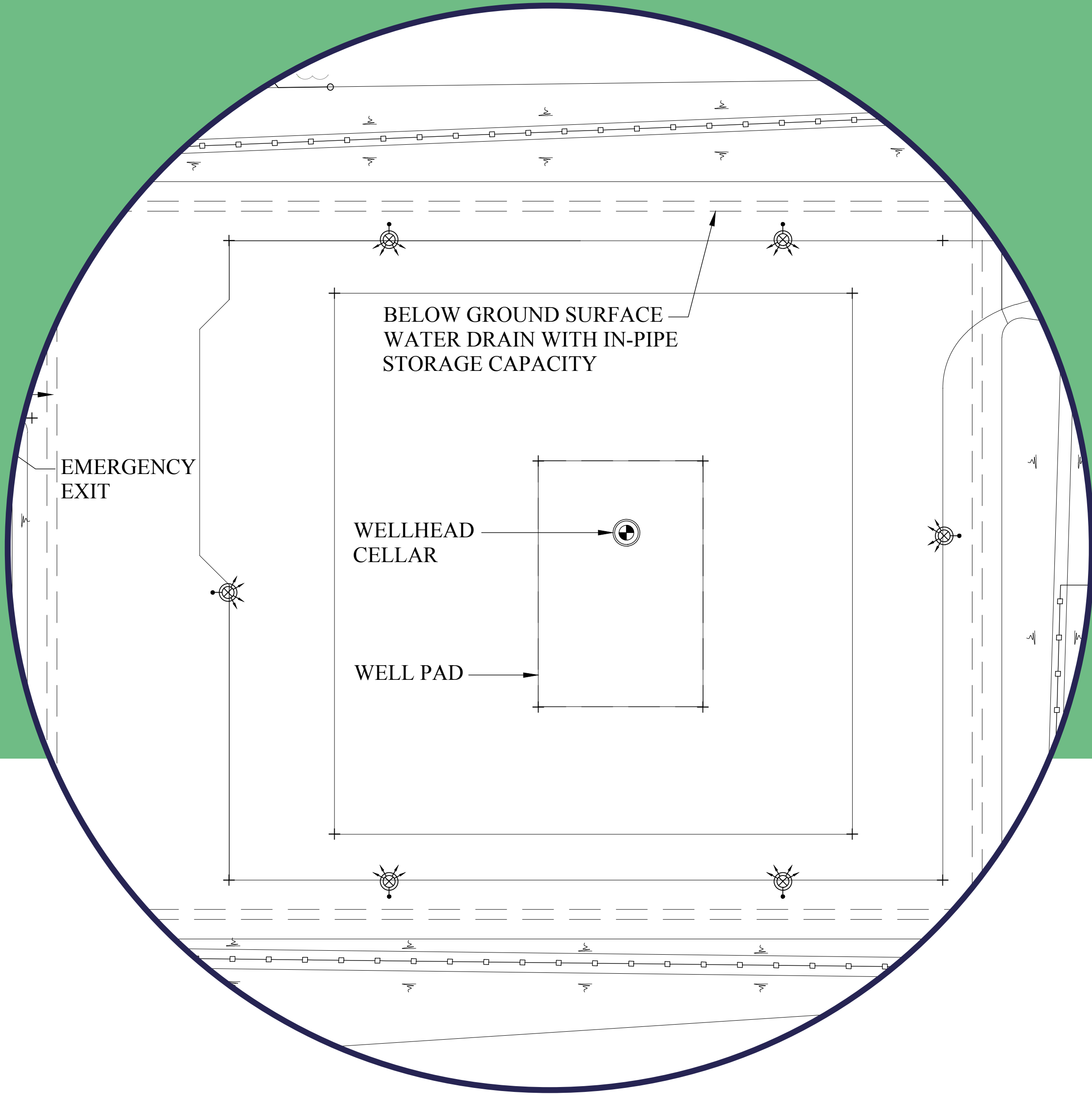


Cut & fill

If the site requires to be levelled, cut and fill may be required. The ground profiling required will be determined at the detailed site design stage and would not affect timings or numbers of plant and equipment required. A balance of cut and fill will be established to keep 'cut' material on site.

