

HyNet Carbon Dioxide Pipeline DCO

Construction Environmental Management Plan

Annex 2 Stage 2(ii) Special Crossings

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ABBREVIATIONS AND GLOSSARY

Abbreviations	
Abbreviation	Description
AGI	Above Ground Installation
BVS	Block Valve Station
CCS	Carbon Capture and Storage
CEMP	Construction Environmental Management Plan
CWAC	Cheshire West and Chester Council
DCO	Development Consent Order
ECoW	Ecological Clerk of Works
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
ES	Environmental Statement
FCC	Flintshire County Council
HDD	Horizontal Directional Drilling
LEMP	Landscape and Ecological Management Plan
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LRN	Local Road Network
NRW	Natural Resources Wales
NSIP	National Significant Infrastructure Project
NVMP	Noise and Vibration Management Plan
OCEMP	Outline Construction Environmental Management Plan
PRoW	Public Right of Way
REAC	Register of Environmental Actions and Commitments
UI	United Infrastructure

Glossary	
Term	Description
Company	Liverpool Bay CCS Ltd
Contractor	United Infrastructure (UI)
Project	Design, build, and commissioning of Eni's Liverpool Bay Carbon Capture and Storage Infrastructure - Onshore Pipelines
Stage	A component element of the Works, comprising a group of works numbers (for example, Above Ground Installation and Block Valve Station Stage 5 of the Works).
Substage	Division of a stage into county council jurisdictions or where protective provisions dictate a need to divide the stage into smaller Works Numbers.
Works Number	An element of the Works (for example, Works No. 1a is the creation and use of a temporary logistics and construction compound for the use during the construction of the authorised development.

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1.0 INTRODUCTION

1.1 Stage Overview

- 1.1.1 Stage 2 is the 'special crossings' phase of the Liverpool Bay Carbon Capture and Storage (CCS) Onshore Pipelines project. This stage has been sub-divided into Stage 2a(i) England and Stage 2b(i) Wales to cover works planned for 2025, and Stage 2a(ii) England and Stage 2b(ii) Wales to cover all other special crossings, referred to in this document as Stage 2(ii).
- 1.1.2 Special crossings refer to a section of the pipeline route designed to cross over or under obstacles such as rivers, roads, railways, or other infrastructure using trenchless methods. Trenchless installation methods include horizontal directional drilling (HDD), micro tunnelling, auger boring, and pipe-jacking techniques. The method utilised at each crossing will be dependent on-site conditions and designed accordingly. Due to the nature of the development, works will be done at different locations along the pipeline, at the same time.
- 1.1.3 Two dedicated compounds will be constructed at each trenchless crossing. These compounds will be utilised for the duration of the crossing they are associated with. Current work plans estimate this to be a maximum of 3 months.
- 1.1.4 This CEMP will outline requirements and mitigation for special crossings; trenchless crossing are identified using the abbreviation TRS followed by a number. The locations of all TRS crossings, including Eastings and Northings are outlined in the crossing's schedules in **Appendix A**.
- 1.1.5 This CEMP will be reviewed on a regular basis. Reviewing will take place every 6 months as a minimum or when there is a change to this stage of works which instigates the need for a review.
- 1.1.6 References to the Register of Environmental Actions and Commitments (REAC) requirements are provided in brackets throughout this document for example (D-WR-005).
- 1.1.7 Where practicable, the alignment of the pipeline to be developed during detailed design will seek to minimise potential environmental impacts as far as practicable (D-WR-050).

1.2 Works Plan

- Approximate start date of works – **January 2026**
- Approximate end date of works – **December 2027***
- Anticipated duration – **24 months**

1.3 Special Crossings - Phased Works

- 1.3.1 This CEMP submission has been broken down into further phases than those initially outlined within the Written Statement, required in order to satisfy DCO requirements 3 & 4. An updated Written Statement has been provided along with the Stage 2(i) submission outlining the revised stages. Planned Works for 2025 fall within (Stage 2a(i) England and Stage 2b(i) Wales).
- 1.3.2 This CEMP submission builds from CEMP Stage 2(i) and covers all remaining TRS crossings, within Stage 2a(ii) England and Stage 2b(ii) Wales, details of which are outlined in **Appendix A**.

2.0 SITE SET UP (STAGE SPECIFIC)

2.1 Trenchless Crossing Methodology

- 2.1.1 For Trenchless crossings there are three methods that are being used during construction, these methods are detailed in the Table 1. The method that is being used for each crossing is detailed in **Appendix A**.

Table 1 Methods of Construction

	Horizontal Directional Drilling (HDD)	Micro-tunnelling	Augerbore
Methodology	Horizontal Directional Drilling (HDD) involves drilling a pilot hole from the entry point to the exit point using a steerable drilling rig. The drill string, which includes a drill bit at the front, is steered along a predetermined path, ensuring its location is tracked using georadar. Once the pilot hole is completed, the drill string is removed, and the hole is enlarged using reaming tools passed back and forth until the hole is large enough to take the utility pipe or conduit. The utility pipe or conduit is then pulled through the enlarged hole.	A microtunnel will be constructed by thrusting concrete pipes behind a micro-Tunnel Boring Machine (mTBM) through the ground. A shaft is excavated at either side of the crossing to the required depth to launch/receive the TBM. Pipe jacking involves using a hydraulic ram to push prefabricated concrete pipes through the ground. The pipes are preceded by a micro TBM with a cutting head that breaks up the soil, and the spoil is removed from the tunnel using a conveyor system or converted into slurry and pumped out to a separation plant. The micro tunnels will either be 1200mm diameter for the 20" pipeline or 1500 mm diameter for the 36" pipeline within which the product pipe is inserted.	A drive pit, typically at least 25 m long or equal to the crossing width, is excavated with its base set below the final pipe invert. A reception pit is constructed on the opposite side of the crossing. The product (CO ₂) pipe is positioned in the drive pit, and the auger bore machine is mounted on rails at the open pipe end with auger flights inserted inside. The machine advances while rotating the augers, drilling the pipe beneath the crossing as the augers convey spoil back to the drive pit. Once the pipe reaches the reception pit, the auger and machine are removed, leaving a continuous pipe between pits with no surface disturbance, ready for connection to the main pipeline.

2.2 Trenchless Crossing Compounds

- 2.2.1 As stated in section 1.1.3, each trenchless crossing will require two dedicated compounds. To facilitate the crossing works the entrance and exit points will have individual compound areas. The 'entrance' compound of the crossing will be a maximum of 3600m², this is larger than the

associated 'exit' compound of the crossing which will be 1600m². All trenchless crossing compounds will include the following features:

- Equipment yard, supervisors' office and laydown area
- Provision for crane movement and laydown
- Specialised trenchless crossing equipment

2.2.2 HDD crossing compounds will include provision for a drilling rig and the associated ancillaries: control cabinet, power packs, water and bentonite tanks and pumps. Upon cessation of the works at the trenchless compounds, the site will be dismantled, and the land will be reinstated to its former use.

2.2.3 Indicative trenchless crossing compound layouts are shown on **Appendix B**. These are shown through TRS17 (micro tunnel method) and Picton Lane (augerbore method). An HDD launch and reception pit layout is also included as an example from another project as this is yet to be designed.

2.3 Waste Management

2.3.1 An approximated 11,764m³ of spoil is anticipated to require removal to facilitate the special crossings. This will be removed off site by licensed waste carriers and will have the required waste transfer notes. Waste movements will be recorded on the stage specific Site Waste Management Plan (SWMP).

2.3.2 For further details on waste management refer to section 2.6 of the main CEMP.

2.4 Refuelling and Pollution Control

2.4.1 Refuelling will occur at the dedicated area for each crossing or trenchless compound via a mobile bowser. The correct method for refuelling a bowser and refuelling from a bowser are detailed in the refuelling Risk Assessment and Method Statement (RAMS), which will be held on site at all times. Due to close proximity to watercourses and groundwater the following pollution control methods will be applied on site:

2.4.2 Refuelling will not take place within 30 metres of a watercourse. Plant nappies or drip trays will be used for any fuelling.

2.4.3 Measures to be put in place to prevent pollution from construction plant, vehicles and machinery including refuelling and lubricating in designated areas, over an impermeable surface, with appropriate cut-off drainage located away from watercourses; plant to be maintained in a good condition with wheel washing in place (avoiding vehicle cleaning near to existing watercourses), all refuelling would be supervised and carried out in a designated area. In the event of plant breakdown, drip trays would be used during any emergency maintenance and spill kits would be available on-site (D-WR-012).

2.4.4 Construction plant will be checked regularly for oil and fuel leaks, particularly when construction works are undertaken in or near the existing waterbodies (D-WR-014).

2.4.5 For further detail on the pollution control methods to be applied to site reference the main CEMP.

2.5 COSHH Storage

2.5.1 Due to the close proximity of watercourses and groundwater the following measures shall be taken on site to avoid the impacts of COSHH storage:

- No COSHH to be stored or decanted within 10m of a watercourse
- Bunding for stored COSHH items that require it or have the potential to leak
- Suitable storage containers for hazardous substances
- Clearly labelled containers for all COSHH substances
- Appropriate hazardous waste segregation and provision on the site
- Use-specific site COSHH Assessment(s)
- Pictures displayed where the substance is to be stored (where applicable), showing a clear example of that hazardous substance in its container
- Appropriate spill response kit(s) placed within easy access of the stored material(s).

2.6 Emergency Response

2.6.1 With works at special crossings falling within areas of potential flooding and to aid with flood risk preparation, UI will sign up for NRW and Cheshire West and Chester Flood alerts and warnings and the Environmental Agency's Flood Warning Service. If information indicates a flood event or peak flows, action will be taken in accordance with the UI Emergency Response Plan (REAC Ref D-WR-032).

2.6.2 Emergency response procedures will be followed according to UI' Integrated Emergency Response Plan.

2.7 Public Right of Way

2.7.1 For the special crossings stage of development, Table 2 outlines the PRowWs that will need to be temporarily diverted or restricted:

Table 2 PRow to be Temporarily Diverted or Restricted for Special Crossings

PRow	Length affected	Restriction/ Diversion required
Footpath 123 FP5/1 Elton FP5	Between the points marked 4-H and 4-I, on sheet 4 of the Access and Rights of Way Plans shown with a dashed orange line	Temporary diversion
Footpath 309/FP3/1 Wervin FP3 Footpath 241/FP6/2 Picton FP6	Between the points marked 6-C and 6- D on sheet 6 of the access and rights of way plans shown with a dashed orange line	Temporary restriction
Bridleway 309/BR4/1 Wervin BR4 (Bridleway 241/BR4/1 Picton BR4)	Trenchless pipeline crossing of bridleway	Temporary restriction
Footway along northern verge of Chester Road	Between the points marked 16- AA and 16-BB on sheet 16 of the Access and Rights of Way plans shown with a dashed orange line	Temporary diversion of footway

PRoW	Length affected	Restriction/ Diversion required
Footpath 303/26 Hawarden FP 303/26/10	Between the points marked 17- J and 17-K on sheet 17 of the access and rights of way plans shown with a dashed orange line	Temporary diversion
Footpath 303/24 Hawarden FP 303/24/10	Footpath follows unnamed private farm access road between 17-P and 18-A on sheet 17 of the Access and Rights of Way plans shown with a dashed orange line	Temporary diversion
Footpath 303/143 Hawarden FP 303/143/10	Between the points marked 18-K and 18-L on sheet 18 of the Access and Rights of Way plans shown with a dashed orange line. Only section near Green Lane affected by TRS-40 Additional section of footpath affected by main pipeline	Temporary diversion
Footpath 414/39A Northop Hall FP 414/39A/10	Between the points marked 19- DD and 19-D on sheet 19 of the Access and Rights of Way plans shown with a dashed purple line.	Temporary diversion
Footpath 414/39A Northop Hall FP 414/39A/10	Between the points marked 19- DD and 19-D on sheet 19 of the Access and Rights of Way plans shown with a dashed purple line	Permanent diversion

2.7.2 Further details regarding the specific mitigation measures to ensure access is maintained for each footpath, is listed in the PRoW Management Plan. This plan has been updated to include further detail on diversions specific to stage 2 works in consultation with the LPA PRoW Officers.

2.8 Traffic Mitigation

- 2.8.1 A Construction Traffic Management Plan (CTMP) has been developed to outline the proposed strategy to manage construction traffic for the construction phase of the project. The workforce will primarily be of a migratory nature, with centralised construction compounds. Staff will travel from these centralised compounds to the crossing working areas or trenchless compounds.
- 2.8.2 Trenchless techniques will be the preferred option for motorways and highways to minimise disruption. This includes localised high congestion areas such as those at Chester Road and Church Lane. The localised compounds for these trenchless crossings will be accessed via the Local Road Network (LRN) through temporary access locations.
- 2.8.3 Trenchless crossing compounds have been selected in areas of low impact both from an ecological and social perspective. The primary drive for this is to avoid impact to private property, housing, and community facilities as far as practicable as per REAC requirement D-PH-005.

2.9 Stakeholder, Community Liaison and Landowner Communications

- 2.9.1 For this Stage the following Stakeholders have initially been engaged through consultation meetings on the following dates
- Natural England – 13th March 2025
 - Natural Resources Wales – 26th February 2025
 - Environment Agency – 10th March 2025



-
- 2.9.2 The above stakeholders have been consulted on activities due to take place for the stage and any requirements identified from the consultation will be incorporated.

3.0 ENVIRONMENTAL MANAGEMENT

3.1 Water Management

- 3.1.1 Due to the nature of work taking place for Stage 2, works will occur in close proximity to watercourses and groundwater locations. Therefore, the following mitigation measures will be implemented, as appropriate, during the special crossings phase of construction in compliance with REAC requirements (in brackets):
- Surface water runoff within 10m of a watercourse will be treated using a sediment trap where required (D-WR-005).
 - A temporary drainage system will be implemented near sensitive receptors to control surface runoff, alleviate flood risk and help prevent sediment runoff from entering watercourses (D-WR-006).
 - Areas with a greater risk of spillage for example, storage of hazardous materials will be carefully sited and on an impermeable surface (D-WR-010).
 - Surface water runoff and excavation dewatering will be captured, allowing for settlement. Any effluent will meet the disposal criteria prior to disposal (D-WR-021).
 - Works will be undertaken in compliance with the relevant sections of BS6031:2009 Code of Practice for Earthworks (British Standards, 2009) with respect to protection of water quality and control of Site drainage including washings, dewatering, abstractions, and surface water (D-WR-026).
 - Within construction compounds, such as trenchless crossing compounds, the location of temporary structures and material will avoid being sited in areas of medium or high surface water flood risk (D-WR-001).
 - All drains within the construction works areas will be identified and labelled, and measures implemented to those considered most at risk of polluting substances from entering them (D-WR-008).
 - Temporary cofferdams will be used to exclude work areas from the waterbodies, thus reducing the risk of increased sediment loads or hazardous substances entering the main water flow (D-WR-022).
 - Silt fences, silt traps, filter bunds, settlement basins and/or proprietary units' will be used to treat sediment laden water generated on-site before discharge (D-WR-024).
 - Where works are within 10m of watercourses, sediment barriers will be provided between earth works and the construction zone and the watercourse to prevent sediment from washing into the river. Where practicable, there will be no works within 8m of watercourses (D-WR-023).
 - Measures implemented to control spillage or pollution risks for site runoff or works within watercourses will be regularly inspected to ensure they are working effectively (D-WR-018).
 - All relevant consents will be sought from the Environment Agency and/or NRW for temporary discharges and in-stream works affecting Main Rivers (D-WR-033).
 - In areas where it has not been possible to avoid placing trenchless crossing shafts in flood zones, the Environment Agency and/or Natural Resources Wales have been consulted in relation to these temporary works. If from discussions, Flood Risk Activity Permits for trenchless crossings within flood risk areas are required; these will be applied for and all mitigation within these permits will be applied to the area specified.

