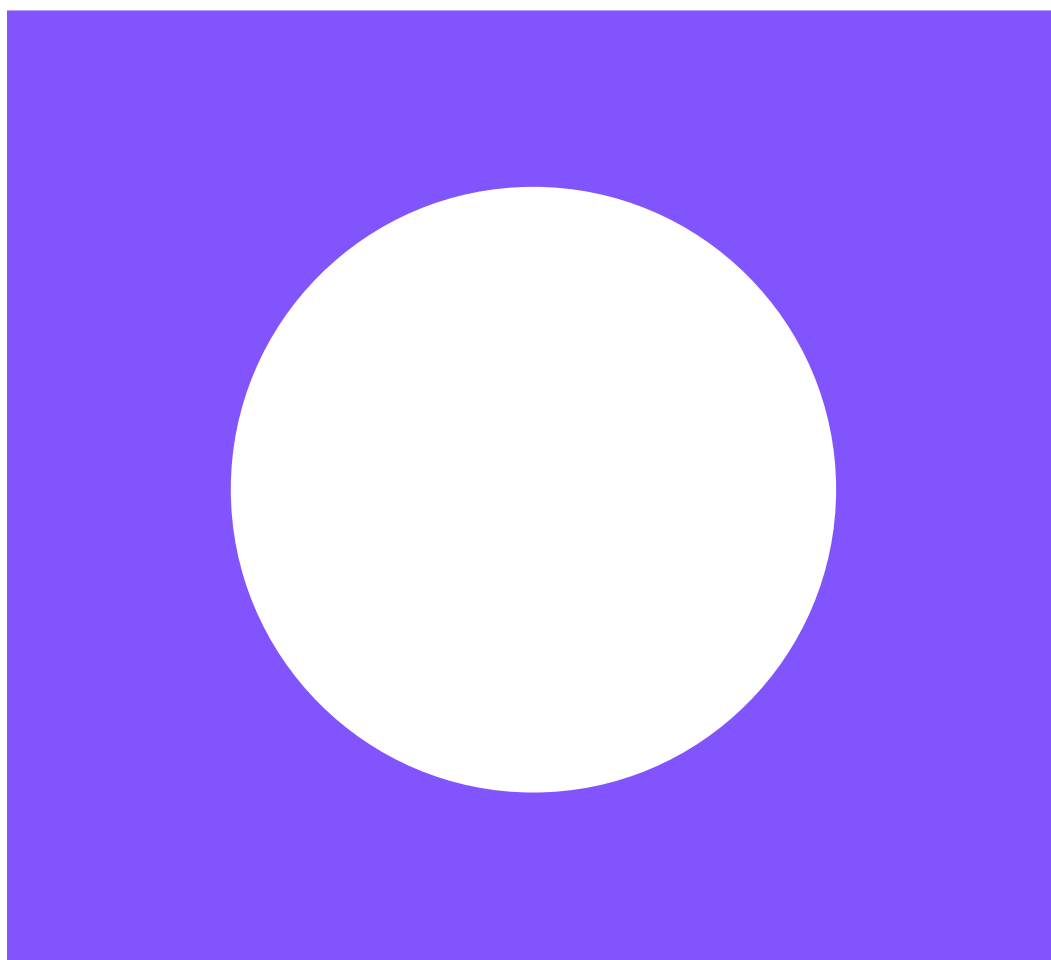




# **Scotland Onshore Cable Route Drainage Strategy**

Eastern Green Link 4

November 2025

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Mott MacDonald  
1st Floor  
10 George Street  
Edinburgh EH2 2PF  
United Kingdom

T +44 (0)131 221 2300  
mottmac.com

# Scotland Onshore Cable Route Drainage Strategy

Eastern Green Link 4

November 2025

# Issue and Revision Record

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# 1 Introduction

## 1.1 Project Overview and Scope

Mott MacDonald has been commissioned by Scottish Power Energy Networks (SPEN) to determine the preliminary route of a proposed high voltage direct current (HVDC) cabled connection as part of the Scotland to Eastern Green Link 4 (EGL4) project. This report details the Drainage Strategy for the Scottish Onshore Scheme, which forms part of the link between Fife, Scotland and Lincolnshire, England. The terrestrial cable route is approximately 16.2km in length.

This report considers the impact that the scheme may have on surface water flow paths and existing field drainage networks and provides a high-level drainage strategy. The report also considers a potential strategy for the management of foul effluent during the construction phase. It should be noted that there is no permanent surface water drainage, other than the reinstatement of land drainage impacted by the construction work, and no permanent foul sewerage is being provided under this project.

This report has been used to support the cable routing and siting arrangements in order to determine the project's 'redline' boundary. The report is also intended to form the basis of the final drainage strategy developed in advance of the construction period. This report is not intended to replace the Surface Water Management plan.

## 1.2 Site Location

The preliminary cable corridor makes landfall north of the town of Kinghorn 327569.18E 687492.90N). As shown in Appendix A, the route runs northwest from Kinghorn to the Converter Station situated next to the existing Westfield 275kv Substation, north of the town of Lochgelly. The preliminary cable corridor traverses primarily over agricultural land, avoiding dense forest areas and regions with a profuse buildup of vegetation wherever possible. It passes near multiple small settlements - the villages of Kinghorn, Auchtertool, and Lochgelly being the most notable. The route also encompasses several road crossings, including the B981, A92, B9149, B925, B9157, Jawbanes Road, and A921, in addition to multiple unnamed roads. Furthermore, the preliminary cable corridor crosses two railway lines, numerous drainage ditches, the River Ore and several small watercourses.

## 1.3 Data Sources

| Name                                                                                      | File Ref                                                 | Source                      | Date      | Revision |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------|-----------|----------|
| HVDC and HVAC construction swathe standard detail                                         | SEAL-MMD-SEAL-ENG-DWG-0082<br>SEAL-MMD-SEAL-ENG-DWG-0083 | Mott MacDonald              | Jan 2023  | 03       |
| Aerial maps, Open street maps                                                             | N/A                                                      | Google Maps and Earth, Bing | 2024      | N/A      |
| British Geological Survey (BGS)<br>Website: Historic borehole records and geological maps | N/A                                                      | BGS website                 | 2024      | N/A      |
| Scotland Cable Route Access Strategy                                                      | 113643-MMD-SPEN-XX-RP-ZZ-0182                            | Mott MacDonald              | July 2024 | 01       |

| Name                              | File Ref                         | Source         | Date      | Revision |
|-----------------------------------|----------------------------------|----------------|-----------|----------|
| High-level Geotechnical Desk Stud | 113643-MMD-SPEN-XX-TN-ZZ-0187 y. | Mott MacDonald | July 2024 | 01       |
| Scalgo Live                       | N/A                              | Scalgo Live    | July 2024 | N/A      |
| Constraints schedule              | 113643-MMD-SPEN-XX-SH-ZZ-0186    | Mott MacDonald | July 2024 | 01       |

## 1.4 Standards and Guidance

| Document Name                                                                                                               | Document Reference                      | Publisher                   |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|
| Engineering in the Water Environment Good Practice Guide – Temporary Construction Methods <sup>1</sup>                      | WAT-SG-29                               | SEPA, 2009                  |
| SEPA Flood Risk and Controlled Activities Regulations <sup>2</sup>                                                          | CAR                                     | SEPA                        |
| SuDS Manual (C753)                                                                                                          | C753                                    | CIRIA, 2015                 |
| GENERAL SPECIFICATION FOR THE CIVIL ENGINEERING AND BUILDING DESIGN AND CONSTRUCTION OF 132kV GRID SUBSTATIONS <sup>3</sup> | SUB-03-026                              | SPEN                        |
| Control of water pollution from linear construction projects                                                                | C649                                    | CIRIA                       |
| Forestry Commission, Forest roads and tracks (for track drainage systems)                                                   | Grants & Regulations Operations Note 25 | Forestry commission England |
| Fife Council - Design criteria guidance on flooding and surface water management plan requirements, 2022 <sup>4</sup>       | V2.1                                    | Fife Council, 2022          |
| Culverting of Watercourses - Position Statement and Supporting Guidance <sup>5</sup>                                        | WAT-PS-06-02                            | SEPA, 2011                  |
| Engineering in the water environment: good practice guide River crossings <sup>6</sup>                                      | WAT-SG-25                               | SEPA, 2010                  |

<sup>1</sup> [https://www.sepa.org.uk/media/150997/wat\\_sg\\_29.pdf](https://www.sepa.org.uk/media/150997/wat_sg_29.pdf)

<sup>2</sup> <https://www.sepa.org.uk/media/94134/car-flood-risk-standing-advice-for-engineering-discharge-and-impoundment-activities.pdf>

<sup>3</sup> Doesn't include construction drainage but listed for general reference.

<sup>4</sup> [https://www.fife.gov.uk/\\_\\_data/assets/pdf\\_file/0012/160122/FC-Flooding-and-SWMP-Guidance-v2.1.pdf](https://www.fife.gov.uk/__data/assets/pdf_file/0012/160122/FC-Flooding-and-SWMP-Guidance-v2.1.pdf)

<sup>5</sup> [https://www.sepa.org.uk/media/150919/wat\\_ps\\_06\\_02.pdf](https://www.sepa.org.uk/media/150919/wat_ps_06_02.pdf)

<sup>6</sup> <https://www.sepa.org.uk/media/151036/wat-sg-25.pdf>

## 2 Existing Conditions

### 2.1 Existing Topography

The corridor comprises largely undeveloped agricultural and forestry/woodland areas, extending from the Fife coast north of Kinghorn to an area north-west of Cardenden. The preliminary cable corridor is intersected by existing transport infrastructure, namely A class roads (A921 and A92) and B class roads (B9157, B925 and B981), and two railway crossings associated with the Fife Circle Railway (Kinghorn to Thornton Junction Branch, and the Thornton Junction to Lochgelly Branch). Sporadic residential/agricultural dwellings and farms are present throughout the preliminary cable corridor with associated minor roads and access tracks.

The topography varies throughout the length of the preliminary cable corridor, with some localised steep sections being present including rock outcrops and crags. The topography is therefore anticipated to pose some challenges to the scheme associated with access and construction. Topography is considered in greater detail within other project-related documents/reports, and a high-level summary is provided below.

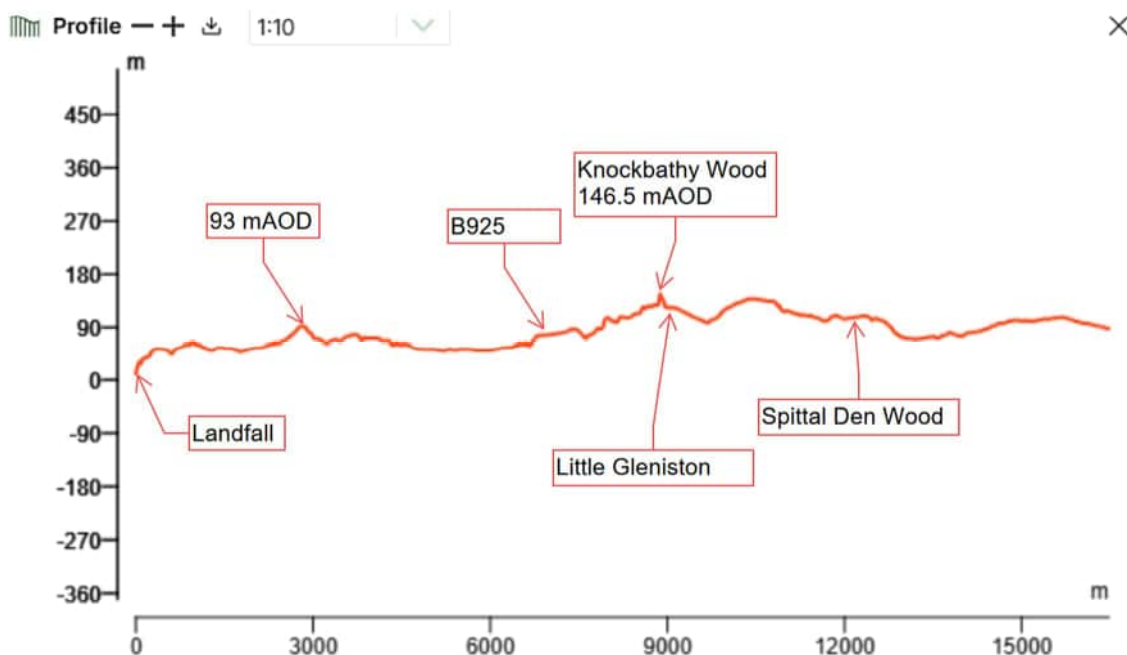
The preliminary cable corridor transitions into the terrestrial environment (landfall) immediately north of the town of Kinghorn, where the topography rises steeply to the north between the coastline, which is 0m AOD and the Fife Circle Railway to an elevation of approximately 30m AOD, before shallowing into gentle, undulating slopes which reach a maximum elevation of approximately 93m AOD in the area south of the B9157.