Soil bunding

2m high x 6m wide soil bunds formed from topsoil scraped from the site. Subsoil will be stored separately if required. Soil bunds will be grassed with a seeded geotextile blanket to improve stability and provide visual as well as acoustic screening.



Accommodation and welfare facilities

Offices and welfare facilities will be provided to accommodate personnel and space for workshops and storage. Site facilities, toilets and shower blocks are self contained and not connected to sewer. Solid and liquid waste are removed from site by licensed contractor as needed.

Features of the vertical core well site during drilling and coring

Additional lighting

Site lighting will be supplemented with additional mobile lighting for the rig floor (5-9m masts) and on the rig mast. This would be angled downwards and into the site and shielded where appropriate.

Drilling fluids

Drilling fluids are used to cool the drill bit and to circulate drill cuttings back to the surface. The fluids will be stored within a closed-loop system comprising mud pumps and mud tanks with cuttings removed as they are circulated from the well.

Safety equipment

The well is not a production well so no flare is proposed on site, though the rig would incorporate a blow out preventer, methane monitoring and an emergency vent, in the unlikely case of an unexpected gas release.

Drilling rig

Up to 60m high. Additional lighting required to light mast and rig floor for night working. The lighting will be low intensity and angled to the floor to prevent overspill and angled away from sensitive receptors.

Vehicle circulation

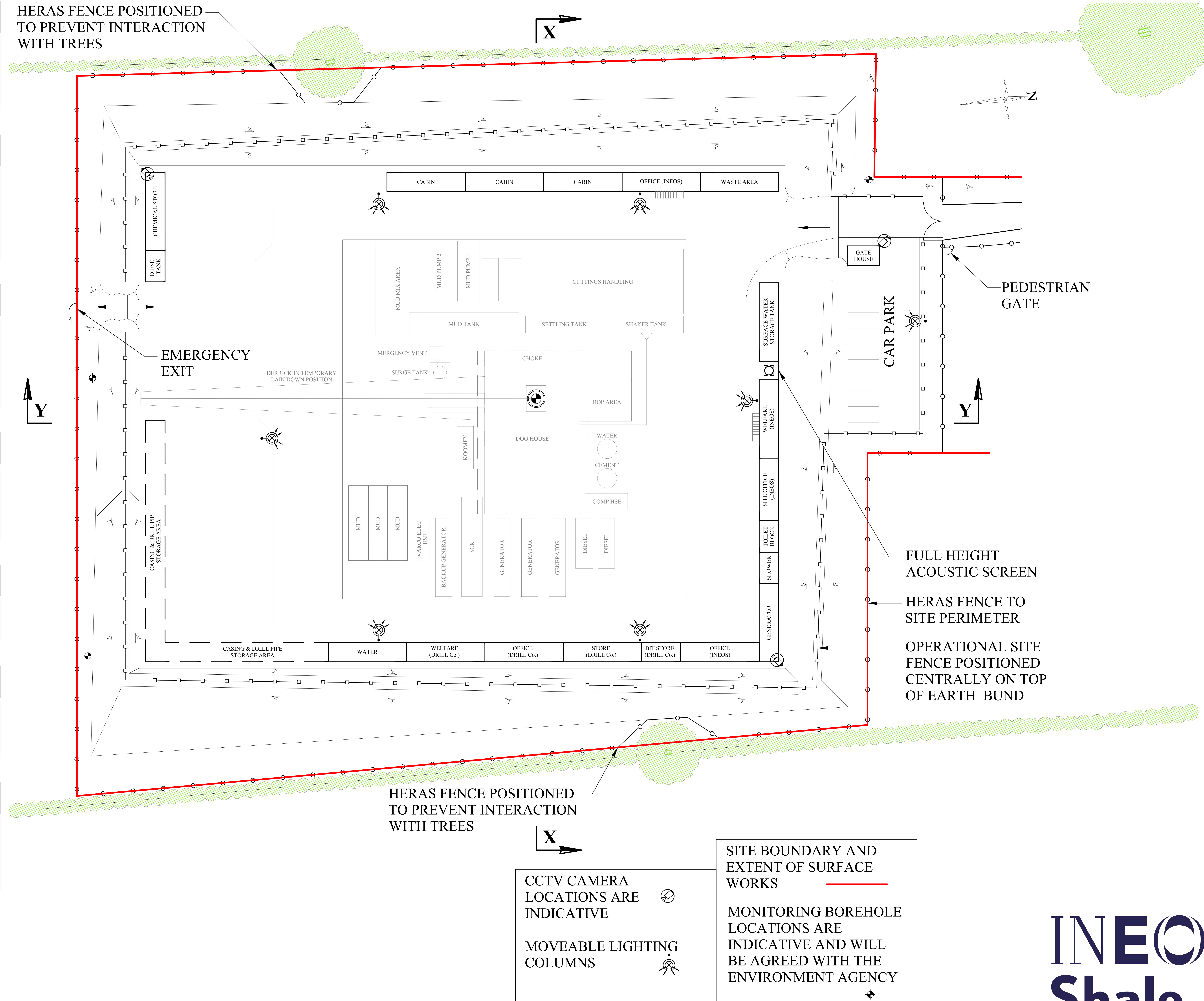
A one-way vehicle circulation system will operate on site.