- 3.1.2 Where practicable, construction works will avoid works on watercourses during high flow events to reduce the risk of fine sediment release and minimise the increase to flood risk from dewatering / hydrostatic testing discharges. The Detailed Design construction programme will seek to target the construction activities involving watercourses for the drier summer months to reduce this risk, whilst taking into account the window for construction activities in relation to aquatic ecology and in particular, the fish migratory season. (D-WR-030).

3.2 Dewatering Strategy

- 3.2.1 UI have produced both a ground water and surface water monitoring and management plan to support special crossings. These documents set out the approach to how water will be managed as each shaft is excavated and the controls that will be in place to control pollution (D-WR-038).
- 3.2.2 UI approach to discharge will follow a hierarchy as outlined below:
- Discharge to land (20m³)
 - Trade Effluent Consent: discharge to sewer, for which permission will be sought from the relevant water company to discharge to the sewer network.
 - Regulatory Position Statement 261: Temporary dewatering from excavations to surface water
 - Bespoke Discharge Permit: anything not covered in above.
- 3.2.3 The following ground water mitigation measures will be considered, as appropriate, during the special crossings phase of construction in compliance with REAC requirements (in brackets):
- Construction works will seek to minimise the loss of groundwater quantity from the water environment. Where practicable, water recycling practices, including re-use of hydrotest water, will be considered (D-WR-037).
 - Trench breakers (clay plugs) will be placed at regular intervals along the Carbon Dioxide pipeline trench where required to avoid preferential flow pathways being created which could impact groundwater flows to receptors (D-WR-039).
 - Mitigating potential impacts to groundwater resulting from trenchless crossings will be based on site-specific assessment for locations where trenchless crossings are the confirmed approach at detailed design. (D-WR-073)

3.2.4 Construction Methodology and Embedded Mitigation

Groundwater inflows will be controlled, where practicable, through the use of embedded mitigation within the construction design and methodology. This will include:

- Use of cut-off techniques (e.g. sheet piling, secant piles, grout curtains, or caisson construction) to reduce groundwater ingress
- Design of excavations to limit hydraulic connectivity with surrounding strata
- Phased excavation and controlled pumping regimes to minimise drawdown
- Use of localised sump pumping in preference to high-rate abstraction, where feasible
- Temporary containment and treatment of abstracted water prior to discharge

These measures will reduce abstraction volumes and limit the spatial extent and magnitude of groundwater drawdown.

3.2.5 Regulatory Context

All groundwater abstraction and dewatering activities will be undertaken in accordance with the:

- Water Resources Act 1991
- Water Resources (Abstraction and Impounding) Regulations 2017 (as amended)

Where applicable, consideration will be given to whether the proposed activity may fall under a relevant exemption (e.g. temporary dewatering associated with construction activities). However, it is recognised that:

- Exemptions are conditional and site-specific, and
- Activities must not result in significant environmental impact or risk to water resources

Accordingly, all abstractions will be subject to a risk-based assessment, irrespective of exemption status.

Where reliance is placed on an exemption under the Water Resources (Abstraction and Impounding) Regulations 2017, evidence will be retained to demonstrate compliance with the relevant conditions, including confirmation that no significant environmental impact will occur.

3.2.6 Screening-Level Assessment (Below Licensing Thresholds)

Where anticipated abstraction volumes are below the thresholds for licensing, i.e.:

- <20 m³/day for abstractions exceeding 6 months duration; or
- <100 m³/day for abstractions of less than 6 months duration

a proportionate, screening-level Hydrogeological Impact Assessment (HIA) will be undertaken.

This assessment will:

- Define the conceptual site model (CSM)
- Identify potential source–pathway–receptor linkages
- Demonstrate that predicted impacts (e.g. drawdown) are localised, temporary, and negligible

Although not a statutory requirement, the findings will be voluntarily provided to the Environment Agency (or relevant regulator) to support a transparent and risk-based approach.

3.2.7 Abstraction Requiring Licensing

Where groundwater abstraction:

- Exceeds the relevant licensing thresholds; or
- Is not covered by a valid exemption under the Water Resources (Abstraction and Impounding) Regulations 2017; or
- Has the potential to result in significant environmental impact

the following will be undertaken prior to commencement of works:

- Preparation of a detailed Hydrogeological Impact Assessment (HIA)

- Completion of a Water Features Survey (WFS) to identify sensitive receptors
- Quantitative assessment of drawdown, radius of influence, and potential impacts
- Identification of mitigation and monitoring requirements

An abstraction licence will be obtained from the Environment Agency (or relevant regulator) prior to commencement of such activities.

3.2.8 General Commitments

- No licensable abstraction will be undertaken without prior regulatory approval
- All exemptions will be validated and documented prior to reliance
- Dewatering will be managed in accordance with best practice and relevant guidance
- Monitoring and contingency measures will be implemented where required to protect controlled waters and third-party receptors

3.3 Groundwater Dependent Terrestrial Ecosystems (GWDTE)

- 3.3.1 There are two areas of GWDTE within the red line boundary of the pipeline; these are outlined in section 4.4.5 and Figure 4 of the Groundwater Management and Monitoring Plan. One is impacted by the pipeline route in the area south of the Ince railway crossing, at approximate Chainage 1+200 to 1+600.
- 3.3.2 This is an area of peat and has been assessed and mitigated by the Peat Management Plan. Additionally should a trenchless crossing procedure be required for this area then further mitigation detail will be included in this to protect the GWDTE

3.4 Temporary access and crossings

- 3.4.1 Stand-off distances around watercourses will be implemented prior to the commencement of works and clearly demarcated through the use of physical barriers (fencing, tape or similar).
- 3.4.2 These will include the following:
- A minimum 8m buffer will be demarcated around non-tidal main river/ ordinary watercourses; and
 - A minimum 16m buffer will be demarcated around tidal watercourses,
 - Crossings underneath the River Dee will be a minimum depth of at least 15m for Horizontal Directional Drilling or 8m for Micro-tunnelling (distance between the top of the casing and the riverbed).
- 3.4.3 Consideration has been applied on how best to cross existing ditch and watercourse crossings to access some special compound locations. The use of flume pipes is a preferred option for temporary watercourse crossings for plant and equipment as opposed to bridge due to several practical and environmental factors:

Bridge Crossings

- Bridges of a significant size would be required because of the plant equipment weight (70-ton pipelayers and 100-ton cranes).
- Large cranes would be required to lift bridges into place. This is deemed to be excessive given the size of the waterbody being crossed
- Stone haul roads would need to be built to get cranes to each location to lift the bridges into place.
- Bridges would require major bridge abutments/supports in or close to watercourse, involving excavations.
- Bridges would require a greater footprint/ disturbance of the surrounding vegetation and habitat to accommodate abutments and approach ramps to allow plant and vehicles to access the bridge.

Flume Pipe Crossings

- Flume pipes can support heavy plant traffic without complex bridge abutments being constructed.
- Flume pipes can follow the natural contour of the site, minimising the need for wide clearances or approach ramps, thus protecting surrounding vegetation and habitats.
- Flume pipes can be overlaid with compacted fill to create a stable roadway for equipment crossing.
- Flume pipes can be installed efficiently and decommissioned quickly compared to installing bridges. While this will have a direct impact on the watercourse reinstatement will mitigate the habitat impacted.
- Flume pipes have a reduced footprint compared to bridges and approach ramps.
- Flume pipe crossings eliminate the need for large vehicle movements required to bring bridge components to site.
- Reduces vehicle movements in the surrounding area.
- Eliminates the need for major bridge abutments/supports in or close to watercourse.
- Eliminates excavations for abutments.
- Eliminates the use of concrete for abutments.
- Smaller carbon footprint and are off site manufactured so do not pose a pollution risk.

3.4.4 For any required ditch crossings access will be installed on a temporary basis and reinstatement will be undertaken once the construction phase is completed. A standard design for a crossing is shown below in Figure 1. This is a standard design, and the size of the culvert will vary depending on the size and profile of the ditch.

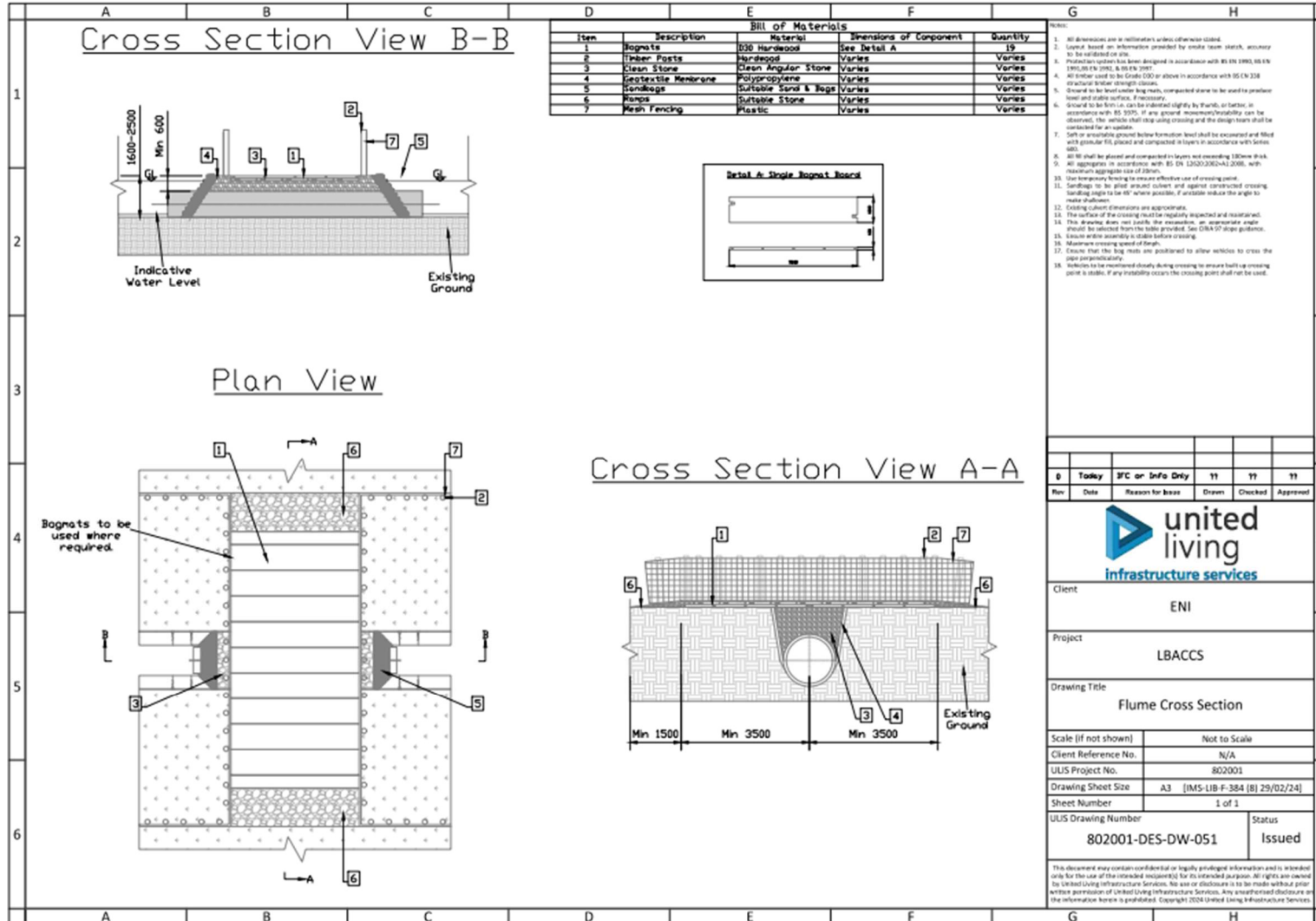


Figure 1: Standard Flume Crossing Design

3.5 Construction Compound Water Mitigation

3.5.1 The following water mitigation measures will be implemented as appropriate at the crossing compounds.

- Works will avoid positioning material stockpiles, arisings and stored equipment near to watercourses and within flood zones, where practicable. Welfare facilities will also be located outside flood zones. (D-WR-001)
- Within construction compounds, the location of temporary structures and material will avoid being sited in areas of medium or high surface water flood risk, as identified in the ES. (D-WR-058)
- Temporary cut-off drains will be used in construction compounds to prevent clean runoff entering and dirty water leaving the working area without appropriate treatment. (D-WR-007)
- Surface water drainage solutions and discharge rates from construction compounds will be discussed with the Lead Local Flood Authority (LLFA) (D-WR-043).

3.6 Trenchless Construction – Drilling Mud

3.6.1 The proposed works involve installation of a pipeline beneath obstacles such as roads and watercourses using horizontal directional drill and closed-face slurry microtunnelling. These techniques use bentonite to aid the transmittal of cut material, seal the annulus and support the excavation. The principal environmental risk associated with this method is the potential for inadvertent return (breakout) of bentonite slurry should slurry pressures locally exceed the fracture resistance of the surrounding ground or migrate via preferential pathways. Although bentonite is non-toxic, any uncontrolled release to controlled waters would constitute a pollution incident due to increased turbidity and potential smothering of aquatic habitat. Site-specific environmental risks will be identified and addressed through the Flood Risk Activity Permit (FRAP) application process, informed by ground investigation and detailed method design.

3.6.2 The risk of slurry breakout is considered low due to the use of a fully enclosed system, maintenance of adequate cover beneath the obstacle / watercourse bed, and continuous monitoring and control of slurry pressures within defined allowable limits. Slurry volumes will be monitored to identify unexpected losses, advance rates will be controlled, and the watercourse will be regularly inspected during works. In the event of suspected slurry release, works will stop immediately, pressures will be reduced, and the Environment Agency / Natural Resources Wales will be notified without delay.

3.7 Land Management

- 3.7.1 The crossing compounds have been micro-sited where possible to reduce proximity to residential areas, minimise visibility and avoid key landscape features (D-LV-001)
- 3.7.2 There are areas which were identified as part of the DCO process with potential for contamination. Under the DCO requirement 10, further investigations are to be carried out. Trenchless crossings likely to be impacted by Requirement 10 are outlined in Table 3 These investigations are being

completed, and interpretive reports will be produced if contamination is found in line with Requirement 10.