Continuing north, the elevation falls to approximately 50m AOD at the centre of a small valley within which the Tiel Burn flows in an east-west orientation. The preliminary cable corridor then rises back to an elevation of approximately 80m AOD at the B925. The undulating slopes continue to gently rise in elevation towards the north, reaching a maximum elevation of approximately 146.5m AOD in the vicinity of Knockbath Wood, located north of Little Gleniston.

The topography thereafter fluctuates between elevations of approximately 100m to 146.5m AOD between Knockbath Wood to Spittal Den Wood, beyond which the elevation varies between approximately 70m to 100m AOD along the remainder of the preliminary cable corridor.

Design levels for the preliminary cable corridor and individual areas including construction compounds and watercourse crossings are to be confirmed through detailed design.

**Figure 2-1 - Preliminary Cable Corridor Profile**



Source: Environment Agency, England National LIDAR Programme DTM, 2023-09-18

## 2.2 Hydrology

### 2.2.1 Hydrological Features

There are a number of hydrological features within the vicinity of the preliminary cable corridor, which provide locations for discharge points.

The main burns which cross the preliminary cable corridor can be seen in Table 3-1.

### 2.2.2 Flood Risk

No Flood Risk Assessment (FRA) has been completed to date. However, a review of SEPA flood maps has been carried out.

SEPA classifies fluvial and pluvial flooding in the following way:

- High probability – 1 in 10-year event
- Medium probability – 1 in 200-year event
- Low probability – 1 in 1000-year event

SEPA flood maps highlight some areas along the preliminary cable corridor which have a high probability of flooding. These areas are primarily in low lying areas around watercourses. One area of note is located along Tiel Burn where the area is particularly flat resulting in a large flood plain.

Joining bays are underground structures constructed at intervals along the onshore cable route to join cable sections and facilitate cable installation into the buried ducts. Joining bays along the preliminary cable corridor are considered to be protected from groundwater. Where possible, the strategy assumes joining bays are located outside flood zones during the design of the preliminary cable corridor. Mitigation measures should be introduced to mitigate flood risk

during the construction phase of these elements in the Construction Environmental Management Plan (CEMP), to mitigate construction effects on the environment.

Surface water flooding is often referred to as 'pluvial' flooding. This flooding occurs when heavy rainfall exceeds the capacity of local drainage networks, resulting in water flowing across the ground or ponding in low-lying areas and localised depressions. Where possible, drainage attenuation basins should not be designed in places in areas of high probability of surface water flooding.

All potential compound locations have been placed away from areas susceptible to pluvial and fluvial flooding. Where possible, attenuation basins have been kept out of areas of flood risk. However, due to the topography of the land, there are basins which are in flood risk areas. Basins within identified flood plains should be bunded to mitigate flood risk, and the impact of this bunding on the wider flood plain considered.

Extracts from the SEPA flood maps can be seen in Appendix C.

### 2.2.3 Watercourse crossings

In order to identify existing watercourses affected by the cable scheme, OS Mapping, Aerial mapping, Open Street mapping, and the Scalgo live Website were used as data sources.

There are several SEPA-designated watercourses along the preliminary cable corridor, consisting of one river and five burns. The approximate chainages that the cable corridor crosses them are shown below in Table 2-1 . Additionally, there are multiple unnamed watercourses along the route.

Appendix B shows the locations of these crossings. Additionally, 113643-MMD-SPEN-XX-SH-ZZ-0186 – constraints schedule highlights all the constraints on the preliminary cable corridor.

**Table 2-1 - Main Watercourse Crossings locations (Landfall to Converter Station)**

| Watercourse Name                              | Chainage | ID     |
|-----------------------------------------------|----------|--------|
| Banchory Burn                                 | ~1.3 km  | WA/017 |
| Tyrie Burn                                    | ~1.8 km  | WA/018 |
| Tyrie Burn                                    | ~2.1 km  | WA/021 |
| Tyrie Burn                                    | ~2.4 km  | WA/022 |
| Tiel Burn                                     | ~4.3 km  | WA/038 |
| Tiel Burn                                     | ~5.7 km  | WA/040 |
| Bottom Burn                                   | ~6.6 km  | WA/043 |
| Dronachy Burn                                 | ~7.6 km  | WA/055 |
| Unnamed Burn/ Culverted watercourse           | ~7.9 km  | WA/057 |
| Gelly Burn                                    | ~9.0 km  | WA/065 |
| Gelly Burn                                    | ~9.7 km  | WA/067 |
| Unnamed Burn                                  | ~11.7 km | WA/079 |
| Potential Unnamed Burn/ Culverted watercourse | ~12.5 km | WA/083 |

|                                     |          |        |
|-------------------------------------|----------|--------|
| River Ore                           | ~13.2 km | WA/100 |
| Unnamed Burn/ Culverted watercourse | ~13.5 km | WA/101 |
| Unnamed Burn                        | ~14 km   | WA/103 |
| Minor Burn / ditch                  | ~15.9 km | WA/117 |
| Minor Burn / ditch                  | ~15.9 km | WA/119 |

## 2.2.4 Land Drainage

### 2.2.4.1 Background

Land drainage, also known as field drainage, is a network of pipes and mole drains installed in fields that are prone to waterlogging. These generally convey water to nearby watercourses or drainage ditches. The permanent land drainage pipes are typically short lengths of vitrified clay drain tiles for older systems and perforated plastic pipes for newer systems.

### 2.2.4.2 Existing land drainage

Burns and ditches affected by the preliminary cable corridor have been identified based on Ordnance Survey mapping data. However, noting that drainage ditches are often found as narrow channels dug at the side of a road or field, it is anticipated that there are likely to be more drainage ditches affected by the preliminary cable corridor, for which information is not available from the data used to date.

The land drainage system in this area was established in the 1800s and the drains are referred to as "cundies." These drainage networks were handcrafted using stone. Land drains could be encountered in most of the preliminary cable corridor which is predominantly agricultural land. However, no details have been provided and there is no central record of where land drainage has been installed. Discussions with landowners will need to be carried out to determine if any records have been kept.

A strategy for mitigating damage to land drains encountered during construction is included in Section 3.3.3.

### 2.2.4.3 Existing infrastructure

Scottish Water has existing sewers consisting of surface, foul and combined networks. It is envisaged that the construction work will not make any drainage connections to these facilities or require any pipe diversions.

There is the opportunity to connect site foul sewerage to the Scottish Water network during construction, refer to Section 3.4.

## 2.3 Ground Conditions

### 2.3.1 General

An initial desk study was completed over the preliminary cable corridor which created a Geotechnical "RAG" rating for the whole corridor. Subsequent to this a preliminary intrusive ground investigation was undertaken within the refined preliminary cable corridor only.

Refer to the reports listed below for further geological details including details on superficial deposits:

- High Level Geotechnical Preliminary Risk Assessment Report (Desk Study) - 113643-MMD-SPEN-XX-TN-ZZ-0187
- Ground Investigation Report - 113643-MMD-SPEN-XX-TN-ZZ-0198

### **2.3.2 Drinking Water Protected Areas**

SEPA have classified Drinking Water Protected Areas (DWPAs) as rivers, lochs and groundwater that currently or will in the future supply more than 10 m<sup>3</sup>/day of water for human consumption.

The whole preliminary cable corridor passes through a Drinking Water Protected Area as specified by SEPA. However, no direct discharges to aquifers or protected watercourses should be assumed without further investigation and consultation.

## 3 Drainage Design Strategy

### 3.1 Overview

This section describes the drainage design strategy for the route. These principles have been followed to produce a preliminary drainage layout, which is included in Appendix D.

Preliminary attenuation basin details are included in Appendix E.

#### 3.1.1 Key Assumptions

No permanent drainage features are currently considered to be required. The strategy assumes temporary haul roads, cable swathes and compounds works will be in operation for up to three years. SuDS measures will therefore be implemented to control pollution and limit discharge to the following principles:

- The maximum discharge rate will be either 1 in 5-year greenfield runoff rate or 4.0l/s/ha, whichever is lower. Additionally, if the discharge is directed to an existing flood-sensitive watercourse as defined by Fife Council, the maximum discharge rate will be the lower of 1 in 2-year greenfield runoff rate or 3.3l/s/ha. The lower discharge rate will therefore apply to Tiel and Lochty Burns (refer Section 3.2.8).
- 1 in 10-year attenuation capacity in accordance with CIRIA C649 - Control of water pollution from linear construction projects site guide.
- SEPA guidance for water quality (refer Section 4).

No allowance has been made for climate change as the works are buried or temporary and shall be completed within an estimated 2 to 3 years' time frame.

The only key assumption not agreed with external parties is the attenuation capacity. Additional stakeholders may place restrictions on outfall locations.

#### 3.1.2 Disposal of flows

The design will meet the following discharge hierarchy (with acceptable justification for moving between levels) by the CIRIA C753 SuDS manual:

- Infiltration,
- Discharge to surface waters (to an existing watercourse or via dispersion that requires a vegetated flow path that infiltrates the water before reaching an existing watercourse); or
- Discharge to surface water sewer.

The surface water drainage disposal hierarchy is as follows:

- Infiltration is the optimal form of flow disposal. However, due to the expected ground conditions at the site, the initial design does not include provisions for infiltration (soakaway). Further ground investigations will be necessary to reassess this assumption and determine the feasibility of implementing infiltration as a disposal method.
- Discharge to a watercourse is another option, but it is constrained by the location of basins and the topography of the area.
- In areas where there are inadequate outfall locations for attenuation basins, dispersion can be employed. This method is particularly useful in small settlement areas to mitigate the risk of erosion from the discharge into ditches.

- Finally, if all three options are not possible, a portable tank can be used to remove attenuated flows from the site.

Refer to Section 3.2.8 for details on discharge rates and to Section 4 for details on water quality control.

## 3.2 Temporary works

### 3.2.1 Overview

The temporary works consist of various elements like haul roads, bellmouths, construction compounds and working areas. It has been assumed for design purposes, that all temporary development areas are 100% impermeable. However, this assumption should be reviewed during the detailed design process and with the agreement of statutory stakeholders. The details of temporary drainage features used during the construction phase are available in Appendix D.

### 3.2.2 Haul Road

The proposed development considers haul roads to access the construction compounds and haul roads within the preliminary cable corridor. The haul roads run along the majority of the preliminary cable corridor, excluding several areas where horizontal directional drilling will be used to cross significant watercourses and other obstacles. It is assumed to be constructed from granular material and where necessary 'geogrid' layers for added stabilisation. Also, it is assumed to be effectively impermeable as the granular material will become compacted due to tracking.

The preliminary cable corridor requires 18 temporary culverted watercourse crossings (excluding existing culverted watercourses), along with 12 temporary haul road bridge crossings. Where the watercourse or ditch will be culverted, the existing connectivity, capacity (where applicable) and freeboard will be maintained. Each watercourse crossing by the haul road will be subject to separate consideration for Land Drainage Consent, with some requiring 'trenchless' crossing methods to be used.

Haul road impermeable catchment areas have been based on a haul road width of 7m. The remainder of the proposed 43m wide construction swathe has been assumed to be an impermeable catchment area. It is proposed that a "dirty" channel drain along the edges of the haul road will collect runoff from the haul road and reduce any possible pollutants draining into the ground during construction of cable trenches. This channel drain will discharge into proposed attenuation basins.

The haul road has been subdivided into sections based on the existing longitudinal ground profile and anticipated low points along the route. Attenuation basins have been sized based on these subdivisions and a further review is required once the vertical geometry of the haul road has been confirmed, which may increase or decrease the volume required in the attenuation basins. Refer to Appendix E for basin details.

It is expected that either side of the haul road will be bunded with the soil excavated during the installation of the below ground cables which has the potential to interrupt the natural flow paths upstream of the works in some locations, further details on water quality control methodology can be found in Section 4.3. Header drains on the upstream side of the works will collect this surface water and direct it to the nearest watercourse and where this is not possible dispersion to the downstream side of the works will be used. Surface water settlement basins may be required to provide attenuation to this 'clean' overland runoff. However, these have not been included on the drainage plans at this stage as the number, size and location is to be confirmed at the next design stage.

### 3.2.3 Culverts and Bridges

The River Ore is the only classified river that will be crossed along the preliminary cable corridor. There are a total of 17 watercourses that will be temporarily crossed by the preliminary cable and haul road routes. To prevent the risk of exceeding capacity temporary culverts or clear span bridges should be installed.

Culverts and clear-span bridges proposed for temporary haul roads during the construction phase are envisaged to be installed for approximately 2 -3 years (though this duration may change as the construction stage progresses). The final stages of the construction phase will include reinstating the riverbed and surrounding bank areas.