Cabins

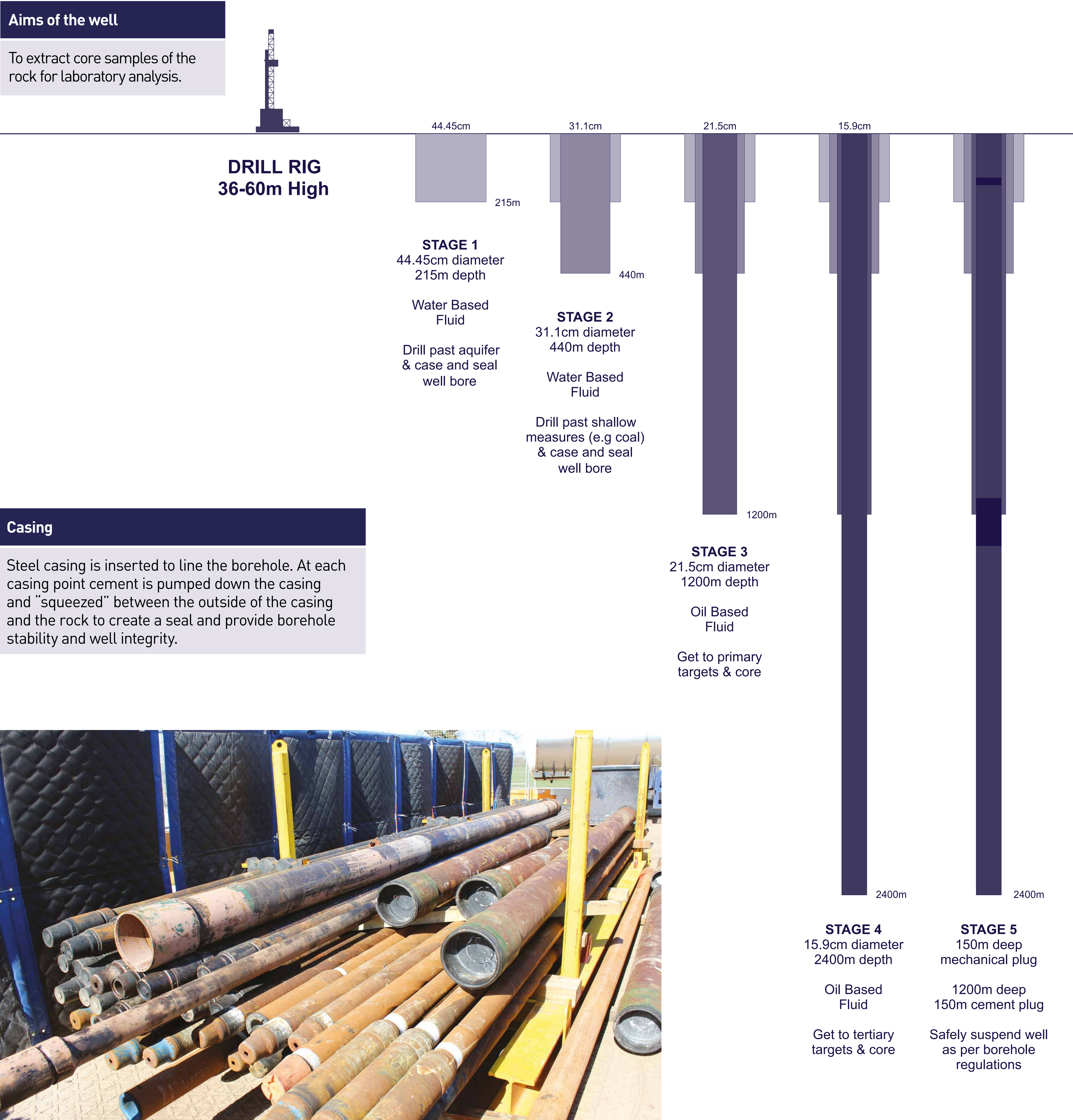
Cabins stacked up to two units high will be placed around the perimeter of the site to provide additional acoustic screening.