Table 3 Potentially Contaminated Plots Impacting Trenchless Crossings

Plot No. with Potential contamination identified in DCO (Requirement 10).	Trenchless Crossing Potentially Affected
1-25	TRS-01
3-11	TRS-05 and TRS-06
3-14	TRS-05 and TRS-06
3-15	TRS-05 and TRS-06
4-20	TRS-08
8-10	TRS-17A and TRS-17B
8-12	TRS-17B

- 3.7.3 Further Ground Investigation (GI) is currently being carried out to identify any areas of contamination that may impact construction.
- 3.7.4 Should unexpected contamination be identified, the relevant planning authority will be informed, and an investigation and risk assessment will be completed to assess the nature and extent of any contamination. EA or NRW will be consulted as required.
- 3.7.5 A material management plan has been developed for the construction phases of the project. It is understood that the arisings generated as part of the trenchless crossing methods will be a slurry in most cases this will be unsuitable for reinstatement and remediation works. These arisings may be removed for off-site disposal as waste.

3.8 Soil Management

- 3.8.1 For details of soil management, refer to the Soil Management Plan (Doc Ref. 802001-SHE-PL-009).
- 3.8.2 Measures detailed in REAC requirement (D-LS-011) will be followed to resolve impacts to land and soil:
- Using appropriate risk assessments and method statements (RAMS).
 - All site operatives should follow hygiene best practices and be provided with the correct PPE (e.g. safety glasses, gloves and face masks where applicable) to reduce the risk of inhaling / ingesting / touching contaminated materials.
 - All site operatives will be made aware of the risks posed from ground conditions likely to be encountered during the construction, for example through toolbox talks before undertaking any works.
 - All site operatives will be fully trained and competent. There will be a trained and responsible manager on site during construction works, including any movement of the stockpiles.
- 3.8.3 In preparation for vehicles commencing work on the trenchless crossing compounds, UI will ensure the following steps are undertaken:

- Signposting and demarcation of the following areas: undisturbed areas where no construction activities will take place, tree protection zones, areas where soil stripping will take place, topsoil and subsoil stockpile locations and haul routes.
- Remove scrub vegetation in the areas that are to be stripped, in accordance with any seasonal ecological constraints and mitigation.
- Remove any other vegetation on soil stripping areas to prevent this from entering the soil strip. If applicable, the grass/crop will be cut to ground level.
- Topsoil will be stripped from the working width and stored to one side. Sub soil will be stored separately from the topsoil, typically on the other side of the working width. Soil stockpile height should not exceed 3m as far as reasonably practicable. Gaps will be left in storage bunds at field boundaries, hedgerows and storage will be kept back at least 10m from watercourses as per REAC requirement (D-WR-003). Within areas of flood risk (FZ3), regular gaps will be left in soil storage bunds to allow the passage of water in the event of a flood.

3.8.4 Measures will be implemented during groundworks to ensure the appropriate identification, assessment and management of any Made Ground or unforeseen contamination, should it be encountered:

- The Construction Contractor will appoint an appropriately qualified person (e.g., Environmental Clerk of Works (EnvCoW)) to maintain a Watching Brief for the duration of any ground excavations. The aim and scope of the Watching Brief will be to identify any unexpected contamination and advise on the correct course of action if discovered. Should unexpected Made Ground or unexpected contaminated ground (i.e., visual or olfactory evidence of contamination) be encountered during the construction phase the ECoW or equivalent qualified person will be notified. Testing of Made Ground for a minimum of asbestos, metals, petroleum hydrocarbons and polyaromatic hydrocarbons to assess suitability for re-use and potential risks to construction works should be undertaken (D-LS-014).
- For excavation in areas of known Made Ground the EnvCoW should supervise the excavation to observe for visual or olfactory evidence of contamination or ACM (D-LS-018).
- Additional investigation including groundwater monitoring and analysis and ground gas assessment will be undertaken for identified point sources, where not already addressed under a separate legal regime including environmental permitting (D-LS-020).
 - If following D-LS-020 above remediation by the Applicant is determined by the appropriate risk assessment process to be required in order to construct the authorised development, a suitable remediation strategy will be produced following the additional Ground Investigation of point sources of contamination or if unexpected Made Ground is encountered during the construction phase. The remediation strategy will include a requirement for a verification report which would include details of how the remediation strategy will be verified. The remediation strategy will be approved by the Local Authority (FCC / CWCC and as appropriate EA/ NRW) prior to being implemented to mitigate unacceptable contaminated land related risks. Ground gas measures are not considered necessary however following D-LS-020 the requirement for ground gas measures will be reassessed in the areas that are investigated (D-LS-021).
 - Areas of known Made Ground are discussed in Ground Investigation Report (Appendix 11.6, Volume III) [REP4-134]. These areas of Made Ground have been tested and are below the GAC. They are therefore considered to be suitable for re-use

within the DCO Proposed Development subject to confirmation of suitability for use at their destination location and in accordance with the MMP. Material re-use and excavation will be supervised in a watching brief to assess for previously unidentified Made Ground as set out in D-LS-018 of the REAC (Document reference: D.6.5.1) (D-LS-022).

3.9 Dust Management

3.9.1 A dust management plan (Doc Ref 802001-SHE-PL-014) has been developed for all construction phases of the project. This identifies that during trenchless crossings the worst-case Medium Risk is dust soiling effects on the amenity of the local area from dust soiling; and ecological receptors as a result of vehicle movements.

3.9.2 The most sensitive areas identified are:

- Chester Road where there are five properties susceptible to dust soiling within 20m of the works; and
- Deeside and Buckley Newt Sites Special Area of Conservation (SAC) located 25m from the works.

3.9.3 Where sensitive receptors are identified in proximity to the works, visual inspections of receptors in the vicinity of the works will be undertaken and results recorded in the Inspection Log (D-AQ-010). Residential properties that have been identified within close proximity to the trenchless crossing work areas, are listed in Table 4 below.

Table 4 Residential Receptors

Crossing Reference	Receptor proximity to the works
TRS-21	33m West
TRS-21A	36m West
TRS-31	38m West
TRS-35	34m South-East
TRS-36	35m North-West
TRS-37	18m North East
TRS-38	Multiple properties located up to 10m North and South
TRS-39	33m South
TRS40A	27m South
TRS-40B	35m North

3.9.4 During trenchless crossing works the highest dust risk level has been identified as medium risk during the following operations: earthworks and track movements of construction vehicles. Therefore the following mitigation will be adhered to:

- Following excavation works, return subsoil and topsoil at the earliest suitable time of year after construction has been completed (D-AQ-024).
- All construction plant and equipment will be maintained in good working order (D-AQ-027).
- Use water-assisted dust sweepers on the access and local roads, to remove, as necessary, any material tracked out of the site (D-AQ-028).
- Avoid dry sweeping of large areas where possible (D-AQ-029).
- Ensure vehicles carrying materials are appropriately covered when entering and leaving sites to prevent escape of materials during transport (D-AQ-030).
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable (D-AQ-031).
- Record all inspections of haul routes and any subsequent action in a site logbook (D-AQ-032).
- Where works are undertaken in built-up areas, install haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Local highway will be prepared with temporary hard surfacing and wheel washing facilities.

3.9.5 For further mitigation measures for dust, refer to the main CEMP section 3.6.

3.10 Ecological Constraints and Mitigation

3.10.1 Any general ecological mitigation measures will be as outlined in the main CEMP document. The requirements below are specific to the special crossings phase of construction.

3.11 Badgers

3.11.1 Badger surveys have concluded for 2025 in both England and Wales. There are no badger setts that require closing to facilitate TRS Crossings. All works will ensure to maintain a 30m buffer zone from any known setts along the route.

3.11.2 Upon the discovery of any new badger setts within 30m of the works, activities will halt and an ecologist will be consulted.

3.12 Bats

3.12.1 Both aerial inspections, and in cases where trees are unsafe to climb, emergence surveys have been completed for the entire route. Out of 50 trees with potential Roost Features (PRFs), there are no confirmed roosts that will be affected by the TRS Crossing work. Should a PRF be confirmed that is at risk of disturbance, a licence would be sought.

3.12.2 Where trees with known PRFs are identified, construction lighting will be directed away from the trees to reduce disturbance (D-BD-015). Where required flight lines will be kept dark and artificial hedgerows will be considered where necessary.

3.13 Otter and Water vole

3.13.1 Trenchless methods are being used and therefore there is negligible impact to otter and water voles as a result of the special crossing scope. 2025 surveys have been completed and water vole

displacement activities have been completed for 2025 works. Further displacement activities will be carried out to facilitate the works in 2026. To date no confirmed presence has been identified.

- 3.13.2 Should presence be identified and cannot be avoided, the required licencing will be sought and mitigation implemented.

3.14 Trees and Hedgerows

- 3.14.1 To facilitate the work for Stage 2, hedgerow removal will be required for access to compounds. Where access is required off a public highway in some instances it may require extended sections of hedgerow to be removed for safe access and visibility splays.
- 3.14.2 All trees and hedgerows located above trenchless crossing points will be retained when there is adequate depth to avoid impacts to root plates or below ground vegetation structures. Hedgerows and trees will only be removed at crossing points as a last resort once all other feasible options have been exhausted. (D-BD-013).
- 3.14.3 Landscaping surveys including the special crossing locations have been conducted and recommendations from this will be incorporated into a Landscape and Ecological Management Plan (LEMP) with any improvement or protection that will be required.
- 3.14.4 Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) have been produced. Arboricultural works will be completed in accordance with these documents to minimise impacts to vegetation.

3.15 Great Crested Newts (GCN)

- 3.15.1 GCN surveys have been conducted to identify presence of GCN in ponds in close proximity to the route. No ponds are anticipated to be directly impacted as a result of Stage 2 works.
- 3.15.2 Licences have been sought along the route to mitigate the impact upon GCN populations. This will be a District Level License (DLL) for England with the exception of a Red Risk Zone where a separate licence has been obtained. In Wales this will be a protected Species Licence. Construction works will adhere to any requirements outlined as part of the licenses, in addition to following the best practice measures outlined within the main CEMP document.

License	Status	TRS Crossing Affected
Red Risk Zone (England)	Approved	TRS17, TRS17-A, TRS17-B, TRS18, TRS19
Great Crested Newt Protected Species Licence (NRW)	Ongoing	TRS38, TRS39, TRS43-A

- 3.15.3 In England any TRS Crossings not mentioned in the Red Risk Zone are covered by the DLL and no further mitigation is required.

3.16 Aquatic Ecology

- 3.16.1 Fishery walkover surveys have been undertaken in early 2025. In line with the recommendations outlined in the report, trenchless crossing methods will be utilised at all special crossings. This will minimise impacts on any suitable fish habitat and fish species. The following additional measures recommended within the report will also be applied to all special crossings
- Strict pollution control and prevention methods will be implemented at special crossing sites to reduce the risk of impacts to surface water quality.

- If instream works are required at any point during the works programme, a pre-work check will be conducted by a trained aquatic ecologist. If fish are found to be present, rescues/translocations will be undertaken immediately prior to the works with fish excluded from the working area with nets.

Fish Rescue Plan.

All TRSs

There are no in-channel works proposed within surface water/ditches containing water therefore the Fish Rescue Plan requirements do not apply.

- 3.16.2 Table 5 below outlines the trenchless crossing sites that are located within the proximity of sensitive ecological receptors. The distance from the crossing site and mitigation measures to be implemented are also detailed.
- 3.16.3 Should any new ecological constraints be discovered that have not been identified by surveys, works will cease until an ECoW has been consulted.

Table 5 Ecological receptors located within proximity to trenchless crossing sites

Trenchless Crossing	Northing, Easting	Distance of ecological constraint	Mitigation
TRS-01	346930.00 375608.00	Water Vole burrows present at watercourse within 7m of reception shaft of TRS-01.	Water Vole displacement will be undertaken in the correct season prior to any start of works at this TRS Crossing, should is not be possible to erect a 7m buffer zone.
TRS-09	372908.00 343636.00	Watercourse with confirmed water vole presence below crossing point and 20m from exit compound.	A 7m buffer will be maintained from the bank of the watercourse. No heavy machinery will enter this buffer to prevent potential burrow collapse.
TRS-10	343346.00 372371.00	Water Vole present at watercourse 17m southeast of TRS northern access point;	A 7m buffer will be maintained from the bank of the watercourse. No heavy machinery will enter this buffer to prevent potential burrow collapse.
TRS-31	332688.00 367327.00	Water Vole presence confirmed in watercourse 5m southeast of TRS.	A 7m buffer will be maintained from the bank of the watercourse. No heavy machinery will enter this buffer to prevent potential burrow collapse.
TRS-41	326344.00 367699.00	Two badger setts located within 30m of TRS 41 (Sett 29 – 27m south; Sett 28 – 14m north) but not within range of TRS shaft locations	The TRS works do not encroach on the 30m buffer zone of either sett. Therefore, no license is required to complete the works. No heavy machinery shall enter the 30m buffer zone that will be erected around the setts

3.17 Biosecurity Management

- 3.17.1 Any INNS that have been identified at crossing locations are shown below in Table 6. Due to the nature of INNS and their spread, a pre-construction inspection will be conducted by an ECoW to locate any new INNS stands that may develop.
- 3.17.2 In the event of any additional INNS stands being identified, the precautions outlined within the Biosecurity Management Plan (Doc. Ref. 802001-SHE-PL-019) will be applied.

Table 6 INNS at Trenchless Crossing Locations

Crossing Name	Crossing Reference	Location	INNS	Biosecurity Precautions	Actions Required
River Gowy RVX 1	TRS-09	Work No. 14 36" Pipeline 3+040	New Zealand Mud Snail / Demon Shrimp in R Gowy Himalayan Balsam approx 200m upstream of crossing	Check, Clean, Dry Inspection and cleaning of construction equipment used in the watercourse, to remove snails/shrimp and dry equipment before moving to next location. Topsoil stripped from river banks to be stored separately on geotextile membrane and reinstated to banks after construction – not to be used /spread elsewhere.	Pre-construction inspection by ECoW / Ecologist
River Dee RVX 2	TRS-28	Work No. 31 36" Pipeline 15+740	Chinese Mitten Crab in River Dee	Trenchless crossing will not directly impact the channel of River Dee. No mitigation required.	Pre-construction inspection by ECoW / Ecologist
Chester Road / Broughton Brook RDX19	TRS-30	Work No. 33 36" Pipeline 17+250	New Zealand mud snail in Broughton Brook	Inspection and cleaning of construction equipment used in the watercourse, to remove snails before moving to next location. Trenchless crossing will not directly impact the channel of the drain/ditch.	Pre-construction inspection by ECoW / Ecologist

Alltami Brook Pipe Bridge RVX 40		Work No. 43E 36" Pipeline 26+000	New Zealand Mud Snail in Alltami Brook	Inspection and cleaning of construction equipment used in the watercourse, to remove snails before moving to next location.	Pre-construction inspection by ECoW / Ecologist
Brookside Road/ Wepre Brook RDX 36	TRS-40C	Work No. 44 36" Pipeline 26+950	New Zealand Mud Snail in Wepre Brook Non-native fish – Wels catfish	Trenchless crossing will not directly impact the channel of Wepre Brook Working area should be set back from Wepre Brook. No mitigation required.	Pre-construction inspection by ECoW / Ecologist

3.18 Noise and Vibration

- 3.18.1 Any works occurring outside the core working hours, outlined within the main CEMP document, that relate to trenchless crossings will be discussed and agreed with the LPA's EHO. This will be agreed before the commencement of any such works and includes agreement to any further noise mitigation outlined by the EHO. This is in accordance with REAC requirement (D-NV-012) and in particular applies to the following trenchless crossing locations:
- TRS 01: Hapsford railway line (and spur to Encirc glass factory)
 - TRS 02: A5117 (north of M56 Chester Services)
 - TRS 28: River Dee
 - TRS 38: Church Lane
 - TRS 37: A494
- 3.18.2 As outlined within the Noise and Vibration Management Plan (NVMP) (Doc. Ref. 802001-SHE-PL-013), enhanced mitigation measures will be employed at trenchless crossing sites that will undergo nighttime activities. Specific activities will be agreed with the LPA through a Section 61 process detailing the localised mitigation measures to be used.
- 3.18.3 An email address is available for members of the public to contact the project (hello@hynethub.co.uk) and a HyNet Hub website (<https://hynethub.co.uk/index.php>). Additionally, for those identified as being impacted by the proposed works, letter drops will notify local residents, business and other sensitive stakeholders at least two weeks prior to the Contractor starting on site.
- 3.18.4 Ecological mitigation measures are identified in Section 5 of the NVMP. The plan outlines mitigation to prevent disturbance to such receptors.