The following considerations will be taken into account when culverting these burns in accordance with SEPA WAT-SG-25 and WAT-SG-29:

- Identify any sites that have been designated for nature conservation or protected species and take appropriate mitigation including any programme constraints to protect aquatic life.
- Manage works within the watercourse in an appropriate manner.
- If required, store the natural riverbed material during the construction phase and keep it clean. When construction is complete use the stored bed material to restore the riverbed.
- Restore any affected banks by re-establishing native riparian vegetation.

Please note that culverting of watercourses is a controlled activity under CAR and requires authorization from SEPA, as stated in WAT-PS-06-02.

In the subsequent phase of the project, the temporary culvert capacity should be established based on the criteria of maintaining the existing watercourse capacity and not increasing flood risk. During this process there will be engagement with landowners and other stakeholders (SEPA and Fife Council).

### 3.2.4 Jointing Bays

Jointing bays are underground structures constructed at intervals along the onshore preliminary cable corridor to join sections of cable and facilitate installation of the cables into the buried ducts. All are considered 100% impermeable.

Jointing bays have been assumed to be 50m<sup>2</sup>, however spacing of these has not yet been decided resulting in them being included as part of the construction swathe catchment area.

### 3.2.5 Bellmouths

Bellmouths are required at all locations where the haul road or access road interfaces with the existing public highway to allow vehicles to turn safely. These preliminary locations are shown in Appendix F. There are a significant number of bellmouths along the preliminary cable corridor of varying sizes which will be constructed from impermeable material (bitumen) or other similar material as required to match the existing public highways. These have been considered to be 100% impermeable.

The preferred method of managing the runoff from bellmouths is attenuation and dispersion, in accordance with the surface water drainage disposal of flows hierarchy. Further ground investigation is needed at detailed design stage to confirm whether infiltration is feasible. Therefore infiltration has not been considered as an option at this time. Runoff is assumed to be attenuated via the basins at the adjoining section of haul road with a controlled discharge to the nearest watercourse or drainage ditch.

### 3.2.6 Construction Compound

A total of 6 compound locations have been selected consisting of one primary and five satellite. All identified compounds have suitable links to the road network as follows:

- Satellite compound 1: located South of A921, near Kinghorn (Chainage ~400m)
- Satellite compound 2: located South of B9157, west of Kirkcaldy (Chainage ~3km)
- Satellite compound 3: located North of Auchtertool, west of Kirkcaldy (Chainage ~8.7km)
- Satellite compound 4: located North of Torbain Road, Near A92 (Chainage ~ 11km)
- Satellite compound 5: located North of B981, east of Lochgelly (Chainage ~ 13km)
- Primary compound: Located at the converter station site, east of Ballingry (Chainage ~ 16km)

It has been assumed that construction compounds are 100% impermeable. The soil bunds surrounding the compounds have not been included in the contributing impermeable areas. Any fuelling areas within the compound will be managed separately and will be bunded. For attenuation storage, storage within the sub-base shall be used with downstream attenuation basins as necessary. It is anticipated that some or all of the volume required for construction compounds can be accommodated within the sub-base, reducing the size of attenuation basins required or eliminating them altogether. Construction compounds have been shown to include attenuation basin as a worst-case example except for the primary compound where the location of the basin is shown indicatively.

Compound location descriptions can be found in 113643-MMD-SPEN-XX-RP-ZZ-0182 and are shown in Appendix F.

### 3.2.7 Header, Filter Drains and Swales

The drainage strategy comprises two independent networks to minimise cross contamination of the water being collected:

- A temporary "clean water" drainage network - Temporary header drains are used along the scheme to intercept natural overland surface water flows from upstream of the works. These drains limit the water from crossing the haul road and becoming silty. They run parallel to the haul road, construction compounds and discharge into various waterbodies and dispersion points without flow restriction. However, these 'clean' basins / dispersion points are not shown on the drainage layout plans at this stage, as the number and sizing of these is to be developed during the next design stage.
- A temporary "dirty water" drainage network - Runoff from temporary features during the construction stage is considered "dirty water" due to the possibility of contamination with oils and silts. Temporary filter drains and swales are used on the opposite side of the haul road to the header drains. They collect 'dirty' runoff from the haul road and discharge into various basins along the route. The design will include pollution controls such as check dams, and the contractor will implement suitable mitigation measures to manage this risk during construction.

### 3.2.8 Discharge Rates

Discharge rates to receiving watercourses are based on the estimated 'greenfield' run-off rate (Qbar) for the undeveloped site in accordance with Fife Council guidance. The Section 4.4.2 of the 'Design criteria guidance on flooding and surface water management plan requirements' by Fife Council states:

"Fife Council require a discharge rate to be no greater than the lesser of:

1 in 5-year greenfield runoff rate or 4.0 l/s/ha. And, Lesser of 1 in 2-year greenfield runoff rate or 3.3 l/s/ha if discharged to an existing flood sensitive/culverted watercourse or piped drainage system."

Tiel Burn is classified as a sensitive watercourse therefore is limited to 3.3l/s/ha.

The proposed discharge rate shall be controlled by an orifice control equating to the less of the Qbar or a 4 l/s/ha discharge rate. An orifice control will be used and will be installed in a catchpit with an overflow to mitigate the risk of blockages.

The Qbar was calculated using the HRWallingford greenfield runoff rate calculator. FEH data was taken from mid-way along the route (321.629E, 691,932N) giving the following catchment descriptors:

- BFI (The estimate of the base flow index) = 0.531
- SAAR (Average annual rainfall in the standard period) = 844mm. The mean annual rainfall is derived from the daily catchment rainfall series held on the National River Flow Archive.

### 3.2.9 Attenuation storage

The bases of all proposed attenuation basins are generally expected to be above groundwater levels. Where groundwater is elevated, lining of the basins with an impermeable liner may be necessary to mitigate groundwater ingress, and anchoring of the liner may be required to manage buoyancy. The liner would be anchored to prevent uplift and the maximum basin depths will be limited to 0.5m deep to limit risk of groundwater flooding. For the preliminary design, a buffer of 5m around the basins is included for access and maintenance and to allow for side slopes.

The proposed attenuation basins shall be vegetated depressions designed to store runoff on the surface and disperse it gradually into nearby watercourses. Where it is not feasible or desirable to discharge to a watercourse, multiple dispersion points will be used to avoid concentrating flow and risk downstream flooding. Pumping may be used if gravity outfalls are not feasible.

The proposed attenuation basins will be designed with 1:3 slopes (any steeper and they will require stabilisation), vegetated, non-permeable geo-textile lined where necessary with an inlet forebay. This will provide treatment of the runoff by allowing for settlement of sediment.

## 3.3 Permanent works

### 3.3.1 Underground Cables

It is anticipated that that the cable installation may sever some existing land drainage. Details of how land drainage across the site will be managed during construction are given in Section 3.3.3. Consideration will be given as to how the diversion may affect existing catchment drainage; temporary balancing ponds may be required across the extent of the route to account for this. The diverted field drainage will be re-instated back to existing after construction has finished.

The preliminary cable corridor is to pass beneath any watercourses or ditches so as not to impede upstream flows. These ditches may be temporarily impacted as the cables will be laid through open cut trenches in many locations. Consents in accordance with the relevant authority are to be obtained before any works to pass beneath, through or over any watercourse commences. In some cases, where a crossing is required, the watercourse will be culverted.

It is expected that the underground cables will encounter groundwater and will be suitably protected against this. The method of installation is to be confirmed at a later design stage. There are no permanent above ground structures therefore there is no anticipated impact on local flood risk. Clay stanks will be provided at regular intervals to prevent the conveyance of groundwater through the trench fill.

During construction, groundwater encountered while excavating trenches shall be managed through suitable pumping arrangements, storage, pollution control measures and a controlled discharge at the lower of 4l/s/ha or the greenfield run-off rate into the nearest watercourse.

Where the preliminary cable corridor affects private land and agricultural drainage, a post-scheme drainage design on an individual field basis may need to be developed after consultation with affected landowners.

### 3.3.2 Access

Most maintenance access points to the preliminary cable corridor will utilise existing field entrances. Refer to Section 3.2.5 for details of the drainage strategy for these.

### 3.3.3 Field Drainage

Where the preliminary cable corridor affects private land and agricultural drainage, a post scheme drainage design on an individual field basis will be developed after consultation with affected landowners.

Locations and details of existing field drainage systems are unknown at this stage and a review of natural overland flow paths on steeply sloping ground has not been undertaken.

Permanent and Temporary works will more than likely affect the land drainage and result in diversions. The following works indicate the level of risk associated to land drainage.

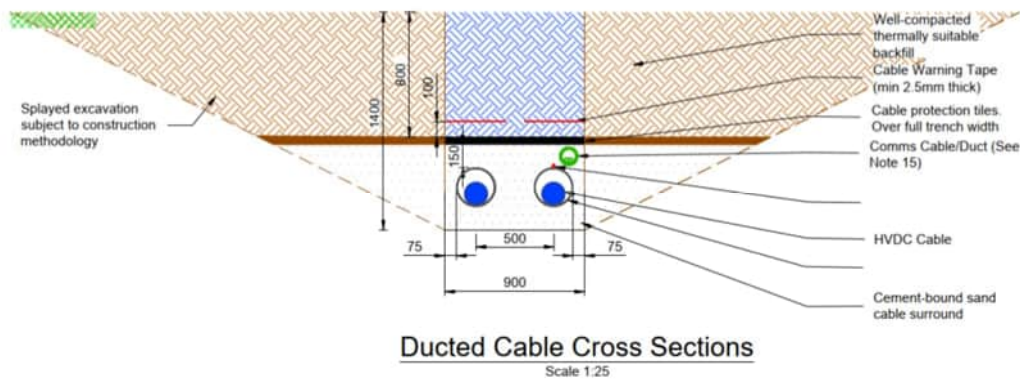
Permanent works affecting land drainage:

- External access roads are expected to reach a depth between 0.5m and 0.7m depending on ground conditions. The risk of the roads affecting the existing land drainage is low.

Temporary works affecting land drainage:

- Haul roads are expected to be constructed to a depth between 0.2m and 0.7m depending on ground conditions. The risk of haul roads affecting existing land drainage is very low.
- Construction compounds sit on agricultural land. They are formed on top of existing ground on a raised horizontal platform. The risk of the construction compounds affecting the existing land drainage is very low. If any land drains are affected by the footprint of the construction compound, they will be diverted to maintain the continuity of the existing land drainage network.
- The cable trench within the cable swathe will typically be at a depth of approximately 1.5m, where the initial 0.9m depth is suitable backfill material. Land drainage is anticipated to be at 0.9m depth. Any field drainage affected by installation of the cable trench will be diverted during the construction phase. For the permanent phase, it is assumed that any field drainage affected by the cable trench installation will be reinstated within the suitable backfill material layer that sits above the proposed cables, as per Figure 3-1 below.

**Figure 3-1 - Indicative Trench Cross Section**



Source: Mott MacDonald (2023).

Where the field drains are severed by the scheme, they shall be temporarily diverted, rather than truncated, to avoid water backing up the system and flooding upstream areas. Land drains shall be sealed, upslope and downslope, where they cross the preliminary cable corridor and care taken to ensure that the land upslope will not become waterlogged or flood as a result. Newly installed field drains shall not drain working areas that have been stripped of topsoil. Diverted field drains shall then discharge to the closest waterbody.

Where the drains may present a pollution risk, solid (not perforated) pipe shall be used and in-line filters and sumps installed, as referenced in CIRIA 648 – “Control of Water Pollution from Linear Construction Projects”.

It is proposed that attenuation / sediment control ponds are installed on the line of the diversion, upstream of the receiving watercourse, to balance run-off rates and mitigate the risk of pollutants entering the watercourse.

## 3.4 Foul Sewerage

### 3.4.1 Temporary Foul Water

Foul sewerage will be required at the main and satellite construction compounds along the cable alignment during the construction period. For the primary compound at the converter station, the preference is to use a gravity or pumped system discharging into the existing public sewer network, subject to agreement with Scottish Water. The nearest foul water connection is 1 km west of the converter station site as shown in Table 3-1.

However, due to the distance to the ‘public’ sewer the Contractor may revert to onsite storage and disposal by tanker to a licensed treatment works.

At the satellite construction compounds along the preliminary cable corridor, it is considered most likely that there will be an independently managed foul drainage system to contain sewage produced from welfare and toilet facilities. This will be regularly pumped, emptied and transported off site. However, consideration will be given to discharging to a public sewer should one be identified in close proximity to the site. Any connection to public sewers would be subject to agreement with Scottish Water.