Waste

Solid and aqueous waste, including cuttings, waste mud and cement, will be stored in a designated area in enclosed tanks where necessary and removed by a registered waste contractor.



Features of the vertical core well during drilling and logging



Casing

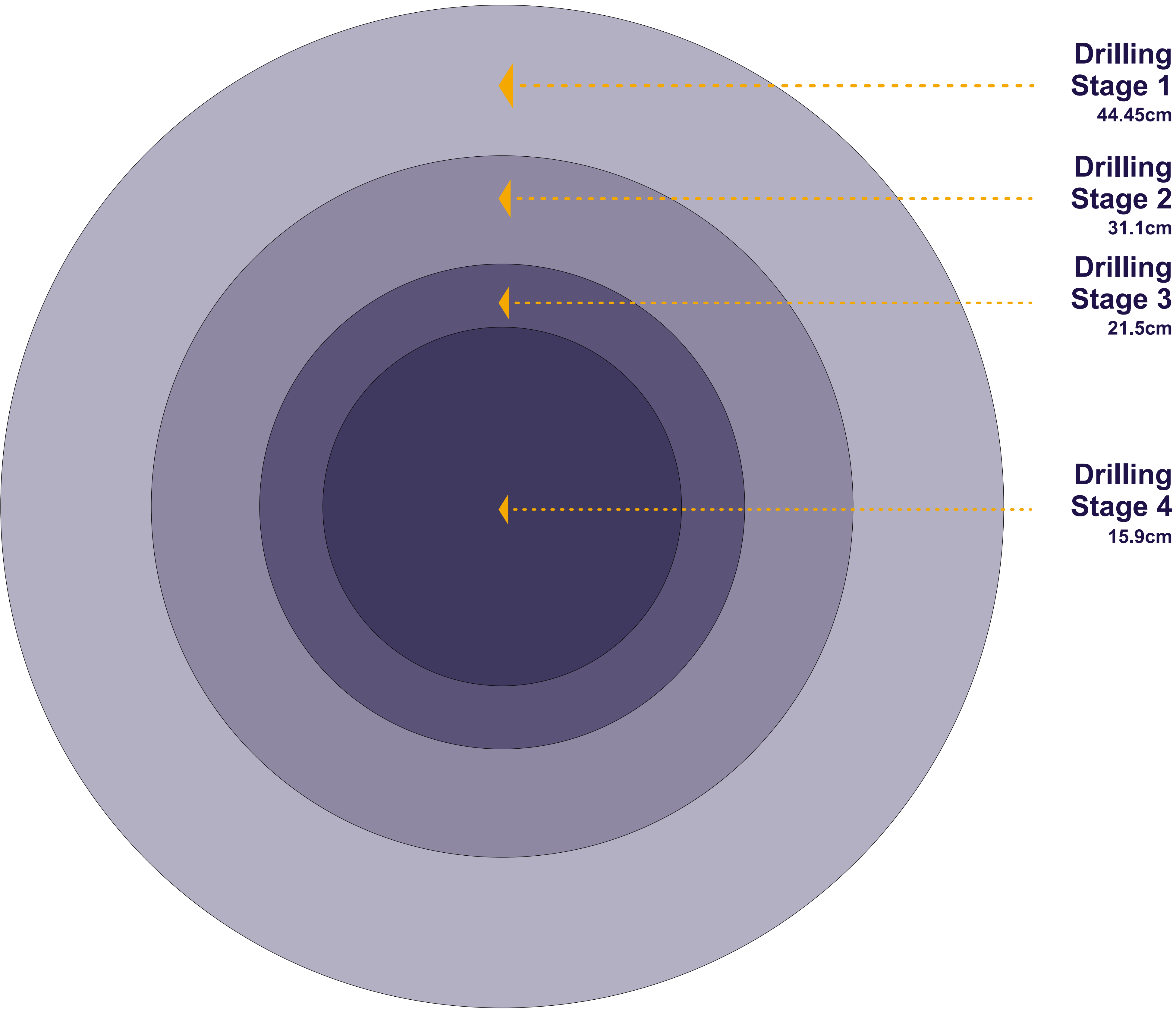
Steel casing is inserted to line the borehole. At each casing point cement is pumped down the casing and “squeezed” between the outside of the casing and the rock to create a seal and provide borehole stability and well integrity.