Table 7 Summary of Stage Specific Environmental Consents that will be Considered

Consent/License	Permitting Statutory Body	Determination Periods
Watercourse		
SR2015 No 26: temporary dewatering affecting up to 20 metres of a main river	Environment Agency	2-4 months
SR2015 No. 27 constructing an outfall pipe up to 500mm diameter through a headwall into a main river	Environment Agency	
SR2015 No 29: temporary storage on a flood plain of a main river no more than 8 weeks	Environment Agency	
SR2015 No 32: installing an access culvert no more than 5 metres long	Environment Agency	
Exemptions		
FRA4: Service crossings attached to the outside of existing structures over a main river	Environment Agency	2 weeks
FRA7: Temporary dewatering of a work area for no more than 4 weeks	Environment Agency	
FRA21: Removing silt and sand from bridge arches and any material from existing culverts	Environment Agency	
FRA23: Dredging to remove accumulated silt and sand from the bed of up to 1.5km of man-made ditches, land drains, agricultural drains and previously straightened watercourses that are main rivers	Environment Agency	
FRA28: Improvement works for existing tracks and paths	Environment Agency	
Bespoke Permits		
Bespoke Environmental Permit	Environment Agency	6-8 months
FRA Bespoke permit	Natural Resources Wales	

Exclusions

FRA12: Outfall pipes less than 300mm diameter through a headwall	Natural Resources Wales	N/A
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Water Management

Discharges to any watercourse, public sewer or drain	Environment Agency	6-8 months
Discharges to surface water and groundwater	Environment Agency	

Ecology

Protected Species Licence (subject to further ecological surveys)	Natural Resources Wales, Natural England, Environment Agency	6 weeks
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Transport

Temporary Traffic Regulation Order Flintshire	Highway authority	42 days
Temporary Traffic Regulation Order Cheshire West	Cheshire West and Chester Council	
NRSWA Street Works Licence – ancillary works	NRSWA	
Temporary alteration of the layout of street	Highway authority	

Other

Construction Noise Consent	Local Planning Authority
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3.19 Site personnel and Awareness training

- 3.19.1 All members of the workforce attending the site, including subcontractors, will be required to receive a site induction prior to starting work at the site. The level of induction training will depend on the duties of the individual and their intended work at the site. A record of all inductions and training will be stored at the site and shall be available to UI upon request.
- 3.19.2 Inductions for the trenchless crossings will include, but not limited to, the following topics:
- Refuelling procedures
 - Spill prevention and Spill response
 - Emergency Response Procedures
 - Flood Action
 - Ecological Sensitive Areas
 - INNS and Biosecurity Measures
 - Summary of sensitive environmental receptors to the site
 - Pollution control measures
 - Incident Reporting
- 3.19.3 For further details regarding site training and awareness, refer to the Site induction and training section of the main CEMP.



APPENDIX A – Trenchless Crossing Schedule

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO
20" INCE AGI TO STANLOW AGI								
TRS-01	RLX-002		Railway	Microtunnel (1200mm ID)	346951.7341	375711.1597	1+085	No change
TRS-01	WCX-007		Watercourse				1+093	
TRS-01	RLX-003		Railway				1+111	
TRS-01	RLX-004		Railway				1+156	
TRS-01	RLX-005		Railway				1+173	
TRS-01	RDX 1	Hapsford Lane	Road				1+180	
TRS-01	HDX-003		Hedgerow				1+183	
TRS-01	WCX-008		Watercourse				1+210	
TRS-02	HDX-005		Hedgerow	HDD	346309.5618	374902.2412	1+988	No change
TRS-02	RDX 2	A5117	Road				2+184	
TRS-02	HDX-006		Hedgerow				2+205	
TRS-3A		Cryers Lane	Road	Augerbore	345038.2131	374408.0844	3+630	To prevent disruption to traffic
TRS-04	PLX 16	BPA	Utility	Augerbore	344790.2008	374594.9598	3+941	No change
TRS-05	RDX 4	A5117	Road	Microtunnel	344550.0202	374811.2643	4+325	No change
36" STANLOW AGI TO FLINT AGI								
TRS-06	RDX 1	A5117	Road	Microtunnel (1500mmID)	344546.6032	374811.4035	0+177	No change
TRS-06	HDX-001		Hedgerow				0+190	
TRS-07	PLX-015		Utility	Augerbore	344497.5002	374373.8399	0+648	No change
TRS-07	PLX-016		Utility				0+660	
TRS-07	PLX-017		Utility				0+660	
TRS-08	PLX-018		Utility	Microtunnel (1500mmID)	344687.6343	373553.3636	1+501	No change
TRS-08	PLX-019		Utility				1+509	
TRS-08	PLX-020		Utility				1+527	
TRS-08	RDX 2	M56	Road				1+531	
TRS-08	PLX-021		Utility				1+541	
TRS-08	PLX-022		Utility				1+544	
TRS-08	CBX-017		Utility				1+550	
TRS-08	PLX-023		Utility				1+553	
TRS-08A	HDX-007		Hedgerow	Augerbore	344747.1234	373421.3078	1+680	To prevent disruption to traffic & disturbance to utility services
TRS-08A	CBX-018		Utility				1+684	
TRS-08A	PLX-024		Utility				1+686	
TRS-08A	RDX 3	Thornton Green Lane	Road				1+689	
TRS-08A	HDX-008		Hedgerow				1+690	
TRS-09	RVX-001	River Gowy	River	Microtunnel (1500mmID) Option for HDD/DirectPipe	343636.2015	372907.9404	3+044	No change
TRS-10	PLX-027		Utility	Augerbore	343326.8562	372351.3824	3+730	No change / Subject to consultation
TRS-10	PLX-028		Utility	Option to Open Cut			3+733	
TRS-10	PLX-029		Utility	3+739				
TRS-11	HDX-009		Hedgerow				3+900	

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO
TRS-11	PLX-032	Picton Lane	Utility	Augerbore	343200.8141	372235.7324	3+904	No change
TRS-11	RDX 4		Road				3+905	
TRS-11	CBX-019		Utility				3+907	
TRS-11	HDX-010		Hedgerow				3+910	
TRS-11	OHX-006		Utility				3+912	
TRS-12	PLX-033	Pipelines	Utility	Augerbore	342771.1903	371658.019	4+637	No change
TRS-12	PLX-034		Utility				4+644	
TRS-12	PLX-035		Utility				4+646	
TRS-12	PLX-036		Utility				4+651	
TRS-12	TRX-002		Track				4+672	
TRS-13	PLX-037		Utility	Augerbore option to Open Cut	342725.7373	371369.0329	4+947	No change / Subject to consultation
TRS-14	CBX-020	M53	Utility	Microtunnel (1500mmID)	342606.3205	371292.7663	5+094	No change
TRS-14	RDX 5		Road				5+106	
TRS-15	HDX-014	Wervin Lane	Hedgerow	Augerbore	342287.7685	371281.6861	5+413	No change
TRS-15	OHX-007		Utility				5+413	
TRS-15	RDX 6		Road				5+418	
TRS-15	PLX-038		Utility				5+422	
TRS-15	CBX-021		Utility				5+422	
TRS-15	HDX-015		Hedgerow				5+423	
TRS-16	PLX-039		Utility	Augerbore option to Open Cut	342232.0903	371275.2804	5+478	No change / Subject to consultation
TRS-16	PLX-040		Utility				5+490	
TRS-17	WCX-010	Shropshire Union Canal	Watercourse	Microtunnel (1500mmID)	341447.5522	371164.2298	6+314	No change
TRS-17	HDX-020		Hedgerow				6+318	
TRS-17	HDX-021		Hedgerow				6+341	
TRS-17	CLX-001		Canal				6+352	
TRS-17A	HDX-022	Caughall Lane	Hedgerow	Open cut option to Augerbore	341396.5279	371216.8299	6+421	To prevent disruption to traffic
TRS-17A	RDX 7		Road				6+427	
TRS-17A	CBX-024		Utility				6+430	
TRS-17A	HDX-023		Hedgerow				6+433	
TRS-17B	HDX-024	Chorlton Lane	Hedgerow	Augerbore	341159.2156	371370.2329	6+719	To prevent disruption to traffic
TRS-17B	RDX 8		Road				6+726	
TRS-17B	HDX-025		Hedgerow				6+728	
TRS-18	CBX-026	Liverpool Road(A41)	Utility	Augerbore	339953.7545	371086.793	7+947	No change
TRS-18	PLX-042		Utility				7+951	
TRS-18	HDX-033		Hedgerow				7+964	
TRS-18	CBX-027		Utility				7+966	
TRS-18	CBX-028		Utility				7+968	
TRS-18	RDX 9		Road				7+978	
TRS-18	PLX-043		Utility				7+987	
TRS-18	CBX-029		Utility				7+989	
TRS-18	CBX-030		Utility				7+993	

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO
TRS-18	CBX-031		Utility				7+993	
TRS-18	HDX-034		Hedgerow				7+995	
TRS-19	PLX-044		Utility	Augerbore	339788.6147	371044.2739	8+157	No change
TRS-19	PLX-045	Pipelines	Utility				8+162	
TRS-19	PLX-046		Utility				8+162	
TRS-20	RLX-001	Mollington Railway	Railway	Microtunnel (1500mmID)	339271.0778	370785.3566	8+794	No change
TRS-20	HDX-035		Hedgerow				8+950	
TRS-20	CBX-032		Utility				8+806	
TRS-20	CBX-033		Utility				8+806	
TRS-20	CBX-034		Utility				8+816	
TRS-20	CBX-035		Utility				8+823	
TRS-21	PLX-047		Utility	Augerbore	338832.8311	370892.8623	9+349	No change
TRS-21	CBX-036		Utility				9+356	
TRS-21	HDX-037		Hedgerow				9+357	
TRS-21	PLX-048		Utility				9+357	
TRS-21	RDX 10	Station Road	Road				9+361	
TRS-21	CBX-037		Utility				9+362	
TRS-21	CBX-038		Utility				9+363	
TRS-21	PLX-049		Utility				9+364	
TRS-21	CBX-039		Utility				9+364	
TRS-21	HDX-038		Hedgerow				9+367	
TRS-21A	HDX-039		Hedgerow	Augerbore	338646.1531	371080.9102	9+637	To prevent disruption to traffic
TRS-21A	CBX-040		Utility				9+641	
TRS-21A	CBX-041		Utility				9+642	
TRS-21A	PLX-050		Utility				9+642	
TRS-21A	RDX 11	Grove Road	Road				9+645	
TRS-21A	PLX-051		Utility				9+648	
TRS-21A	PLX-052		Utility				9+649	
TRS-21A	CBX-042		Utility				9+649	
TRS-21A	HDX-040		Hedgerow				9+650	
TRS-21A	WCX-015		Watercourse				9+657	
TRS-22	HDX-044		Hedgerow	Augerbore	338257.8217	370540.8036	10+365	No change
TRS-22	RDX 12	Townfield Lane	Road				10+370	
TRS-22	HDX-045		Hedgerow				10+374	
TRS-22	CBX-043		Utility				10+367	
TRS-22	CBX-044		Utility				10+368	
TRS-22	PLX-053		Utility				10+374	
TRS-22	PLX-054		Utility				10+375	
TRS-22	CBX-045		Utility				10+375	
TRS-22	CBX-046		Utility				10+376	
TRS-22	PLX-055		Utility				10+385	
TRS-23	HDX-046		Hedgerow				10+611	

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO
TRS-23	CBX-047	Overwood Lane	Utility	Augerbore	338178.1107	370338.14	10+615	No change
TRS-23	RDX 13		Road				10+619	
TRS-23	PLX-056		Utility				10+619	
TRS-23	CBX-048		Utility				10+622	
TRS-23	HDX-047		Hedgerow				10+623	
TRS-24	PLX-057	Parkgate Road	Utility	Augerbore	338135.2337	370042.2401	10+915	No change
TRS-24	HDX-049		Hedgerow				10+918	
TRS-24	CBX-049		Utility				10+922	
TRS-24	RDX 14		Road				10+928	
TRS-24	PLX-058		Utility				10+931	
TRS-24	CBX-050		Utility				10+932	
TRS-24A	RDX 15	Kingswood Lane	Track	Open cut option to Augerbore	337400.25	369496.47	11+937	To prevent disrution to traffic
TRS-25	HDX-056	Hermitage Road	Hedgerow	Augerbore	336751.0052	369390.1719	12+603	No change
TRS-25	CBX-051		Utility				12+606	
TRS-25	PLX-059		Utility				12+608	
TRS-25	CBX-052		Utility				12+608	
TRS-25	PLX-060		Utility				12+608	
TRS-25	RDX 16		Road				12+611	
TRS-25	PLX-061		Utility				12+611	
TRS-25	HDX-057		Hedgerow				12+612	
TRS-26	HDX-062	Chester Millenium Greenway	Hedgerow	Augerbore	336159.715	368855.9352	13+474	No change
TRS-26	TRX-005		Track				13+485	
TRS-26	HDX-063		Hedgerow				13+516	
TRS-27	HDX-064	Sealand Road(A548)	Hedgerow	Augerbore	335662.2144	368495.9276	14+106	No change
TRS-27	PLX-064		Utility				14+113	
TRS-27	CBX-053		Utility				14+115	
TRS-27	CBX-054		Utility				14+116	
TRS-27	CBX-055		Utility				14+116	
TRS-27	RDX 17		Road				14+122	
TRS-27	CBX-056		Utility				14+122	
TRS-27	CBX-057		Utility				14+122	
TRS-27	CBX-058		Utility				14+122	
TRS-27	HDX-065		Hedgerow				14+129	
TRS-27	PLX-065		Utility				14+133	
TRS-27A	WCX-020		Finchetts Gutter / Sealand Main Drain				Watercourse	
TRS-27A		Deeside Lane	Road/Track	Open Cut Option to Augerbore	335111.7311	367563.792	15+200	To prevent disruption to traffic
TRS-28	CBX-061		Utility				15+682	
TRS-28	HDX-070		Hedgerow				15+686	