Table 3-1 - Compound Locations

| Compound             | Location Description                                      | Distance to Foul Sewer  |
|----------------------|-----------------------------------------------------------|-------------------------|
| Satellite Compound 1 | South of A921, near Kinghorn (Chainage ~400m)             | ~130m                   |
| Satellite Compound 2 | South of B9157, west of Kirkcaldy (Chainage ~3km)         | ~1.3km                  |
| Satellite Compound 3 | North of Auchtertool, west of Kirkcaldy (Chainage ~8.7km) | ~950m                   |
| Satellite Compound 4 | North of Torbain Road, Near A92 (Chainage ~ 11km)         | ~500m                   |
| Satellite Compound 5 | North of B981, east of Lochgelly (Chainage ~ 13km)        | ~350m (A72 obstruction) |
| Primary Compound     | Converter station, east of Ballingry (Chainage ~ 16km)    | ~1km                    |

## 4 Water Quality Control

### 4.1 General

This Drainage Strategy is required to demonstrate that the scheme will not cause unacceptable deterioration to water quality and improves the water quality via a sustainable drainage system.

A CEMP will be developed by the Contractor post application. The Contractor shall also apply for the CAR and other licences.

The temporary and permanent drainage systems on site will be designed to meet the water quality design criteria and good practice pollution control measures as outlined in the CIRIA SuDS Manual. Water quality management is to be finalised when construction compound layouts are confirmed as this will allow any high-risk areas to be identified and managed. The different areas of the preliminary cable corridor will be categorised by the appropriate pollution hazard level from Table 26.2 of The SuDS Manual.

At this stage proprietary treatment has not been shown on the drawings.

### 4.2 Water and Sediment Quality During Construction Phase

CIRIA C648 'Control of water pollution from linear construction sites' provides guidance on minimising water pollution risks before and during the construction stage.

Surface water and groundwater are highly vulnerable to pollution and impact from construction activities. The preliminary cable corridor sits within the Drinking water protection area as indicated in Section 2.3.2.

The following construction activities require specific mitigations for water pollution:

- Uncontrolled sediment erosion and contaminated silty runoff.
- Refuelling facilities and handling areas.
- Polluted drainage from the preliminary cable corridor.
- Works within water.

Mitigations are not limited to these activities, and it should be noted that the contractor is responsible for managing risk of water pollution from all activities during the construction phase.

The mitigation measures shall be considered to avoid water pollution:

- Prefabricated products to be used for outfalls and bridge piers.
- Bridges extended to locate piers inland rather than adjacent to a watercourse.
- Stone gabions for bank reinforcement where required.
- Shallow slopes in cutting /embankments to slow down the runoff, increase the infiltration and trap sediment to be included.
- Establishment of riparian buffers to protect watercourses and implement silt fences.
- Filtration units (silt traps in the form of hay bales etc) to intercept silt-laden water from the site to be discharged into the ditch.
- Temporary sediment barriers to be used to intercept sediment runoff and help stabilize slopes.
- Erosion control blankets to be used in embankments to reduce concentrated flows.

- When directional drilling is the construction method selected for a watercourse crossing, special consideration shall be given to the protection of groundwater.
- Sealed manholes to be used in the design of construction drainage civils to reduce the risk of contaminated water spillage in the event that contaminated water enters the drainage system from the construction elements (construction compound or haul road) if the system becomes surcharged.
- When discharging water from a dewatering system (generally clean), where there is likely to be potential for silt or other contamination; water shall be discharged into an attenuation basin before discharging into a watercourse.
- Dispersion points ('Buffer Zones') shall be formed by small rocks and stone to slow flow and reduce erosion.

Management plans will be set out for the contractor to manage environmental risks associated with the construction phase:

- Construction and Environment Management Plan (CEMP)
- A Surface Water and Drainage Management Plan shall be prepared which describes the approach to surface water and foul water drainage, and water supply during construction phase.
- A Flood Management Plan for the construction phase.
- Construction Method Statements for Protection of Onshore Water
- Watercourse Crossing Method Statement
- Groundwater Protection Method Statement

Trenchless techniques used shall have an appropriate method statement. This will be prepared post-consent and prior to the undertaking of the relevant works.

#### 4.2.1 Direct Discharges to Rivers/Burns

Direct discharges to watercourses shall be avoided in order to minimise disturbance to water banks and to ensure that the discharges are visible and can be monitored. Where practicable, and where it doesn't risk, discharges will be set back from watercourses with filter strips or other features put in place immediately downstream as added water quality measures. The same consideration shall be taken when over-pumping water along a watercourse.

Penstock valves will be installed to close or isolate the outfall in the event of a pollution incident.

**Figure 4-1 - Outfalls with bank protection for discharge outfall and baffles on discharge hoses for temporary works.**



Source: CIRIA C648.

#### 4.2.2 Water quality in a flood plain

The area along the Teil Burn is of particular concern as a large amount of the construction swathe is located inside a 1 in 10-year return period flood zone.

In accordance with SEPA guidance therefore:

- Works in the floodplain shall be completed in the shortest possible timeframe.
- As much as reasonably practicable, the main works shall be undertaken in Summer.

In addition to this the Contractor will monitor the burn levels and weather forecast and have plans in place to respond to a flood event.

#### 4.2.3 Water quality in construction compounds

There are several potential construction compounds proposed along the preliminary cable corridor. To minimise the pollution in the construction compounds the following mitigations have been considered:

- The construction compound surfacing will utilise permeable materials where appropriate. Consideration shall be given to the prevention of clogging of the permeable pavement by sediments. Permeable paving is particularly effective at removing the main pollutants: suspended solids, hydrocarbons and metals.
- An area for settlement of silts is to be included within the attenuation basins as the treatment method for sediment control. All settlement basins will be provided with oil absorbents to absorb any hydrocarbons accumulated.
- Runoff from adjacent ground will be intercepted and prevented from entering the preliminary cable corridor, as this creates additional polluted runoff.

Compounds are to implement water conservation measures which may include:

- Water from attenuation basins can be pumped into a bowser and used to damp down haul roads and site compounds to prevent the generation of dust.
- Vehicle washing shall only be used in a bunded area where the runoff can be contained and channelled to a treatment area, such as a settlement pond, prior to discharge. Runoff from washes and vehicle wash bays must not be allowed to enter surface water or foul water drainage systems without permission.
- Storage areas shall sit away from sensitive receptors, at least 10m from a watercourse or a land drain.

### 4.3 Water Quality in Haul Roads and Site Access

To minimise pollution from the haul roads, mitigations measures will be used, these may include:

- Haul road stabilisation – method detailed in section 3.2.2.
- Haul road surfacing shall be constructed using permeable materials where no groundwater is encountered, but consideration shall be given to clogging of the permeable pavement by sediments which is very likely on a construction site. Permeable paving is particularly effective at removing the main pollutants: suspended solids, hydrocarbons and metals.
- Ditches/swales shall be constructed on either side, or on the downslope side, of haul roads to channel water to a treatment area (attenuation basin).
- Check dams and sediment traps across swales or drainage ditches to reduce the runoff velocity and promote the sedimentation. Swales can remove hydrocarbons.

- Haul road crossing a burn: Straw bales or similar shall be positioned at either end of the culvert to prevent suspended solids moving along the watercourse.
- Where an existing bridge structure is used for a haul road, mud and debris shall not be allowed to build up. Straw bales or sandbags shall be placed along the edge of the existing bridge to prevent silty water running off into the water below.

## 4.4 Working in or Near Water

Stockpiles will not be placed above the watercourses, or within 15m of the top of bank as a worst-case scenario. Sandbags will also be positioned on either side of the haul road to reduce the risk of sediment entering the watercourse.

The Land Drainage Act 1991 requires that a consent is applied for and granted by the relevant water authority for the following activities:

- works in, over or under any main river,
- works in, over or under all other watercourses (ordinary watercourses) if the flow is likely to be affected,
- temporary works affecting the channel of main rivers or ordinary watercourses,
- temporary and permanent works in the floodplain of main rivers.

Works within 7–10 m from the top of a watercourse bank may also require consent. Consultation shall be undertaken with SEPA to determine whether consent is needed. “Works” include temporary works such as a haul road, culvert diversion or burn diversion, as well as permanent works such as a new road bridge.

## 5 Conclusion

### 5.1 Assumptions, Risks and Conclusion

The main assumptions for the preliminary EGL4 preliminary cable corridor are discussed below for this stage of the project:

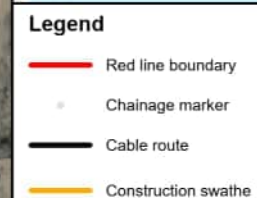
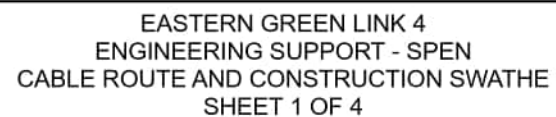
- The discharge rates for the attenuation and hybrid systems shall be restricted based on the lesser value of the estimated 1:5 'greenfield' run-off rate ( $Q_{bar}$ ) for the undeveloped site or 4 l/s/ha and the lesser of the 1:2  $Q_{bar}$  value or 3.3 l/s/ha for sensitive watercourses as part of Fife Council's requirements.
- Contributing catchment areas have been calculated based on the contributing areas defined on the proposed layout of each element described below:
  - Haul Roads: 100% impermeable within their gross site areas
  - Permanent Access Roads: 100% impermeable within their gross site areas
  - Construction compounds: 100% impermeable within their gross site areas
  - Construction Swathe: 100% impermeable within their gross site areas
- A new ditch has been considered for the perimeter of the proposed platforms and construction swathe to absorb overland flows. It is assumed there will be a suitable discharge connection into the closest watercourse from these land drains. If no suitable route can be identified to discharge by gravity into a watercourse, dispersion or pumping could be required and/or attenuation.
- FEH rainfall data has been selected from a point midway along the preliminary cable corridor (321,629.00E,691,932N - shown in Appendix G.) This data was used to calculate greenfield run off rate and required attenuation volume for the basins.
- The locations for the attenuation basins are based on existing ground level and a gravity system (i.e., following the fall of the land) towards the watercourse where the outfalls are located.
- Surface water settlement basins may be required to provide attenuation to this 'clean' overland runoff. However, these have not been included on the drainage plans at this stage, as the number, size, and location are to be confirmed at the next design stage. Overland flows 'clean' basins / dispersion points are not shown on the drainage layout plans at this stage, as the number and sizing of these are to be developed during the next design stage.
- The attenuation volume for the basins does not take into account water stored within the permeable subbase of the construction compound, filter drains or swales along the haul roads. Consequently, the basin volumes will be refined at later design stages as there may be an opportunity to reduce these by utilising attenuation in the upstream drainage features.
- Outfalls will discharge to a watercourse where possible with appropriate treatment in accordance with the discharge hierarchy. When no watercourse is present, discharge will be to natural drainage routes, e.g., ditches, through dispersion. If no dispersion routes are available, off-site removal via pumping or a portable tank shall be considered.
- Each watercourse crossing by the haul road will be subject to separate consideration for Land Drainage Consent, with some requiring 'trenchless' crossing methods to be used.
- Design levels for the preliminary cable corridor and individual areas including construction compounds and watercourse crossings are to be confirmed and supplied at a later stage of the project, following more detailed assessment of the topography of the route.
- In the subsequent phase of the project, the temporary culvert capacity will be established based on the criteria of maintaining the existing watercourse capacity and not increasing

flood risk. During this process there will be engagement with landowners and other stakeholders (SEPA and Fife Council).

- The extent of land drainage will be determined in discussions with landowners and during the ground investigation stage and these will be diverted and reinstated as necessary to facilitate the works.
- There may be an opportunity to connect site foul sewerage to the Scottish Water network during construction, refer to Section 3.4.
- A ground investigation will be required to assess the extent of contamination within the preliminary cable corridor.