Drill pipe and casing

Hole size

The deeper the hole gets, the narrower it has to be to allow the casing to be inserted. The initial diameter of the borehole is 44.45cm and steps down in size to 31.1cm, 21.5cm and from about 1,200m depth to the bottom of the hole it is only 15.9cm.



15.9cm drill bit

Environmental assessment

Landscape and visual

A Landscape and Visual Impact Assessment has considered the visibility of the project from local receptors and in relation to the landscape character of the area. The site is located within the Nottinghamshire, Derbyshire and Yorkshire Coalfield Landscape Character Area.

The assessment shows there will be moderate to substantial effects during the drilling and coring stage, particularly within close proximity to the project. Once the drilling is completed it is considered that the landscape impacts will be minor and in the long term the site will be restored to its current use.

Ecology

An extended Phase 1 habitat survey has been undertaken in accordance with Joint Nature Conservancy Council guidance, and a further survey was undertaken of the trees within the field boundaries to assess their potential for bats in accordance with Bat Conservation Trust guidance.

The habitat on the site, which is mainly arable land, was considered to be of low to moderate ecological value. The design of the site does not impact on the hedgerows which were seen to be used by Badgers (there are no Badger setts within the site). The trees (which were shown not to have significant potential for bats) will have their root areas protected during construction.

The Water Environment

The site has been designed to be self-contained in relation to surface and ground water meaning there are no discharges from the site to the surrounding water environment.

The site is not located within a groundwater Source Protection Zone which are areas defined by the Environment Agency to show the risk of contamination from activities around groundwater sources used for drinking water. The drilling operations will pass through a Secondary A (minor) aquifer. Effects to the aquifer will be avoided through the well design including the casing, a closed loop mud system and the use of low toxicity drilling muds.

The nearest surface water course is 750m (tributary of the River Rother) south west the site.

The site is not within an area at risk from flooding.

Cultural Heritage and former mine workings

An assessment has been undertaken of the historic use of the site and potential for archaeological features. This assessment has also considered the potential for effects on the setting of surrounding heritage features.

Within the site area some features with potential to be former mine working (possible bell pits and mine entries) have been identified. These features have been further assessed using geophysical surveys. The design of the site has subsequently been developed to avoid these features.

The project will be visible from some of the heritage features (i.e. listed buildings), particularly during Stage 2 drilling and coring. The temporary nature of the drilling and overall development means the project is not considered to have a long term effect on the setting of these features.

Emissions to air

The proposed operations are similar in scale to impacts from a construction site. Dust impacts during the construction of the site will be controlled by using good practice measures e.g. dust suppression during soil stripping, bund formation and site restoration. Vehicles leaving the site will be cleaned to prevent mud being deposited on local roads.

The maximum number of HGVs will be up to 60 movements (30 two-way trips) per day. This is below the threshold that would normally trigger the requirement for a quantitative air quality impact assessment, based on the non-statutory Guidance published by the Institute of Air Quality Management.

The generators and drill rig will be on site for less than three months and therefore have limited potential to affect long-term air quality. The operation is located in a rural area with low background levels of pollution. The exhaust emissions are hot and will be released from vertical pointing vents with good thermal and mechanical buoyancy which aids dispersion. These units will be fitted with particulate filters to further reduce potential impacts.

No operational emissions of methane or gas flaring are proposed.

Air quality impacts from the project are considered to be of negligible significance.