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO
TRS-28	TRX-007	River Dee	Track	HDD / Direct Pipe	334831.8531	367089.8733	15+696	No change
TRS-28	RVX-002		River				15+754	
TRS-28	HDX-071		Hedgerow				15+846	
TRS-29	WCX-021	North wales Coast Railway	Watercourse	Microtunnel (1500mmID)	334437.5721	366535.8089	16+415	No change
TRS-29	TRX-009		Track				16+417	
TRS-29	CBX-062		Utility				16+420	
TRS-29	CBX-063		Utility				16+423	
TRS-29	RLX-002		Railway				16+438	
TRS-29	CBX-064		Utility				16+439	
TRS-29	WCX-022		Watercourse				16+449	
TRS-29	CBX-065		Utility				16+455	
TRS-30	WCX-023		Chester Road				Watercourse	
TRS-30	RDX 19	Road		17+286				
TRS-30	HDX-076	Hedgerow		17+290				
TRS-30	WCX-024	Watercourse		17+295				
TRS-30A	RDX 20	Moor Lane	Road	Augerbore	333218.1711	366630.1423	17+961	To prevent disruption to traffic To avoid disturbance to utility services under road
TRS-30A	PLX-067		Utility				17+970	
TRS-30A	PLX-068		Utility				17+977	
TRS-30A	CBX-067		Utility				17+978	
TRS-30A	CBX-068		Utility				17+978	
TRS-30A	CBX-069		Utility				17+980	
TRS-30A	HDX-083		Hedgerow				17+981	
TRS-30A	PLX-069		Utility				17+985	
TRS-30A	WCX-025		Watercourse				17+988	
TRS-30B	RDX 21	Unnamed road	Road	Open cut option to Augerbore	332929.99	366945.25	18+402	To prevent disruption to traffic
TRS-31	WCX-032	Chester Road	Watercourse	Augerbore	332691.724	367329.5222	19+241	No change
TRS-31	CBX-070		Utility				19+244	
TRS-31	PLX-070		Utility				19+244	
TRS-31	CBX-071		Utility				19+244	
TRS-31	CBX-072		Utility				19+244	
TRS-31	HDX-095		Hedgerow				19+246	
TRS-31	PLX-071		Utility				19+247	
TRS-31	RDX 22		Road				19+249	
TRS-31	PLX-072		Utility				19+254	
TRS-32	PLX-073		Utility				19+255	
TRS-32	HDX-096		Hedgerow				19+262	
TRS-32	HDX-097		Hedgerow				19+267	
TRS-32	WCX-033		Watercourse				19+271	
TRS-32	PLX-074		Utility				19+300	
TRS-32	PLX-075		Utility				19+302	
TRS-32	PLX-076		Utility				19+317	
TRS-32	PLX-077		Utility				19+348	

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO		
TRS-32	PLX-078		Utility	Microtunnel (1500mmID)			19+358			
TRS-32	PLX-079		Utility				19+368			
TRS-32	PLX-080		Utility				19+370			
TRS-32	PLX-081		Utility				19+390			
TRS-32	CBX-073		Utility				19+405			
TRS-32	CBX-074		Utility				19+405			
TRS-32	PLX-082		Utility				19+405			
TRS-32	CBX-075		Utility				19+408			
TRS-32	PLX-083		Utility				19+410			
TRS-32	CBX-076		Utility				19+411	No change		
TRS-32	CBX-077		Utility				19+412			
TRS-32	PLX-084		Utility				19+413			
TRS-32	PLX-085		Utility				19+413			
TRS-32	PLX-086		Utility				19+416			
TRS-32	PLX-087		Utility				19+418			
TRS-32	CBX-078		Utility				19+418			
TRS-32	RDX 23	Chester Road	Road			332576.0033	367443.6411	19+420		
TRS-32	CBX-079		Utility					19+424		
TRS-32	PLX-088		Utility					19+432		
TRS-32	CBX-080		Utility					19+438		
TRS-32	CBX-081		Utility					19+445		
TRS-32	CBX-082		Utility					19+465		
TRS-32	CBX-083		Utility					19+470		
TRS-32	CBX-084		Utility					19+477		
TRS-32	PLX-089		Utility					19+492		
TRS-32	HDX-098		Hedgerow					19+495		
TRS-32	HDX-099		Hedgerow					19+510		
TRS-32	WCX-034		Watercourse				19+528			
TRS-33	HDX-101		Hedgerow	Augerbore	332275.6903	367546.6713	19+757			
TRS-33	PLX-090		Utility						19+762	
TRS-33	PLX-091		Utility						19+762	
TRS-33	RDX 24	Mancot Lane	Road						19+765	
TRS-33	PLX-092		Utility						19+767	No change
TRS-33	PLX-093		Utility						19+768	
TRS-33	CBX-085		Utility						19+770	
TRS-33	HDX-102		Hedgerow						19+772	
TRS-33	PLX-094		Utility						19+777	
TRS-33	PLX-095		Utility						19+778	
TRS-33A	RDX 25	Colliery Lane	Road	Augerbore	331672.7185	367329.7837	20+447	To prevent disruption to traffic		
TRS-34	HDX-109		Hedgerow	Augerbore	331542.7921	367261.2894	20+597			
TRS-34	CBX-087		Utility						20+597	
TRS-34	CBX-088		Utility						20+599	
TRS-34	RDX 26	Gladstone Way	Road						20+604	
TRS-34	PLX-098		Utility						20+610	

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO
TRS-34	PLX-099		Utility	Augerbore			20+610	No change
TRS-34	HDX-110		Hedgerow				20+612	
TRS-34	CBX-089		Utility				20+614	
TRS-34	PLX-100		Utility				20+631	
TRS-34	PLX-101		Utility				20+654	
TRS-35	WCX-036	Aston Woodland Area	Watercourse	Augerbore			20+912	No change
TRS-35	HDX-111		Woodland		331296.6645	367106.1699	20+938	
TRS-35A	HDX-114		Hedgerow	Augerbore			21+469	
TRS-35A	PLX-102		Utility				21+471	
TRS-35A	RDX 27	Lower Aston Hall Lane	Road		330921.1084	366789.6632	21+473	To prevent disruption to traffic
TRS-35A	CBX-091		Utility				21+473	To avoid disturbance to utility services under road
TRS-35A	HDX-115		Hedgerow				21+477	
TRS-36	PLX-103		Utility	Microtunnel (1500mmID)			21+744	
TRS-36	PLX-104		Utility				21+745	
TRS-36	HDX-116		Hedgerow				21+759	
TRS-36	RLX-003	Borderlands Railway	Railway		330663.238	366871.2848	21+763	No change
TRS-36	CBX-092		Utility				21+770	
TRS-36	RLX-005		Railway				21+772	
TRS-37	HDX-118		Hedgerow	Microtunnel (1500mmID)			22+069	
TRS-37	RDX 28	Aston Hill Expressway (A494)	Road		330364.9576	366973.6545	22+105	
TRS-37	CBX-093		Utility				22+110	No change
TRS-37	CBX-094		Utility				22+113	
TRS-37	PLX-105		Utility				22+169	
TRS -37A	PLX-106	Pipeline	Utility	Augerbore	330200.5710	366970.0470	22+340	To protect water main
TRS-38	HDX-121		Hedgerow				22+603	
TRS-38	PLX-108		Utility				22+618	
TRS-38	PLX-109		Utility				22+619	
TRS-38	PLX-110		Utility				22+622	
TRS-38	PLX-111		Utility				22+622	
TRS-38	PLX-112		Utility				22+622	
TRS-38	PLX-113		Utility				22+622	
TRS-38	CBX-095		Utility				22+654	
TRS-38	RDX 29	Church Lane	Road		329954.5651	367025.7957	22+680	No change
TRS-38	PLX-114		Utility				22+680	
TRS-38	PLX-115		Utility				22+680	
TRS-38	PLX-116		Utility				22+681	
TRS-38	PLX-117		Utility				22+682	
TRS-38	PLX-118		Utility				22+686	
TRS-38	PLX-119		Utility				22+686	
TRS-38	PLX-120		Utility				22+686	
TRS-38	PLX-121		Utility				22+686	

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO
TRS-38	CBX-096		Utility	Microtunnel (1500mmID)			22+703	
TRS-38	CBX-097		Utility				22+712	
TRS-38	CBX-098		Utility				22+713	
TRS-38	CBX-099		Utility				22+716	
TRS-38	CBX-100		Utility				22+717	
TRS-38	CBX-101		Utility				22+717	
TRS-38	CBX-102		Utility				22+720	
TRS-38	CBX-103		Utility				22+720	
TRS-38	CBX-104		Utility				22+720	
TRS-38	CBX-105		Utility				22+722	
TRS-38	CBX-106		Utility				22+727	
TRS-38	CBX-107		Utility				22+727	
TRS-38	PLX-122		Utility				22+728	
TRS-38	PLX-123		Utility				22+728	
TRS-38	PLX-124		Utility				22+729	
TRS-38	CBX-108		Utility				22+729	
TRS-38	CBX-109		Utility				22+729	
TRS-38	PLX-125		Utility				22+730	
TRS-38	PLX-126		Utility				22+731	
TRS-38	PLX-127		Utility				22+731	
TRS-38	RDX 30	Old Aston Hill	Road				22+734	No change
TRS-38	CBX-110		Utility				22+735	
TRS-38	CBX-111		Utility				22+735	
TRS-38	PLX-128		Utility				22+735	
TRS-38	PLX-129		Utility				22+736	
TRS-38	CBX-112		Utility				22+736	
TRS-38	CBX-113		Utility			22+737		
TRS-38	PLX-130		Utility			22+737		
TRS-38	HDX-122		Hedgerow			22+740		
TRS-38	HDX-123		Hedgerow			22+762		
TRS-39	HDX-129		Hedgerow	Augerbore			23+810	
TRS-39	CBX-117		Utility				23+821	
TRS-39	RDX 32	Holywell Road	Road		329044.8566	367115.1196	23+822	No change
TRS-39	CBX-118		Utility				23+823	
TRS-40	HDX-132		Hedgerow	Augerbore			24+406	
TRS-40	RDX 33	Green Lane	Road		328836.4378	366626.2734	24+411	
TRS-40	HDX-133		Hedgerow				24+413	
TRS-40	CBX-119		Utility				24+414	No change
TRS-40	PLX-136		Utility				24+415	
TRS-40	CBX-120		Utility				24+415	
TRS-40	PLX-137		Utility				24+425	
TRS-40A	HDX-135		Hedgerow			24+796		
TRS-40A	WCX-037		Watercourse			24+802		
TRS-40A	CBX-121		Utility			24+834	To prevent disruption to traffic	

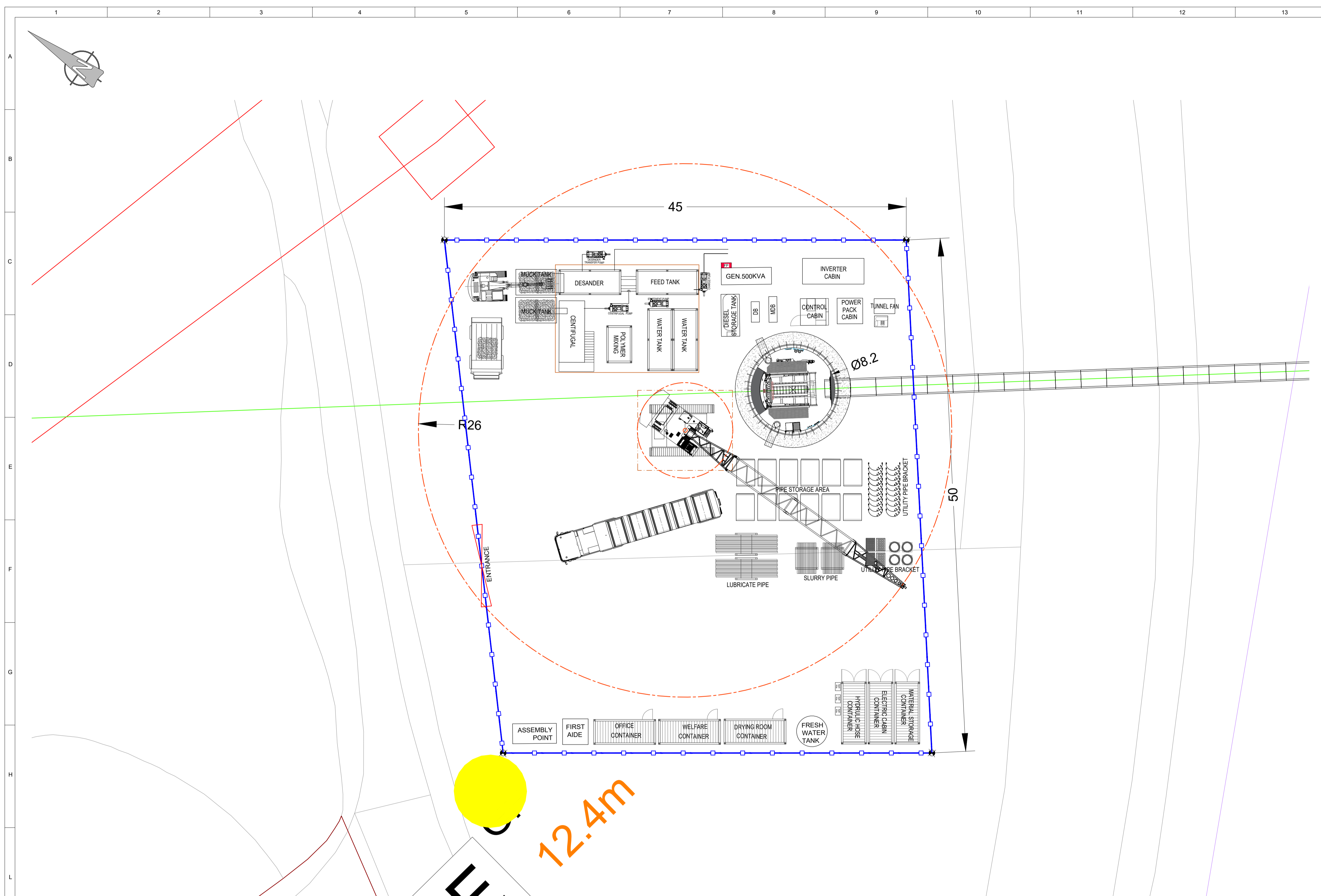
Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO	
TRS-40A	PLX-138		Utility	Open cut option to Augerbore			24+835	To avoid disturbance to utility services under road	
TRS-40A	CBX-122		Utility				24+835		
TRS-40A	CBX-123		Utility				24+835		
TRS-40A	HDX-136		Hedgerow				24+836		
TRS-40A	RDX 34	Green Lane	Road		328560.0013	366469.7559	24+839		
TRS-40A	HDX-137		Hedgerow				24+845		
TRS-40D	WCX 38	Alltami Brook	Watercourse	Pipe bridge option to HDD	327653	367146	26+000	No change / Subject to consultation	
TRS-40C	RDX 36	Chester Road	Road	Augerbore	326813.0122	367485.4788	26+960	To prevent disruption to traffic	
TRS-40B	PLX-141	Brookside Crescent	Utility	Augerbore	326694.9694	367597.5506	27+117	To prevent disruption to traffic	
TRS-40B	RDX 37		Road				27+118		
TRS-40B	CBX-132		Utility				27+122		
TRS-40B	HDX-148		Hedgerow				27+123		To avoid disturbance to utility services under road
TRS-40B	CBX-133		Utility				27+123		
TRS-41	HDX-151	Northop Hall Ancient Woodland	Woodland	Augerbore	326301.6519	367700.8727	27+526	No change	
TRS-41A	HDX-157	B5125	Hedgerow	Augerbore	325676.475	368121.8727	28+341	To prevent disruption to traffic	
TRS-41A	CBX-134		Utility				28+341		
TRS-41A	CBX-135		Utility				28+342		
TRS-41A	RDX 38		Road				28+345		
TRS-41A	HDX-158		Hedgerow				28+353		
TRS-42	HDX-163	Connahs Quay Road	Hedgerow	Augerbore	325635.3988	368512.3425	28+744	No change	
TRS-42	CBX-136		Utility				28+744		
TRS-42	PLX-142		Utility				28+745		
TRS-42	CBX-137		Utility				28+745		
TRS-42	RDX 39		Road				28+751		
TRS-42	HDX-164		Hedgerow				28+758		
TRS-43	WCX-042	Northop Brook	Watercourse	Augerbore option to open cut	325382.1465	368934.5846	29+255	No change / subject to consultation	
TRS-43	PLX-143	Utility	29+280						
TRS-43	PLX-144	Utility	29+320						
TRS-43A	PLX-145		Utility				30+018		