# 6 Appendix

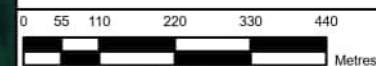
## 6.1 Appendix A -- PRELIMINARY CABLE CORRIDOR AND CONSTRUCTION SWATHE



**Notes**

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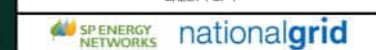


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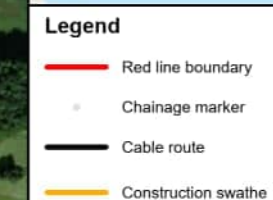
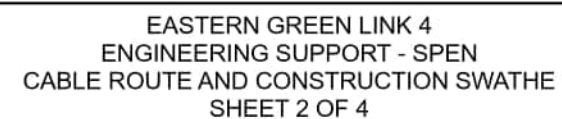
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National Grid Drawing Reference  
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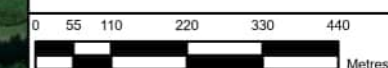
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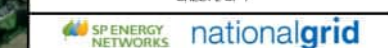
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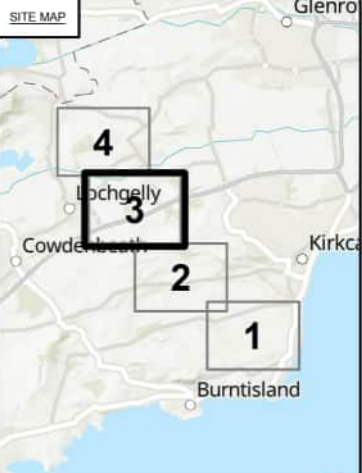
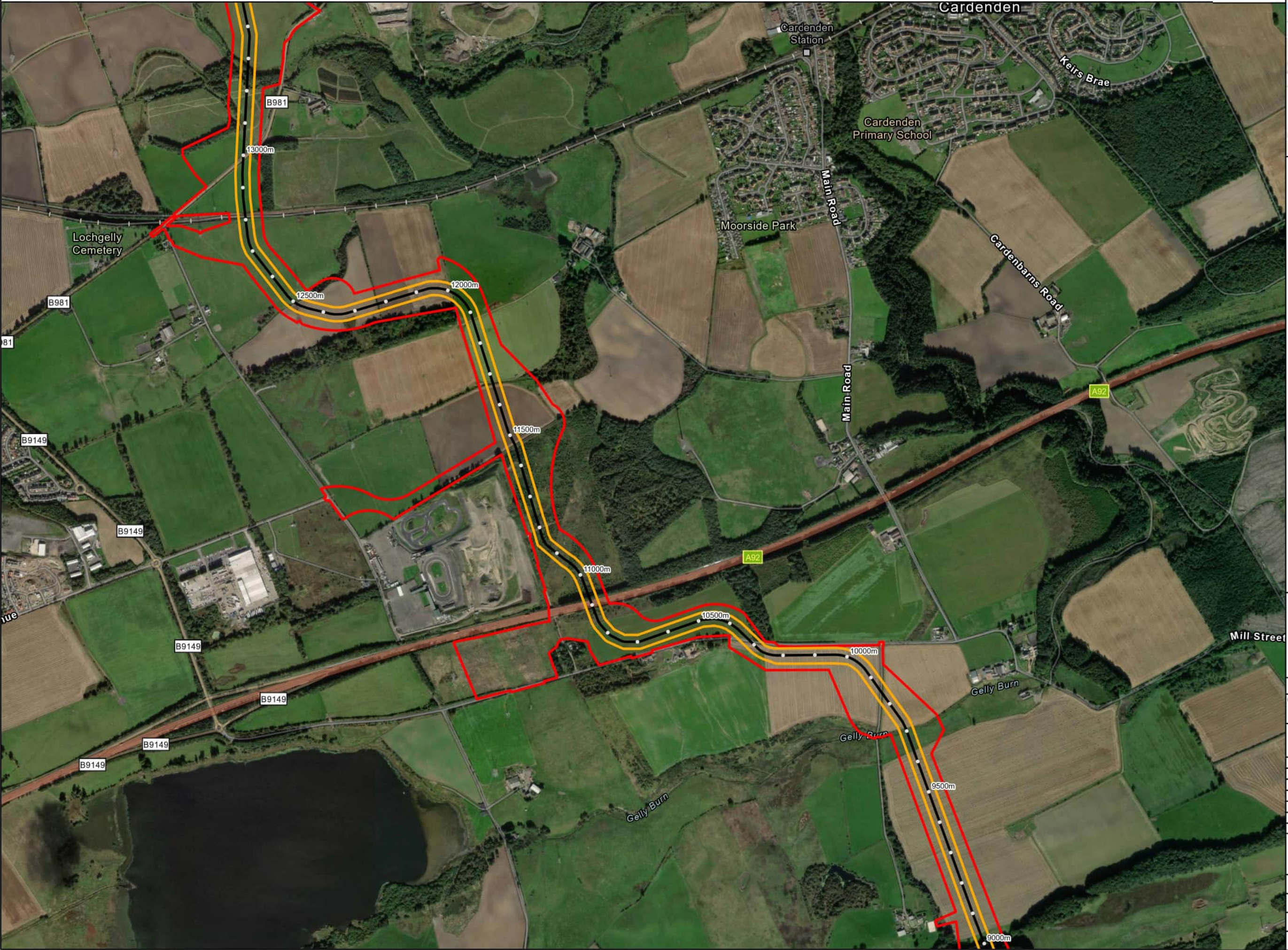
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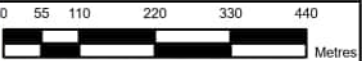
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- Legend**
- Red line boundary
  - Chainage marker
  - Cable route
  - Construction swathe

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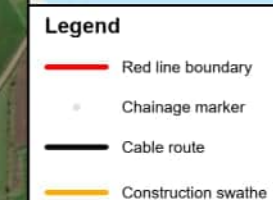
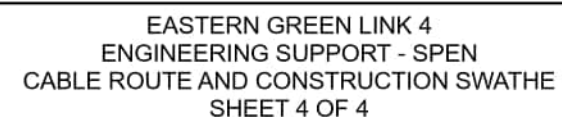
**Title**  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE AND CONSTRUCTION SWATHE  
SHEET 3 OF 4

**SP ENERGY NETWORKS** **nationalgrid**

Application Number: N/A

National Grid Drawing Reference: 113643-MMD-SPEN-XX-RP-ZZ-0182 - APPENDIX A

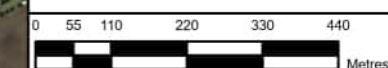
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| 1:11,000 | A3         | SHEET 3 OF 4 | 04    |



**Notes**

1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.

Coordinate System: British National Grid



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| 04     | 29/10/25 | For Information | CF    | OJ      | JW       |
| 03     | 20/03/25 | For Information | CF    | OJ      | JW       |
| 02     | 21/08/24 | For Information | CF    | OJ      | JW       |
| 01     | 19/07/24 | For Information | CF    | OJ      | JW       |
| Issues | Date     | Remarks         | Drawn | Checked | Approved |

Title

EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE AND CONSTRUCTION SWATHE  
SHEET 4 OF 4



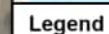
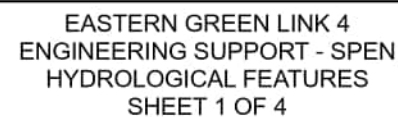
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| Application Number | N/A |
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National Grid Drawing Reference  
113643-MMD-SPEH-XX-RP-ZZ-0182 - APPENDIX A

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|--------------|-------------------|--------------|---------------|
| <u>Scale</u> | <u>Sheet Size</u> | <u>Sheet</u> | <u>Issued</u> |
| 1:11,000     | A3                | SHEET 4 OF 4 | 04            |

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|  |                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                         |

## 6.2 Appendix B -- HYDROLOGICAL FEATURES

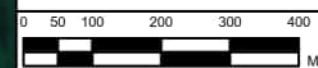


-  Red line boundary
-  Chainage marker
-  Crossing constraint schedule:  
watercourse crossing - green
-  OS Open River
-  Burn (digitised)

**Notes**

1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.

Coordinate System: British National Grid



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ESRI UK, ESRI, HERE, GARMIN, FOURSQUARE,  
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| 01    | 19/07/24 | For Information | CF    | OJ      | JW       |
| Issue | Date     | Remarks         | Drawn | Checked | Approved |

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| Title |  |
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EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
HYDROLOGICAL FEATURES  
SHEET 1 OF 4



|                    |     |
|--------------------|-----|
| Application Number | N/A |
|--------------------|-----|

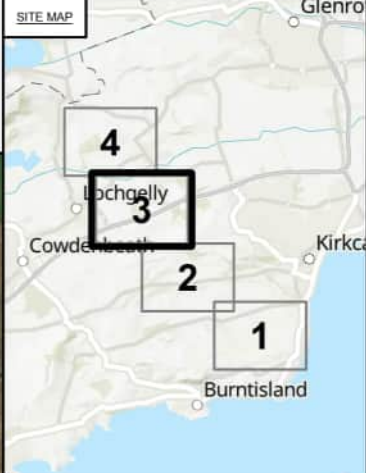
113643-MMD-SPEN-XX-RP-ZZ - APPENDIX B

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| 1:11,000     | A3                | SHEET 1 OF 4 | 04           |





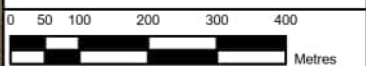
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
HYDROLOGICAL FEATURES  
SHEET 3 OF 4



- Legend**
- Red line boundary
  - Chainage marker
  - Crossing constraint schedule: watercourse crossing - amber
  - Crossing constraint schedule: watercourse crossing - green
  - OS Open River
  - Burn (digitised)

**Notes**  
1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.

Coordinate System: British National Grid



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| Issue | Date     | Remarks         | Drawn | Checked | Approved |
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| 01    | 19/07/24 | For Information | CF    | OJ      | JW       |

**Title**  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
HYDROLOGICAL FEATURES  
SHEET 3 OF 4

**SP ENERGY NETWORKS** **nationalgrid**

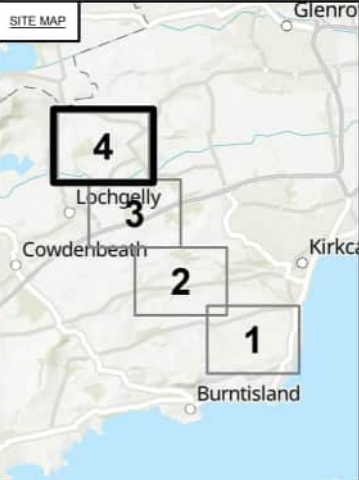
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National Grid Drawing Reference: 113643-MIND-SPEN-XX-RP-ZZ - APPENDIX B

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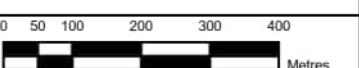
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
HYDROLOGICAL FEATURES  
SHEET 4 OF 4



- Legend**
- Red line boundary
  - Chainage marker
  - Crossing constraint schedule: watercourse crossing - amber
  - Crossing constraint schedule: watercourse crossing - green
  - OS Open River
  - Burn (digitised)

**Notes**  
1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.

Coordinate System: British National Grid



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| 04    | 11/09/25 | For Information | CF    | OJ      | JW       |
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| Issue | Date     | Remarks         | Drawn | Checked | Approved |

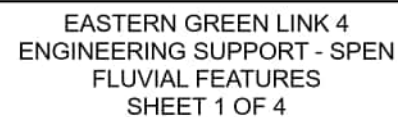
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ENGINEERING SUPPORT - SPEN  
HYDROLOGICAL FEATURES  
SHEET 4 OF 4

Application Number: N/A

National Grid Drawing Reference: 113643-MMD-SPEN-XX-RP-ZZ - APPENDIX B

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| Scale    | Sheet Size | Sheet        | Issue |
| 1:11,000 | A3         | SHEET 4 OF 4 | 04    |

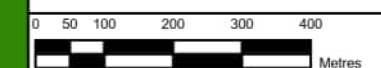
6.3 Appendix C -- FLOOD RISK MAP



**Notes**

1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be relied on.

Coordinate System: British National Grid



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| 01    | 19/07/24 | For Information | CF    | OJ      | JW       |
| Issue | Date     | Remarks         | Drawn | Checked | Approved |

Title

EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FLUVIAL FEATURES  
SHEET 1 OF 4



|                    |     |
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| Application Number | N/A |
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National Grid Drawing Reference  
113643-NMD-SPEN-XX-RP-ZZ - APPENDIX C