Trenchless Crossing Reference	Xing Reference	Crossing Name	Xing Type	Crossing Technique	Easting	Northing	KP	Change from DCO
TRS-43A	CBX-138		Utility				30+022	To avoid disturbance to utility services under road
TRS-43A	CBX-139		Utility	Augerbore			30+023	
TRS-43A	HDX-169		Hedgerow				30+026	
TRS-43A	RDX 40	Starkey Lane	Road		325286.6534	369667.5352	30+028	To prevent disruption to traffic
TRS-43A	HDX-170		Hedgerow				30+034	

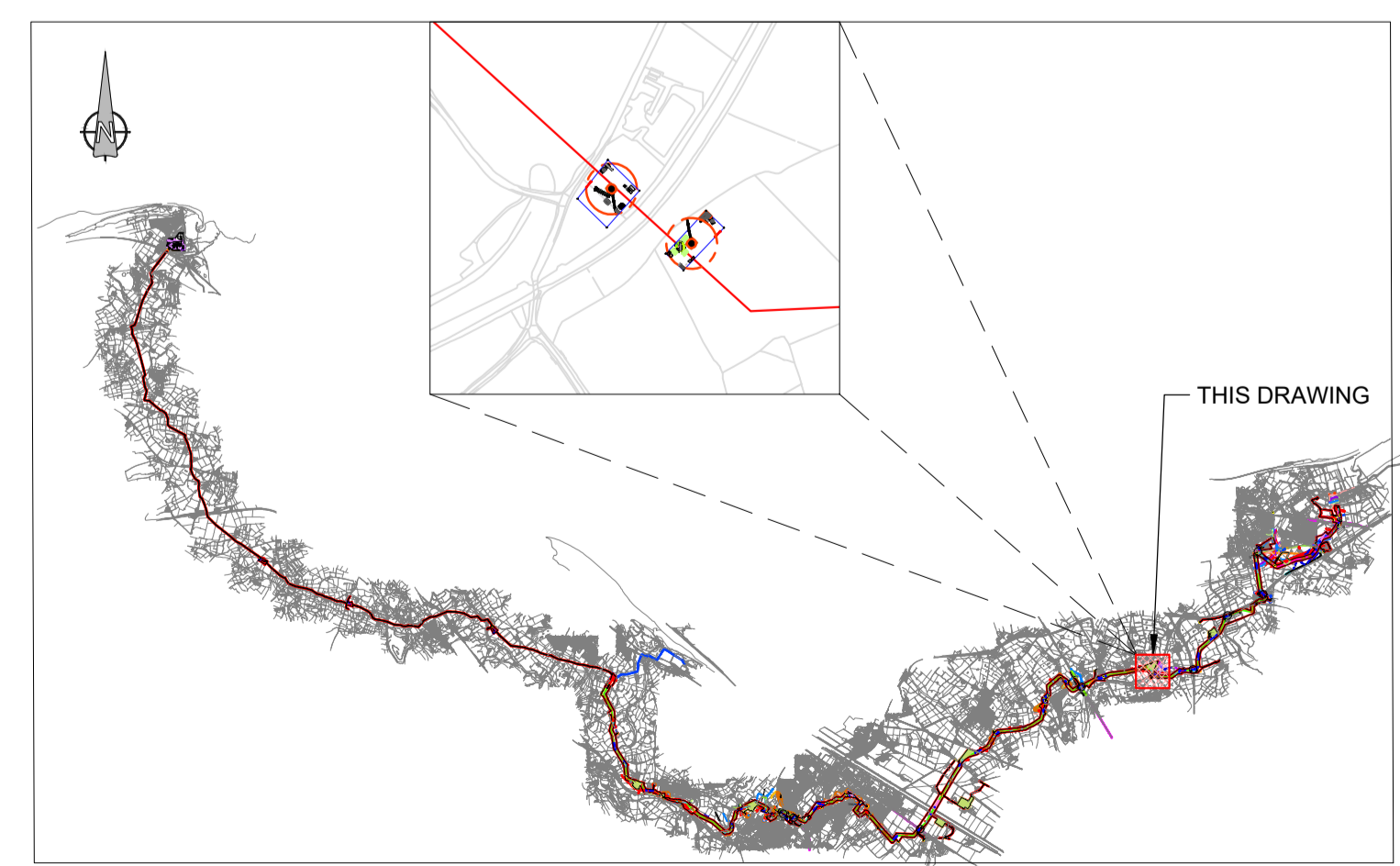
Included in Stage 2i
Additional Crossings Proposed



APPENDIX B – Typical Trenchless Crossing Compound Layouts



SITE LAYOUT TRS-17 PLAN
1:200



LOCATION PLAN
1:200000

REFERENCE DOCUMENTS	
NUMBER	TITLE
xx	xx

- NOTES:**
- DO NOT SCALE OF THIS DRAWING.
 - ALL LEVELS IN METERS ABOVE ORDINANCE DATUM (AOD).
 - ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
 - COORDINATES AND MAPPING GRID ARE IN METERS TO OSGB1936.NationalGrid.
 - SCALES ON THE DRAWINGS ARE NOT APPLICABLE TO REDUCED SIZED PRINTS.
 - ALL UNDERGROUND WORKS TO BE IN ACCORDANCE WITH:
 - BTS TUNNELING SPECIFICATIONS
 - BS 6164:2019; HEALTH AND SAFETY IN TUNNELING.
 - TOLERANCE LINE AND LEVEL IN ACCORDANCE WITH BTS TUNNELING SPECIFICATION.
 - LINE: +50mm
 - LEVEL: +35mm
 - UTILITY INFORMATION FROM: Base Map (All KMZ Data).
 - GROUND PROFILE FROM: 1025H0BGRV09409_CDFE01_01.
 - FOR RISK MITIGATION REFER TO THE FULL DESIGNERS RISK ASSESSMENT REFERENCED.
 - DRAWING TO BE READ IN CONJUNCTION WITH REFERENCE DOCUMENTS.

- LEGEND:**
- TELECOMMUNICATIONS- TELENT (B) —
 - ORDER LIMITS —
 - 36" PIPE LINE OPENCUT —
 - FRANCE BOUNDARY MICROTUNNELING — □

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION BOX

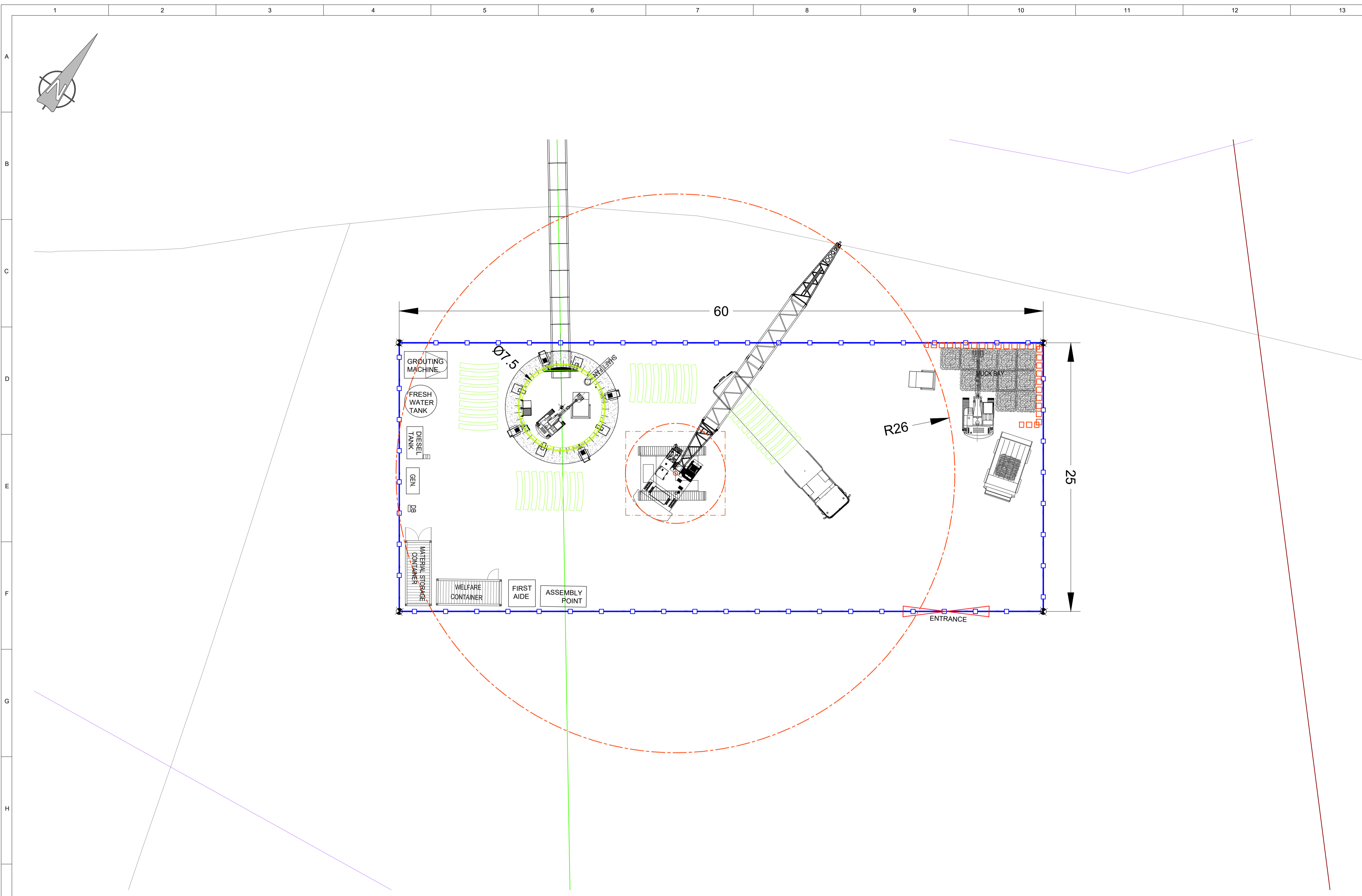
IT IS EXPECTED THAT THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THIS TYPE OF WORK WILL BE IDENTIFIED AND CONTROLLED BY TASK SPECIFIC RISK ASSESSMENT METHOD STATEMENT COMPLYING WITH INDUSTRY H&S STANDARDS, AND THE WORKS WILL BE PERFORMED BY TRAINED AND COMPETENT PERSONNEL.

RISKS:

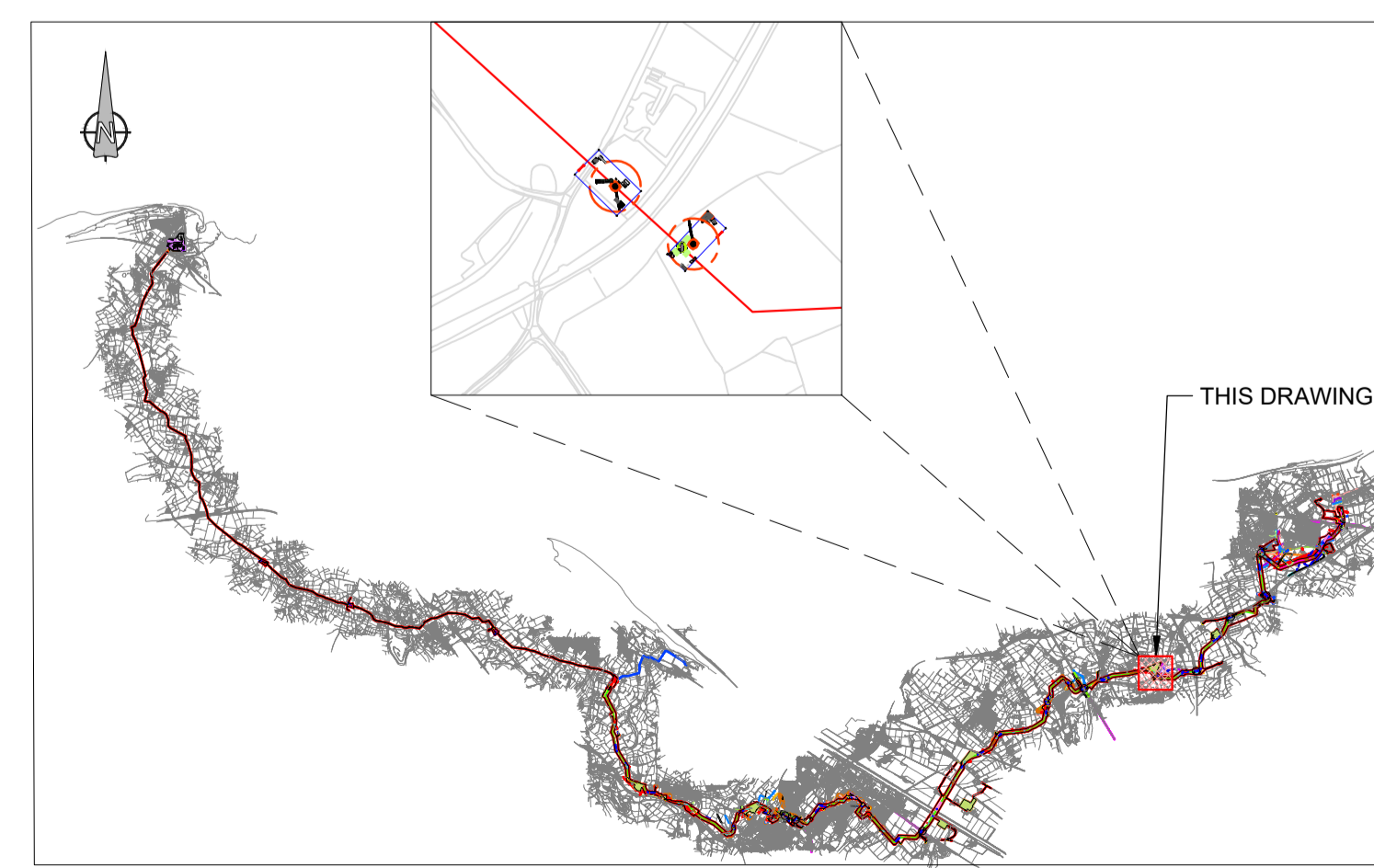
- ⚠ SWELLING OF CLAYS LARGER THAN EXPECTED AND GROUND LOAD COMES ONTO THE PIPE OR SHAFT DURING CONSTRUCTION.
- ⚠ WEAK GROUND LEADS TO HEAVE OF PAVEMENT SURFACE OR A DISCONTINUITY ALLOWS DRILLING FLUID PATH TO GROUND SURFACE LEADING TO HYDROFRACTURE OF DRILLING FLUID.
- ⚠ SETTLEMENT OF THE ROAD PAVEMENT SURFACE.
- ⚠ ENCOUNTERING SUB-ARTESIAN WATER DURING SHAFT SINKING OPERATION.