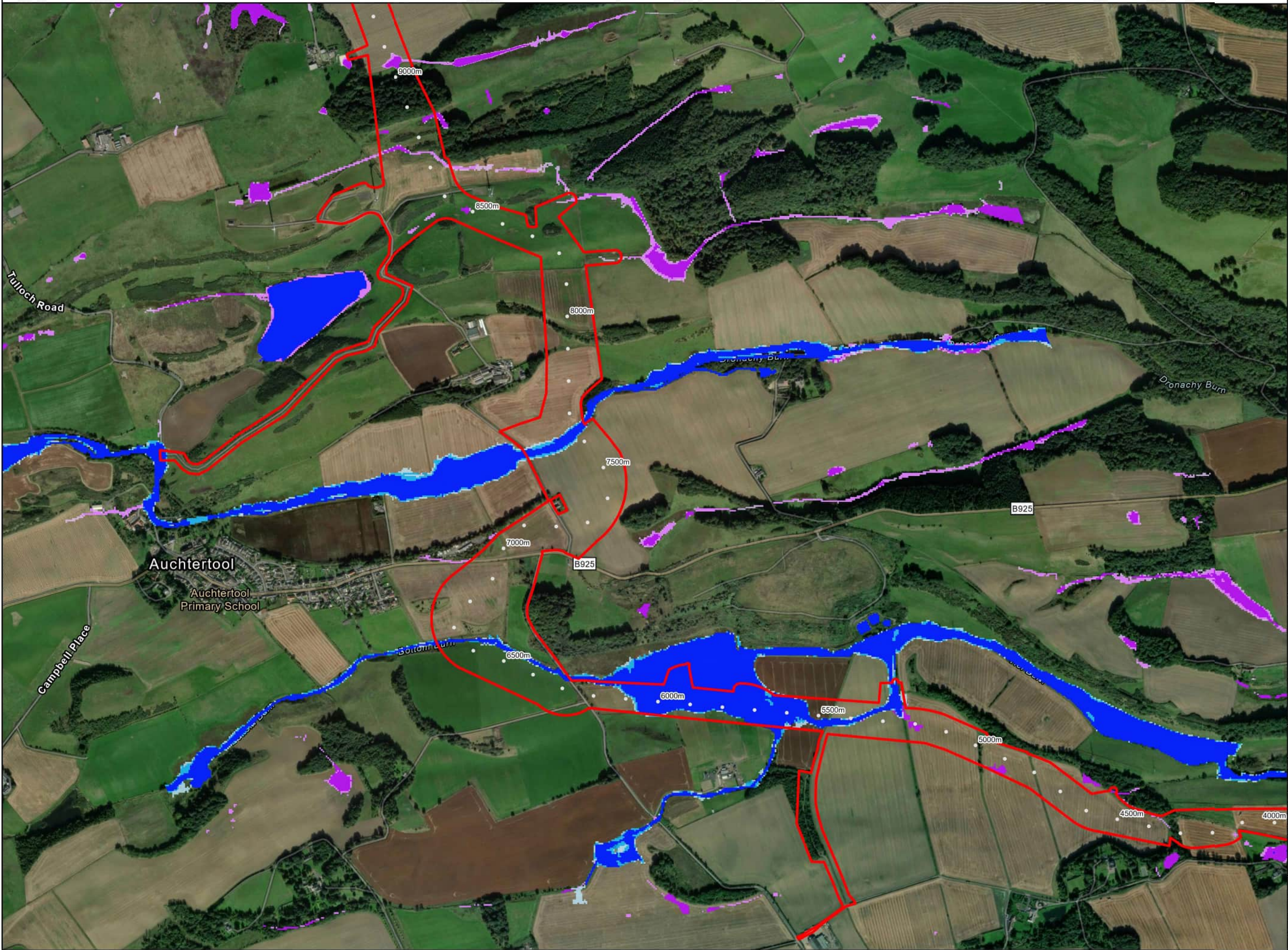
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| 1:11,000 | A3         | SHEET 1 OF 4 | 05    |



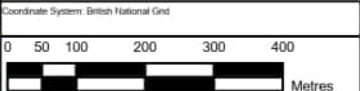
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FLUVIAL FEATURES  
SHEET 2 OF 4



- Legend**
- Red line boundary
  - Chainage marker
  - Flooding - River Extent - High Likelihood
  - Flooding - River Extent - Medium Likelihood
  - Flooding - River Extent - Low Likelihood
  - Flooding - Surface Water Extent - High Likelihood
  - Flooding - Surface Water Extent - Medium Likelihood
  - Flooding - Surface Water Extent - Low Likelihood



**Notes**  
1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.



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|       |          |                 |       |         |          |
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| 04    | 11/09/25 | For Information | CF    | OJ      | JW       |
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| 02    | 21/08/24 | For Information | CF    | OJ      | JW       |
| 01    | 19/07/24 | For Information | CF    | OJ      | JW       |
| Issue | Date     | Remarks         | Drawn | Checked | Approved |

**Title**  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FLUVIAL FEATURES  
SHEET 2 OF 4

**SP ENERGY NETWORKS** **nationalgrid**

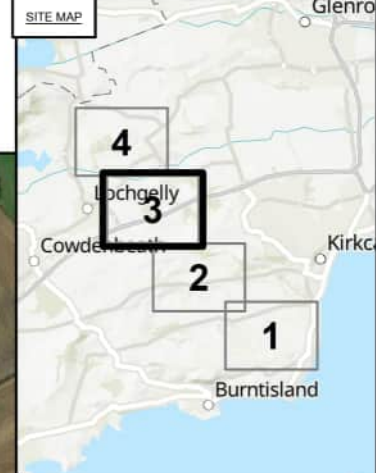
**Application Number** N/A

**National Grid Drawing Reference**  
113643-MMD-SPEN-XX-RP-ZZ - APPENDIX C

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|----------|------------|--------------|-------|
| Scale    | Sheet Size | Sheet        | Issue |
| 1:11,000 | A3         | SHEET 2 OF 4 | 05    |



EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FLUVIAL FEATURES  
SHEET 3 OF 4



Legend

- Red line boundary
- Chainage marker
- Flooding - River Extent - High Likelihood
- Flooding - River Extent - Medium Likelihood
- Flooding - River Extent - Low Likelihood
- Flooding - Surface Water Extent - High Likelihood
- Flooding - Surface Water Extent - Medium Likelihood
- Flooding - Surface Water Extent - Low Likelihood

Notes  
1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.

Coordinate System: British National Grid



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|       |          |                 |       |         |          |
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| 01    | 19/07/24 | For Information | CF    | OJ      | JW       |
| Issue | Date     | Remarks         | Drawn | Checked | Approved |

Title  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FLUVIAL FEATURES  
SHEET 3 OF 4



Application Number  
N/A

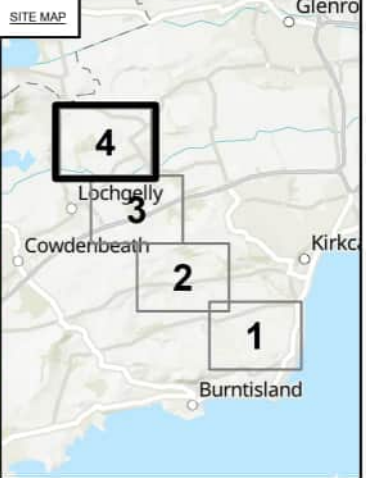
National Grid Drawing Reference  
113643-MMD-SPEN-XX-RP-ZZ - APPENDIX C

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| Scale    | Sheet Size | Sheet        | Issue |
| 1:11,000 | A3         | SHEET 3 OF 4 | 05    |



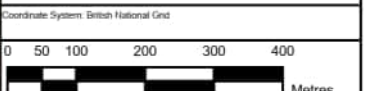


EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FLUVIAL FEATURES  
SHEET 4 OF 4



- Legend**
- Red line boundary
  - Chainage marker
  - Flooding - River Extent - High Likelihood
  - Flooding - River Extent - Medium Likelihood
  - Flooding - River Extent - Low Likelihood
  - Flooding - Surface Water Extent - High Likelihood
  - Flooding - Surface Water Extent - Medium Likelihood
  - Flooding - Surface Water Extent - Low Likelihood

**Notes**  
1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.



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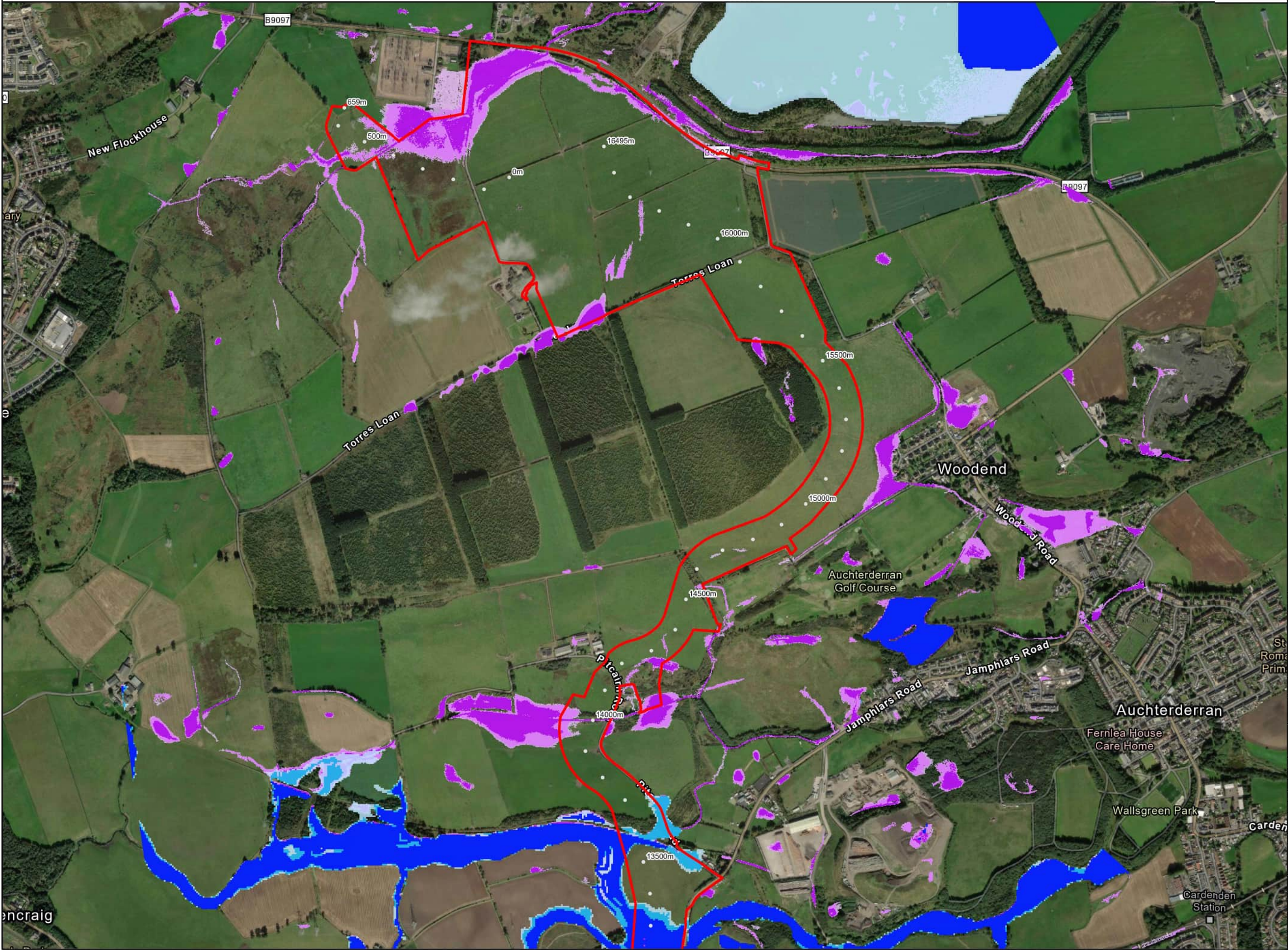
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| Issue | Date     | Remarks         | Drawn | Checked | Approved |

Title  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FLUVIAL FEATURES  
SHEET 4 OF 4

Application Number  
N/A

National Grid Drawing Reference  
113643-MND-SPEN-XX-RP-ZZ - APPENDIX C

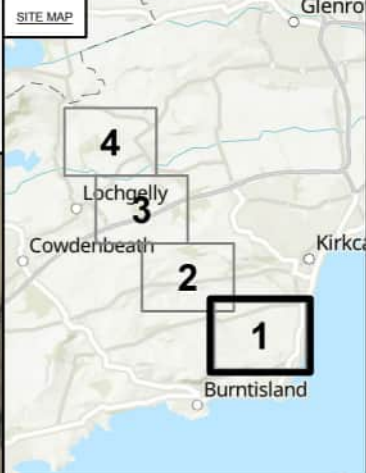
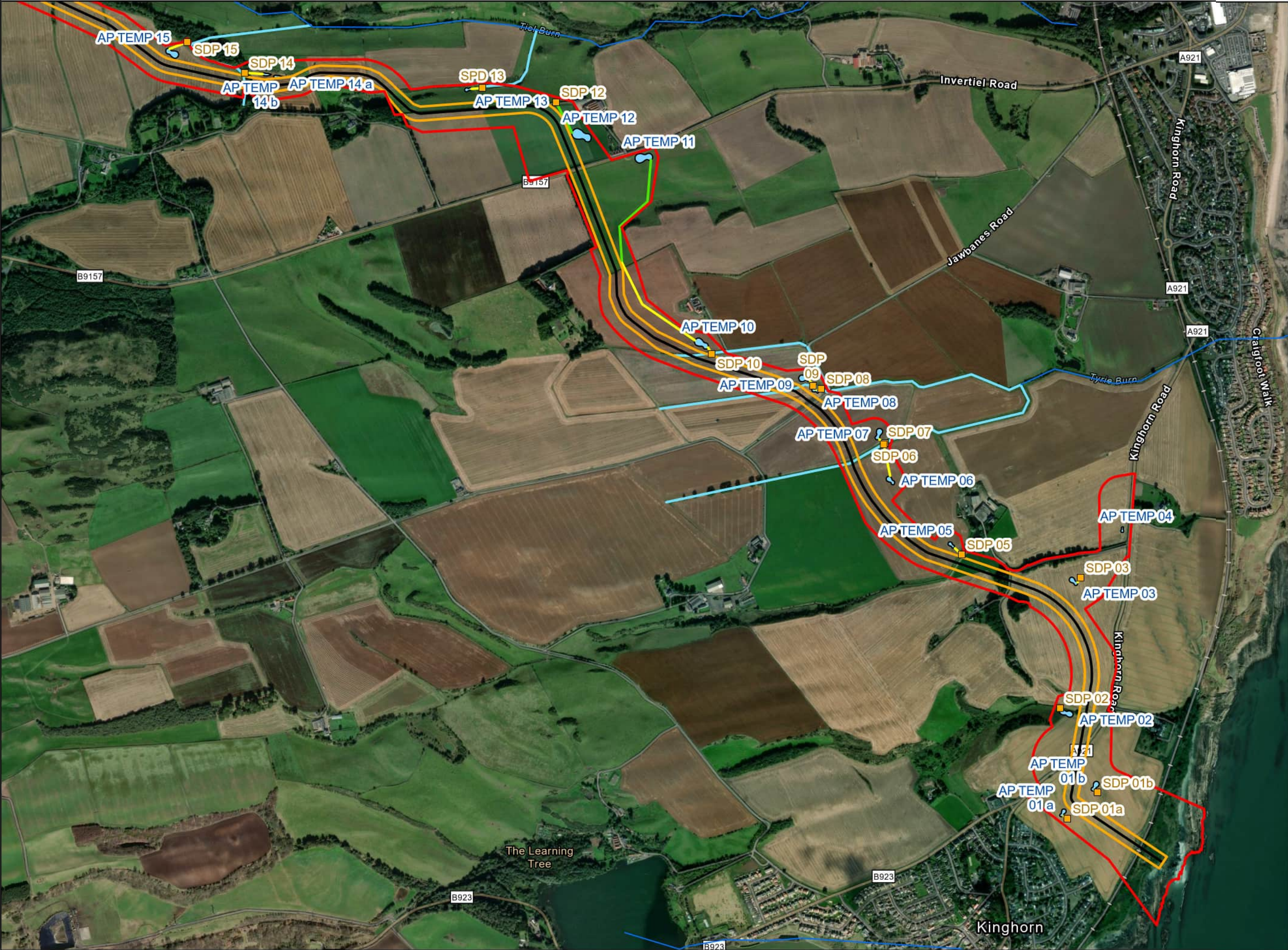
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## 6.4 Appendix D -- CABLE ROUTE, ATTENUATION BASINS, OUTFALLS, PIPES AND HYDROLOGICAL FEATURES

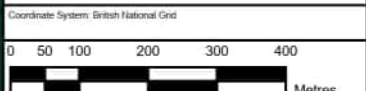


EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, ATTENUATION BASINS, OUTFALLS, PIPES AND HYDROLOGICAL FEATURES  
SHEET 1 OF 4



- Legend**
- Red line boundary
  - Outfall
  - Cable route
  - Construction swathe
  - Gravity pipe
  - Pumped pipe
  - Burn (digitised)
  - OS Open River
  - Attenuation basin

**Notes**  
1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.



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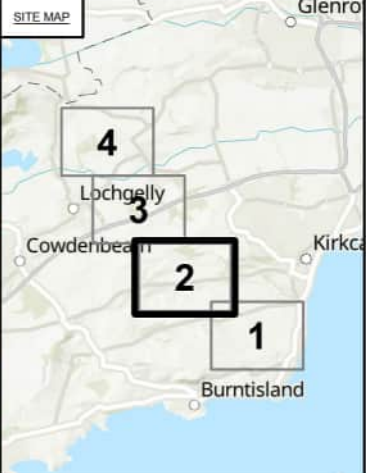
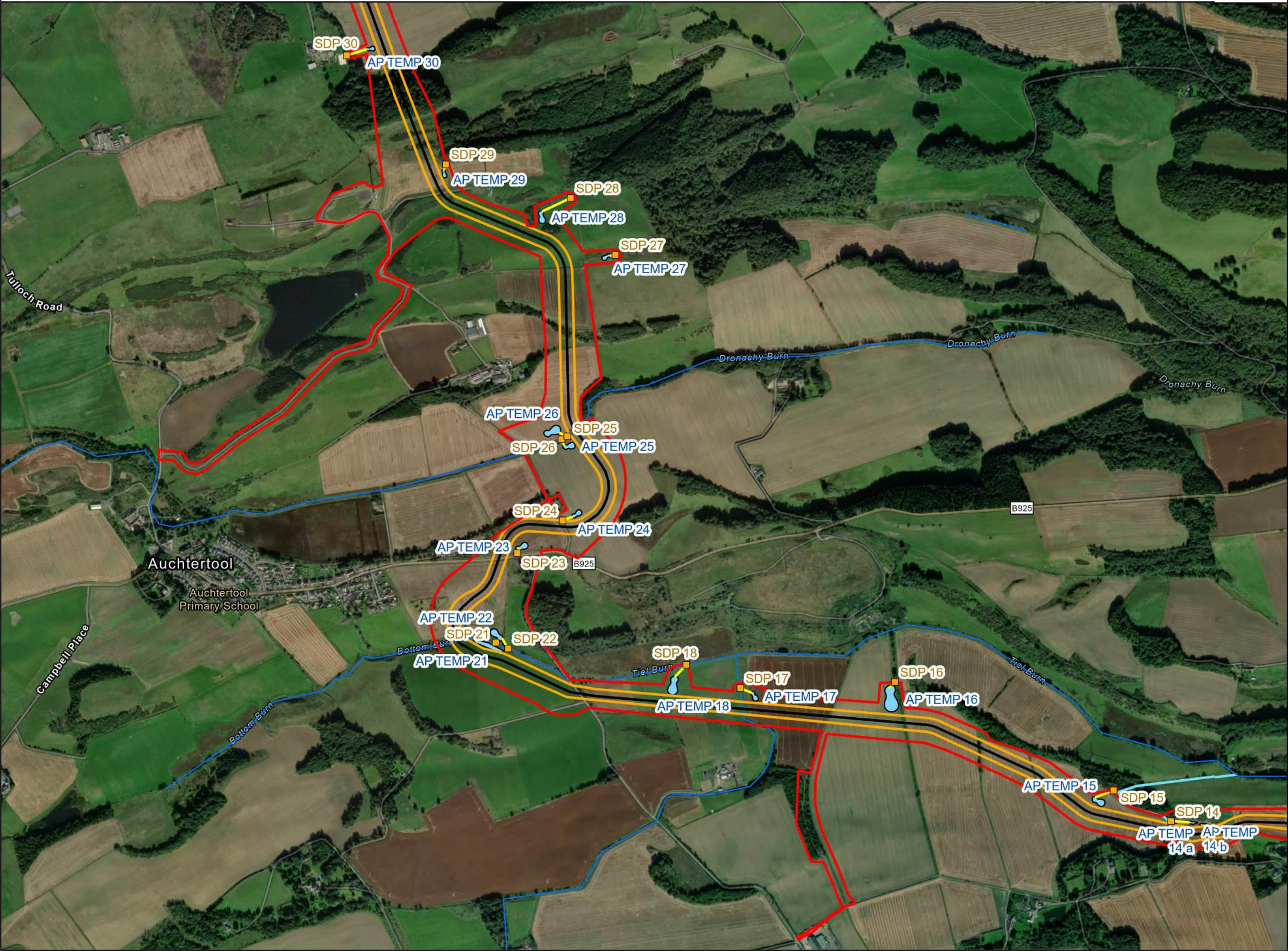
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**Title**  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, ATTENUATION BASINS, OUTFALLS,  
PIPES AND HYDROLOGICAL FEATURES  
SHEET 1 OF 4

|                                 |                                            |              |       |
|---------------------------------|--------------------------------------------|--------------|-------|
| SP ENERGY NETWORKS              |                                            | nationalgrid |       |
| Application Number              | N/A                                        |              |       |
| National Grid Drawing Reference | 113643-NMD-SPEN-XX-RP-ZZ-0184 - APPENDIX D |              |       |
| Scale                           | Sheet Size                                 | Sheet        | Issue |
| 1:11,000                        | A3                                         | SHEET 1 OF 4 | 04    |

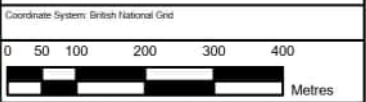


EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, ATTENUATION BASINS, OUTFALLS, PIPES AND HYDROLOGICAL FEATURES  
SHEET 2 OF 4



- Legend**
- Red line boundary
  - Outfall
  - Cable route
  - Construction swathe
  - Gravity pipe
  - Burn (digitised)
  - OS Open River
  - Attenuation basin

**Notes**  
1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.



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| Issue | Date     | Remarks         | Drawn | Checked | Approved |
|-------|----------|-----------------|-------|---------|----------|
| 04    | 11/09/25 | For Information | CF    | OJ      | JW       |
| 03    | 26/03/25 | For Information | CF    | OJ      | JW       |
| 02    | 21/08/24 | For Information | CF    | OJ      | JW       |
| 01    | 19/07/24 | For Information | CF    | OJ      | JW       |

**Title**  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, ATTENUATION BASINS, OUTFALLS,  
PIPES AND HYDROLOGICAL FEATURES  
SHEET 2 OF 4

**SP ENERGY NETWORKS** **nationalgrid**

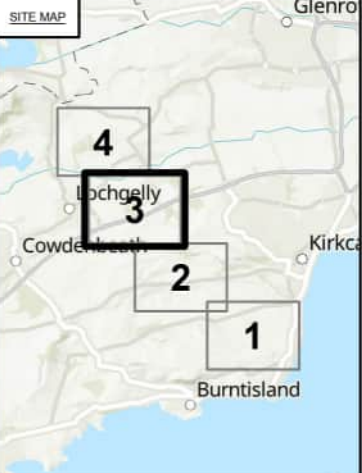
Application Number: N/A

National Grid Drawing Reference: 113643-MMD-SPEN-XX-RP-ZZ-0184 - APPENDIX D

| Scale    | Sheet Size | Sheet        | Issue |
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| 1:11,000 | A3         | SHEET 2 OF 4 | 04    |



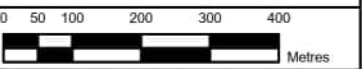
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, ATTENUATION BASINS, OUTFALLS, PIPES AND HYDROLOGICAL FEATURES  
SHEET 3 OF 4



- Legend**
- Red line boundary
  - Outfall
  - Cable route
  - Construction swathe
  - Gravity pipe
  - Burn (digitised)
  - OS Open River
  - Attenuation basin

**Notes**  
1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.

Coordinate System: British National Grid



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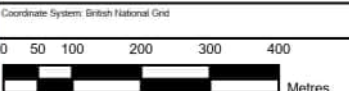
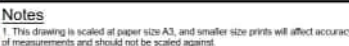
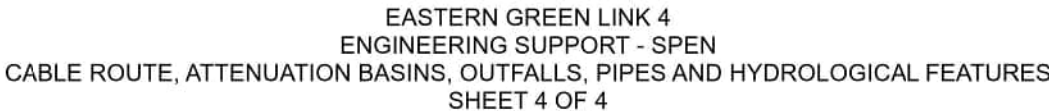
**Title**  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, ATTENUATION BASINS, OUTFALLS,  
PIPES AND HYDROLOGICAL FEATURES  
SHEET 3 OF 4

**SP ENERGY NETWORKS** **nationalgrid**

Application Number: N/A

National Grid Drawing Reference: 113643-NMD-SPEN-XX-RP-ZZ-0184 - APPENDIX D

| Scale    | Sheet Size | Sheet        | Issue |
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| 1:11,000 | A3         | SHEET 3 OF 4 | 04    |



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**EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, ATTENUATION BASINS, OUTFALLS,  
PIPES AND HYDROLOGICAL FEATURES  
SHEET 4 OF 4**