Revision Number	Date	Description	Prepared by	Checked by	Approved by	Contractor Approval	Company Approval
xx	xx	xx	xx	xx	xx	xx	xx

Company logo and business name 	LCI Activity Code G62024004 Contract Code 000593	Company Document ID: XX
Contractor logo and business name 	Contractor Document ID: XX	
Vendor logo and business name 	Vendor Document ID: XX	
Facility and Sub Facility Description ONSHORE PIPELINE B0- C0 DEPENDANT	Project and SOW Description LBA CCS PROJECT WP4	Scale AS SHOWN Sheet of Sheets 1 OF 1
Document Title TRS-17 LAUNCH SITE LAYOUT	Supersedes N. B0- C0 DEPENDANT 170	Functional Unit B0- C0 DEPENDANT 170



SITE LAYOUT TRS-17 PLAN
1:200



LOCATION PLAN
1:200000

REFERENCE DOCUMENTS	
NUMBER	TITLE
xx	xx

- NOTES:
- DO NOT SCALE OF THIS DRAWING.
 - ALL LEVELS IN METERS ABOVE ORDINANCE DATUM (AOD).
 - ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
 - COORDINATES AND MAPPING GRID ARE IN METERS TO OSGB1936.NationalGrid.
 - SCALES ON THE DRAWINGS ARE NOT APPLICABLE TO REDUCED SIZED PRINTS.
 - ALL UNDERGROUND WORKS TO BE IN ACCORDANCE WITH:
 - BTS TUNNELING SPECIFICATIONS
 - BS 8164:2019; HEALTH AND SAFETY IN TUNNELING.
 - TOLERANCE LINE AND LEVEL IN ACCORDANCE WITH BTS TUNNELING SPECIFICATION.
 - LINE: +50mm
 - LEVEL: +35mm
 - UTILITY INFORMATION FROM: Base Map (All KMZ Data).
 - GROUND PROFILE FROM: 1025H0BGRV09409_CDFE01_01.
 - FOR RISK MITIGATION REFER TO THE FULL DESIGNERS RISK ASSESSMENT REFERENCED.
 - DRAWING TO BE READ IN CONJUNCTION WITH REFERENCE DOCUMENTS.

- LEGEND:
- TELECOMMUNICATIONS- TELENT (B) —
 - ORDER LIMITS —
 - 36" PIPE LINE OPENCUT —
 - FRANCE BOUNDARY MICROTUNNELING — □

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION BOX

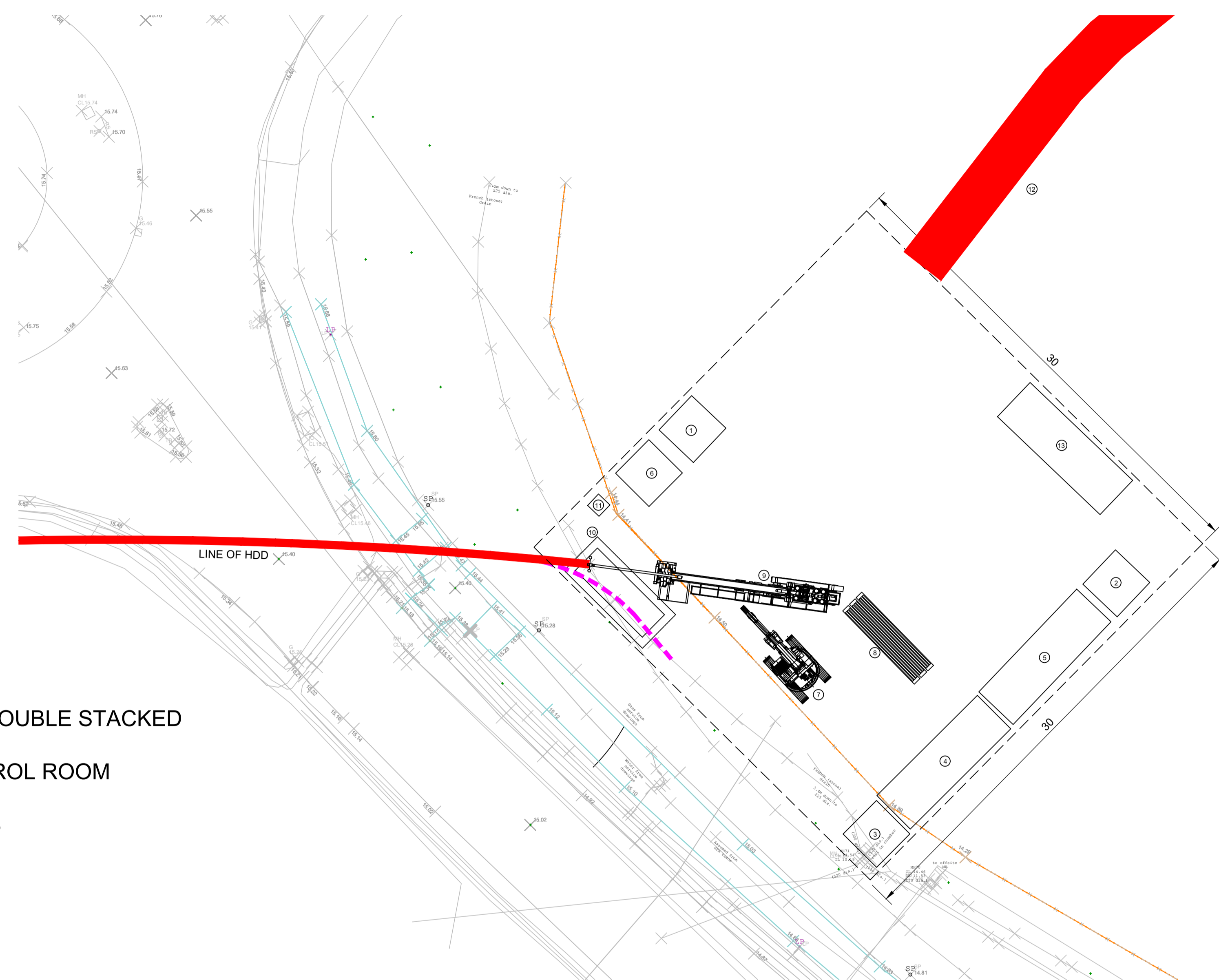
IT IS EXPECTED THAT THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THIS TYPE OF WORK WILL BE IDENTIFIED AND CONTROLLED BY TASK SPECIFIC RISK ASSESSMENT METHOD STATEMENT COMPLYING WITH INDUSTRY H&S STANDARDS, AND THE WORKS WILL BE PERFORMED BY TRAINED AND COMPETENT PERSONNEL.

RISKS:

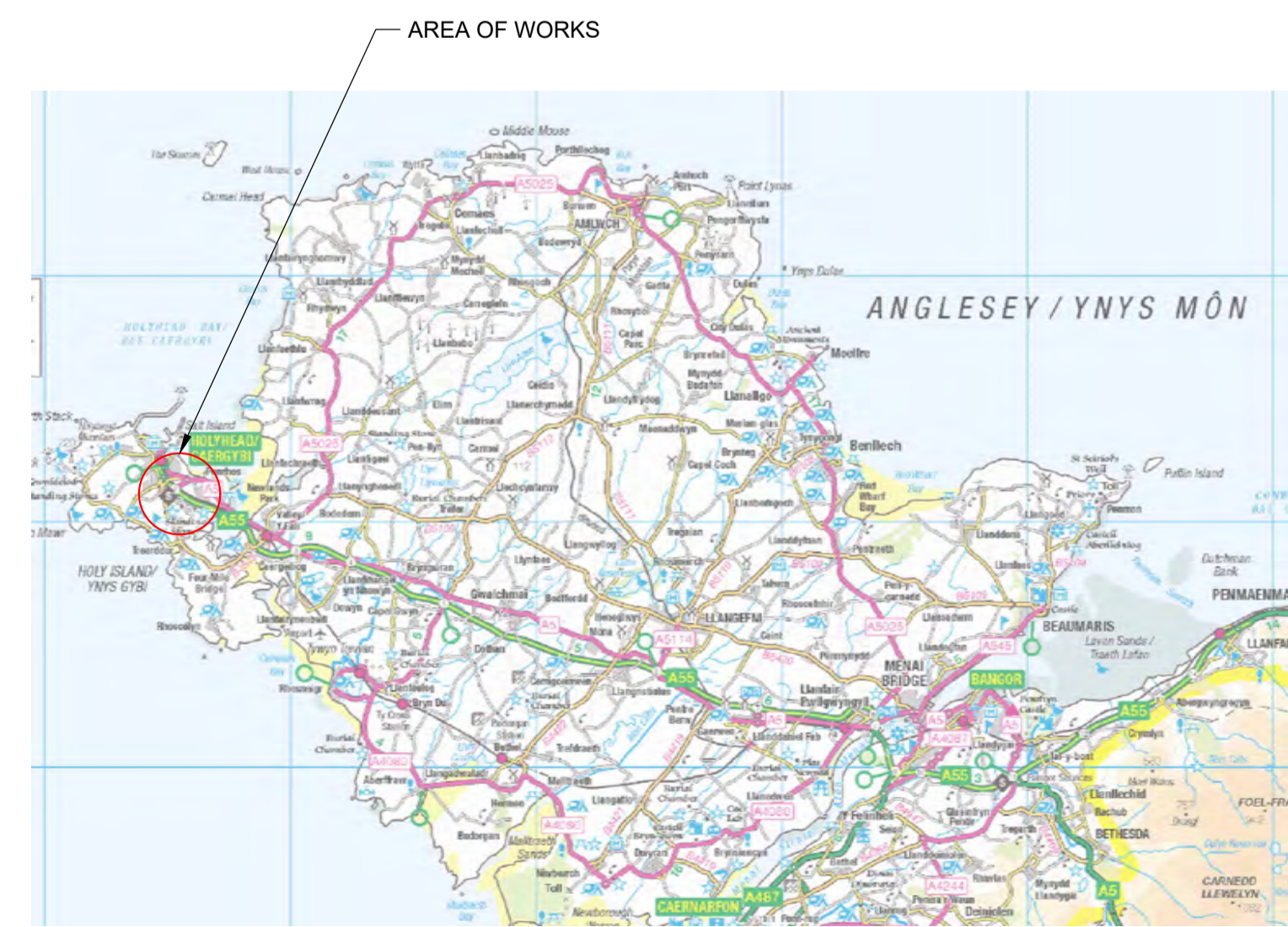
- ⚠ **G1** SWELLING OF CLAYS LARGER THAN EXPECTED AND GROUND LOAD COMES ONTO THE PIPE OR SHAFT DURING CONSTRUCTION.
- ⚠ **G2** WEAK GROUND LEADS TO HEAVE OF PAVEMENT SURFACE OR A DISCONTINUITY ALLOWS DRILLING FLUID PATH TO GROUND SURFACE LEADING TO HYDROFRACTURE OF DRILLING FLUID.
- ⚠ **G3** SETTLEMENT OF THE ROAD PAVEMENT SURFACE.
- ⚠ **G4** ENCOUNTERING SUB-ARTESIAN WATER DURING SHAFT SINKING OPERATION.

Version Number	Date	Description	Prepared by	Checked by	Approved by	Contractor Approval	Company Approval
xx	xx	xx	xx	xx	xx	xx	xx
Revision Index			LCI Activity Code G82024004		Company Document ID: XX		
Contract Code 000593			Contractor logo and business name liverpool bay ccs		Contractor Document ID: XX		
Contractor logo and business name JOSEPH GALLAGHER LIMITED			Project and BOW Description ONSHORE PIPELINE B0- C0 DEPENDANT		Contractor Document ID: XX		
Vendor logo and business name			Purchase Order N.		Contractor Document ID: 4600044563		
Facility and Sub Facility Description			Scale		Sheet of Sheets		
Document Title TRS-17 RECEPTION SITE LAYOUT			AS SHOWN		1 OF 1		
Supersedes N.			Superseded by N.		Functional Unit		
B0- C0 DEPENDANT			170		170		

- KEY:**
1. TOILET BLOCK
 2. SILENT PACK GENERATOR
 3. FLUID LAB
 4. 10m x 3m CENTRE FUSE- DOUBLE STACKED
 5. CLEANING SYSTEM
 6. 3m X 3m GUIDANCE CONTROL ROOM
 7. 22T EXCAVATOR
 8. 6m x 600mm ROD BASKETS
 9. HDD RIG
 10. LAUNCH PIT
 11. SLURRY PUMP
 12. HAUL ROAD
 13. STORAGE UNITS



HDD PLAN VIEW
1:100



LOCATION PLAN
NTS

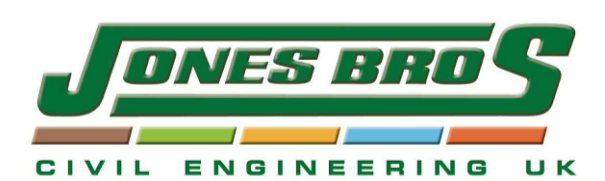
NOTES:
 1. DO NOT SCALE OF THIS DRAWING.
 2. ALL LEVELS IN METERS ABOVE ORDINANCE DATUM (AOD).
 3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

LEGEND:
 ———— HDD DESIGN ROUTE
 - - - - - HERAS FENCING

PO2.3	CJ	FOR REVIEW AND COMMENT	EP	JD	EP	03/03/22
PO1	CJ	FOR REVIEW AND COMMENT	EP	EP	EP	14/02/22
REV	BY	STATUS	DSG	CHK	APPD	DATE

DESIGNER
 JOSEPH GALLAGHER LIMITED
 Neagron House,
 Stanford Road,
 Orsett,
 Essex,
 RM16 3BX



CLIENT


STATUS
 S4- FOR REVIEW AND COMMENT

PROJECT
 MORLAIS

TITLE
 MORLAIS HDD GENERAL LAUNCH SITE LAYOUT PLAN

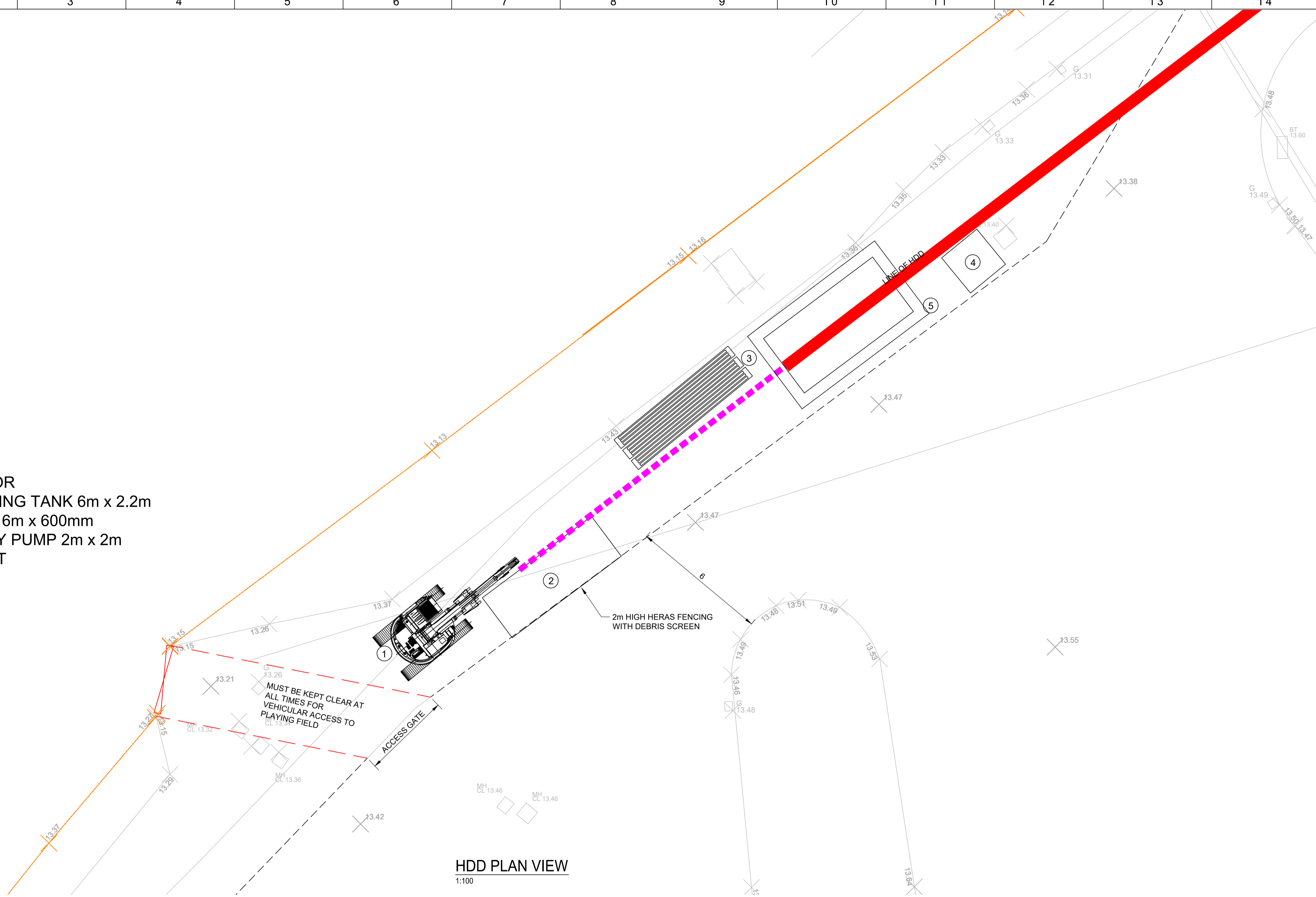
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CHECKED	EP	23/02/2022
APPROVED	EP	23/02/2022

SCALE: 1:100 @ A1 SHEET: 1 OF 1

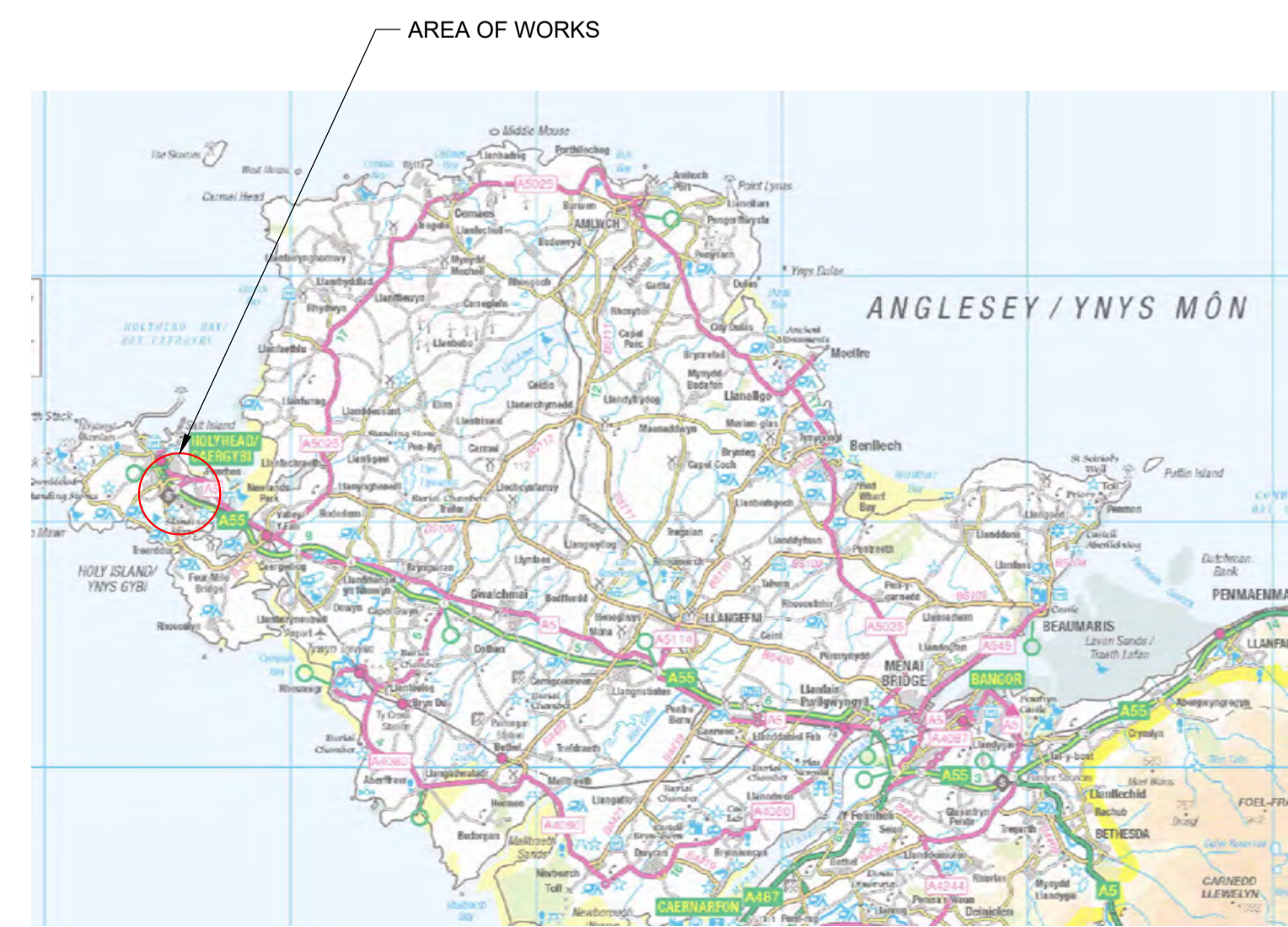
DRAWING REFERENCE	REV.
C275-JGL-HDD-XX-DRG-002004	P02.3

KEY:

1. 22T EXCAVATOR
2. SLURRY HOLDING TANK 6m x 2.2m
3. ROD BASKETS 6m x 600mm
4. 4 INCH SLURRY PUMP 2m x 2m
5. RECEPTION PIT



HDD PLAN VIEW
1:100



LOCATION PLAN
NTS


- NOTES:**
1. DO NOT SCALE OF THIS DRAWING.
 2. ALL LEVELS IN METERS ABOVE ORDINANCE DATUM (AOD).
 3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

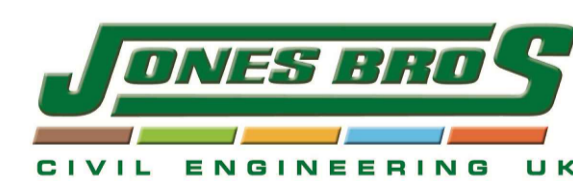
LEGEND:

- HDD DESIGN ROUTE
- - - - - HERAS FENCING

PO2.2	CJ	FOR REVIEW AND COMMENT	EP	JD	EP	03/03/22
PO1	CJ	FOR REVIEW AND COMMENT	EP	EP	EP	14/02/22
REV	BY	STATUS	DSG	CHK	APPD	DATE

DESIGNER
JOSEPH GALLAGHER LIMITED
Neagron House,
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CLIENT


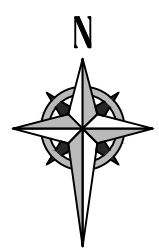
STATUS
S4- FOR REVIEW AND COMMENT

PROJECT
MORLAIS

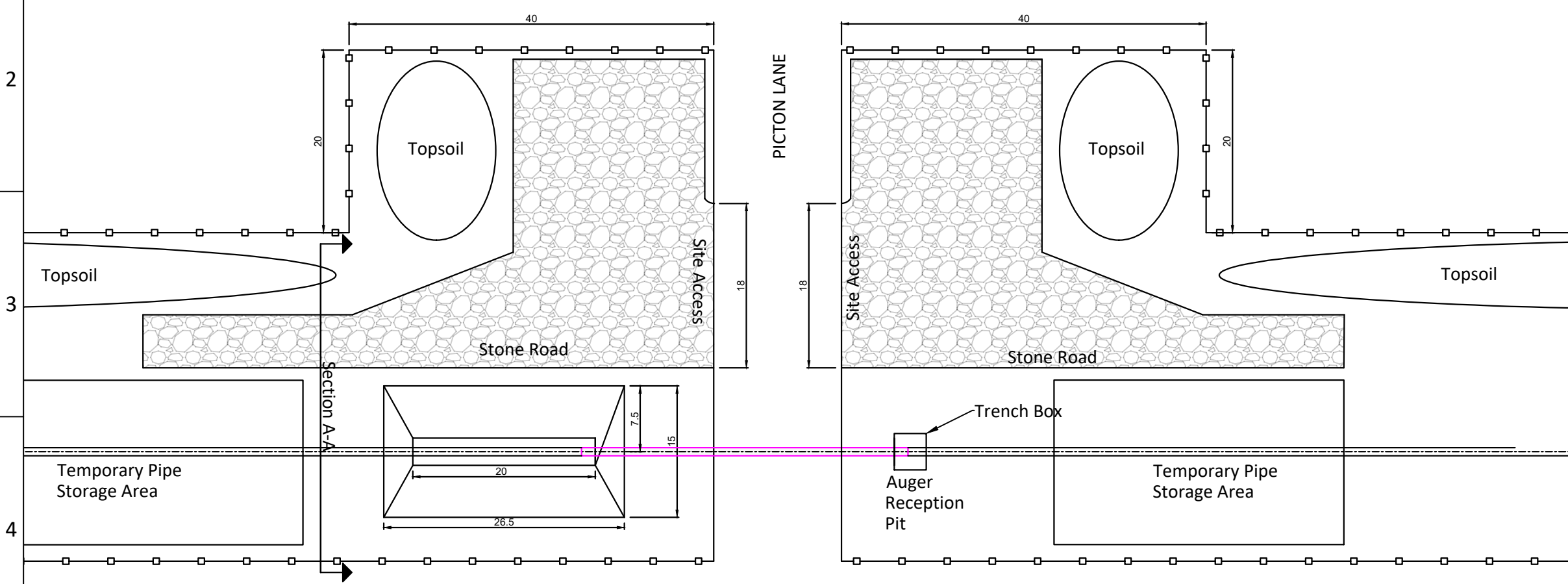
TITLE
MORLAIS HDD GENERAL
RECEPTION SITE LAYOUT PLAN

DRAWN	CJ	23/02/2022
CHECKED	EP	23/02/2022
APPROVED	EP	23/02/2022
SCALE	1:100 @ A1	SHEET 1 OF 1

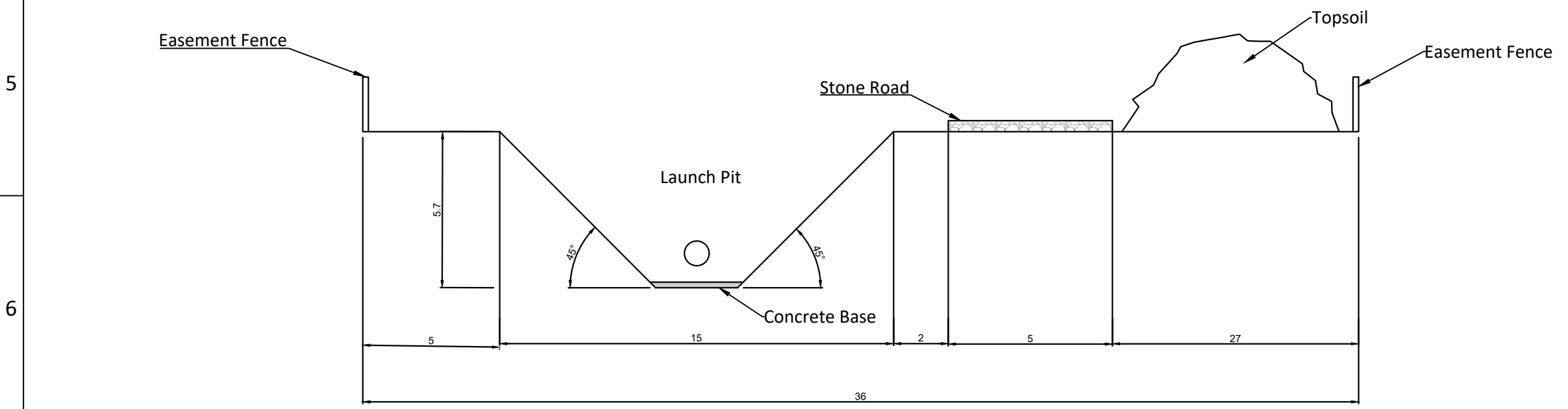
DRAWING REFERENCE	REV.
C275-JGL-HDD-XX-DRG-002005	P02.2



Double Access Layout



Section View At Launch Pit



Notes:

- All dimensions in meters unless otherwise stated.

Open Cut
 36 Meter Auger

Rev	Date	Reason for Issue	Drawn	Checked	Approved
0	26.03.25	Info Only	B.E	P.K	

Client: ENI

Project: LBACCS

Drawing Title: Picton Lane - Auger/Access Layout

Scale (if not shown): Not to Scale

Client Reference No.: N/A

ULIS Project No.: 802001

Drawing Sheet Size: A3 [IMS-LIB-F-384 (8) 29/02/24]

Sheet Number: 1 of 1

ULIS Drawing Number: 802001-DES-DW-045

Status: Issued

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