N/A

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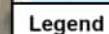
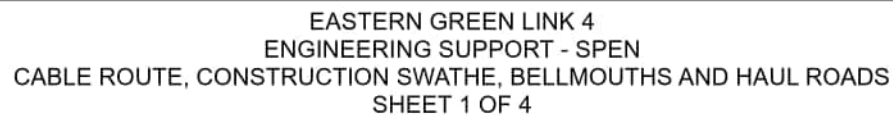
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## 6.5 Appendix E -- ATTENUATION BASIN DETAILS

| Name              | Contributing Catchment area (ha)                                                     | Minimum Attenuation Volume (m3) | Outfall Details |                            |                           |                           |                 |            | Notes/Assumptions/Risks                                                                                                                                                                                                                                                                                                |
|-------------------|--------------------------------------------------------------------------------------|---------------------------------|-----------------|----------------------------|---------------------------|---------------------------|-----------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                                                                                      |                                 | Qvar (l/s)      | Discharge                  | Basin Coordinates         | Outfall Coordinates       | Consenting Body | Confidence |                                                                                                                                                                                                                                                                                                                        |
| AB TEMP 01a       | Swath: 0.75ha<br>Total = 0.75ha                                                      | 279                             | 3               | Dispersion                 | 327,262.49E 687,647.79N m | 327,275.13E 687,629.20N m | Landowner       | Low        | No direct outfall to a watercourse.<br>There is a possibility to discharge into a small ditch along the south side of field before the existing railway embankment.<br>Future engagement with Network Rail could bring the option to develop a temporary connection to the railway drainage.                           |
| AB TEMP 01b       | Compound 1: 0.56ha<br>Total = 0.56ha                                                 | 208                             | 2.24            | Dispersion                 | 327,359.90E 687,729.65N m | 327,367.59E 687,708.93N m | Landowner       | Low        | No direct outfall to a watercourse.<br>There is a possibility to discharge into a small ditch along the south side of field before the existing railway embankment.<br>Future engagement with Network Rail could bring the option to develop a temporary connection to the railway drainage.                           |
| AB TEMP 02        | Swath: 1.10 ha<br>Total = 1.10ha                                                     | 308                             | 4.4             | Dispersion                 | 327,288.91E 687,960.16N m | 327,251.13E 687,969.74N m | Landowner       | Medium     | Basin in ravine                                                                                                                                                                                                                                                                                                        |
| AB TEMP 03        | Swath: 0.64ha<br>Total = 0.64ha                                                      | 180                             | 2.54            | Dispersion/Portable tank   | 327,287.94E 688,364.72N m | 327,314.60E 688,375.99N m | Landowner       | Low        | Steep hill sloping towards road. Location for basin is limited due to available area.                                                                                                                                                                                                                                  |
| AB TEMP 04        | Haul Road: 0.2ha<br>Total = 0.2ha                                                    | 60                              | 0.8             | Portable tank              | 327,450.66E 688,515.61N m | Portable tank             | TBC             | Low        | close to road however ground is sloping from road to basin area.<br>off site remove (portable tank) needed due to being in a natural low point<br>standing water was present on site during visit<br>basin used for haul road drainage                                                                                 |
| AB TEMP 05        | Swath: 0.35ha<br>Total = 0.35ha                                                      | 98                              | 1.4             | Unnamed Burn               | 326,903.65E 688,484.42N m | 326,949.50E 688,442.59N m | SEPA            | Low        | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 06        | Swath: 1.20ha<br>Total = 1.20ha                                                      | 336                             | 4.8             | Tyrie Burn                 | 326,727.48E 688,674.39N m | 326,710.06E 688,781.69N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 07        | Swath: 0.9ha<br>Total = 0.9ha                                                        | 252                             | 3.6             | Tyrie Burn                 | 326,696.13E 688,817.28N m | 326,711.73E 688,786.96N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 08        | Swath: 0.35ha<br>Total = 0.35ha                                                      | 98                              | 1.4             | Tyrie Burn                 | 326,480.52E 688,955.58N m | 326,514.86E 688,952.39N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 09        | Swath: 1.34ha<br>Total = 1.34ha                                                      | 289                             | 4.12            | Tyrie Burn                 | 326,457.95E 688,992.05N m | 326,491.24E 688,966.32N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 10        | Swath: 1.51ha<br>Total = 1.51ha                                                      | 410                             | 6.04            | unnamed burn               | 326,138.02E 689,101.27N m | 326,172.40E 689,092.66N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 11        | Swath: 1.49ha<br>Compound 1: 0.56ha<br>Total = 2.05ha                                | 574                             | 8.2             | Pumped                     | 325,960.79E 689,660.64N m | Basin 10                  | Landowner       | Low        | No drainage ditch for a basin outfall<br>The discharge pipe from Basin 11 will be pumped up to the contour 92.5m to the south of the basin, and then connected to the filter drains within the swathe, the filter drains are connected by gravity to Basin 10.<br>exact route of raising main TBC<br>42m from property |
| AB TEMP 12        | Swath: 2.60ha<br>Total = 2.60ha                                                      | 729                             | 10.4            | Pumped                     | 325,754.30E 689,731.09N m | 325,621.91E 689,844.21N m | Landowner       | Low        | No drainage ditch for a basin outfall<br>Raising main to pump attenuated water north east<br>exact route of raising main TBC                                                                                                                                                                                           |
| AB TEMP 13        | Swath: 0.30ha<br>Total = 0.30ha                                                      | 93                              | 1               | Unnamed burn               | 325,418.97E 689,879.88N m | 325,468.42E 689,887.47N m | SEPA            | Medium     | basin on top of culvert. Culvert may need diverted depending on depth.<br>3.3l/s for sensitive burns                                                                                                                                                                                                                   |
| AB TEMP 14a and b | Swath: 1.93ha<br>Total = 1.93ha                                                      | 601                             | 6.37            | Unnamed burn               | 324,786.30E 689,923.32N m | 324,732.03E 689,932.20N m | SEPA            | Medium     | 3.3l/s for sensitive burns                                                                                                                                                                                                                                                                                             |
| AB TEMP 15        | Swath: 1.11ha<br>Total = 1.11ha                                                      | 347                             | 3.66            | Unnamed burn               | 324,513.55E 689,886.35N m | 324,554.73E 690,027.54N m | SEPA            | Low        | 3.3l/s for sensitive burns                                                                                                                                                                                                                                                                                             |
| AB TEMP 16        | Swath: 4.22ha<br>Total = 4.22ha                                                      | 1313                            | 13.93           | Unnamed burn               | 323,856.03E 690,287.30N m | 323,879.23E 690,362.88N m | SEPA            | Low        | 3.3l/s for sensitive burns                                                                                                                                                                                                                                                                                             |
| AB TEMP 17        | Swath: 0.64ha<br>Total = 0.64ha                                                      | 199                             | 2.11            | Unnamed burn               | 323,448.59E 690,311.00N m | 323,401.17E 690,341.88N m | SEPA            | Low        | 3.3l/s for sensitive burns                                                                                                                                                                                                                                                                                             |
| AB TEMP 18        | Swath: 2.16ha<br>Total = 2.16ha                                                      | 672                             | 7.13            | Tiel Burn                  | 323,188.23E 690,336.89N m | 323,232.82E 690,413.86N m | SEPA            | Low        | 3.3l/s for sensitive burns                                                                                                                                                                                                                                                                                             |
| AB TEMP 21        | Swath: 1.68ha<br>Total = 1.68ha                                                      | 523                             | 5.54            | Bottom Burn                | 322,631.78E 690,473.13N m | 322,644.50E 690,482.59N m | SEPA            | Medium     | 3.3l/s for sensitive burns<br>in flood plain                                                                                                                                                                                                                                                                           |
| AB TEMP 22        | Swath: 1.26ha<br>Total = 1.26ha                                                      | 392                             | 4.16            | Bottom Burn                | 322,866.90E 690,508.52N m | 322,881.88E 690,483.69N m | SEPA            | Medium     | 3.3l/s for sensitive burns                                                                                                                                                                                                                                                                                             |
| AB TEMP 23        | Swath: 1.07ha<br>Total = 1.07ha                                                      | 300                             | 4.28            | Dispersion                 | 322,727.70E 690,779.48N m | 322,677.06E 690,766.19N m | Landowner       | Low        | Outfall located in field to the west<br>Basin and outfalls are close to the A625<br>natural ditch/grassland -- dispersion possible but further assessment needed                                                                                                                                                       |
| AB TEMP 24        | Swath: 0.77ha<br>Total = 0.77ha                                                      | 216                             | 3.08            | Dispersion                 | 322,901.21E 690,881.73N m | 322,851.99E 690,881.72N m | Landowner       | Medium     | Dispersion to farm road drainage ditch approximately 0.5m deep                                                                                                                                                                                                                                                         |
| AB TEMP 25        | Swath: 1.0ha<br>Total = 1.0ha                                                        | 280                             | 4               | Dronachy Burn              | 322,880.21E 691,092.73N m | 322,848.12E 691,112.12N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 26        | Swath: 1.22ha<br>Construction Compound: 0.56ha<br>Haul road: 0.2ha<br>Total = 1.98ha | 555                             | 7.92            | Dronachy Burn              | 322,831.78E 691,136.58N m | 322,865.28E 691,122.54N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 27        | Swath: 0.59ha<br>Total = 0.59ha                                                      | 165                             | 2.36            | Dispersion                 | 322,900.00E 691,660.24N m | 322,928.41E 691,671.80N m | Landowner       | Low        | Area is marshy wetland with ditch heading east. It is unknown what watercourse this drains into                                                                                                                                                                                                                        |
| AB TEMP 28        | Swath: 1.71ha<br>Total = 1.71ha                                                      | 291                             | 4.16            | Dispersion                 | 322,787.18E 691,792.73N m | 322,876.81E 691,857.87N m | Landowner       | Medium     | No risk of flooding down stream properties<br>March land to disperse to which drains to the east                                                                                                                                                                                                                       |
| AB TEMP 29        | Swath: 0.9ha<br>Total = 0.9ha                                                        | 140                             | 2               | Dispersion                 | 322,487.69E 691,931.41N m | 322,490.30E 691,961.74N m | Landowner       | Medium     | March land to disperse to which drains to the east<br>Agreement needed with land owner if dispersion is ok. Pipe will need to be installed if agreement is not made                                                                                                                                                    |
| AB TEMP 30        | Swath: 0.48ha<br>Total = 0.48ha                                                      | 135                             | 1.92            | Unnamed burn               | 322,262.03E 692,323.33N m | 322,208.47E 692,306.11N m | SEPA            | Low        | unable to view area on site visit<br>watercourse on map, but unsure of extent.                                                                                                                                                                                                                                         |
| AB TEMP 31        | Swath: 2.41ha<br>Total = 2.41ha                                                      | 675                             | 9.64            | Gelly Burn                 | 322,155.12E 692,865.21N m | 322,172.93E 692,919.49N m | SEPA            | Medium     | In a flood plain, basin bunds or movement south could mitigate flood risk                                                                                                                                                                                                                                              |
| AB TEMP 32        | Swath: 0.48ha<br>Total = 0.48ha                                                      | 135                             | 1.92            | Gelly Burn                 | 322,114.54E 692,925.62N m | 322,144.78E 692,909.16N m | SEPA            | Medium     | In a flood plain, basin bunds or movement south could mitigate flood risk                                                                                                                                                                                                                                              |
| AB TEMP 33        | Swath: 1.94ha<br>Total = 1.94ha                                                      | 544                             | 7.76            | Gelly Burn                 | 321,957.91E 692,949.53N m | 321,986.14E 692,873.31N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 34        | Swath: 1.80ha<br>Total = 0.41ha                                                      | 115                             | 1.64            | Dispersion                 | 321,575.75E 693,241.84N m | 321,603.94E 693,214.38N m | Landowner       | Low        | dispersion into woodland                                                                                                                                                                                                                                                                                               |
| AB TEMP 35        | Swath: 1.80ha<br>Total = 1.80ha                                                      | 505                             | 7.2             | Dispersion                 | 321,243.32E 693,206.53N m | 321,194.53E 693,238.78N m | Landowner       | Low        | need for multiple dispersion points to reduce risk of highway flooding<br>steep slope towards highway.                                                                                                                                                                                                                 |
| AB TEMP 36        | Haul Road: 0.21ha<br>Compound: 0.56<br>Total = 0.77                                  | 216                             | 3.08            | Dispersion                 | 320,976.12E 693,204.25N m | 320,941.08E 693,220.02N m | Landowner       | Low        | may connect into highway drainage if possible but unlikely<br>need for multiple dispersion points to reduce risk of highway flooding                                                                                                                                                                                   |
| AB TEMP 37        | Swath: 2.37ha<br>Total = 2.37ha                                                      | 664                             | 9.48            | Unnamed burn               | 320,913.81E 693,698.12N m | 321,009.21E 693,846.32N m | SEPA            | Low        | Unable to view area on site visit due to density of trees<br>watercourse on map<br>within a Tree planting area.                                                                                                                                                                                                        |
| AB TEMP 38        | Swath: 0.92ha<br>Haul Road: 0.4 ha<br>Total = 1.32ha                                 | 370                             | 5.28            | Unnamed burn               | 320,888.32E 693,943.90N m | 320,895.98E 693,976.24N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 39        | Swath: 0.88ha<br>Total = 0.88ha                                                      | 247                             | 3.52            | Unnamed burn               | 320,830.98E 693,996.35N m | 320,848.28E 693,970.12N m | SEPA            | Medium     | culverting of farm track needed to discharge to burn                                                                                                                                                                                                                                                                   |
| AB TEMP 40        | Swath: 1.88ha<br>Total = 1.88ha                                                      | 448                             | 7.52            | Dispersion                 | 320,649.10E 694,299.33N m | 320,649.06E 694,348.85N m | Landowner       | Low        | Dispersion into field. No properties down stream<br>agreement needed with land owner if dispersion is ok. Pipe will need to be installed if agreement is not made                                                                                                                                                      |
| AB TEMP 41        | Swath: 0.74ha<br>Total = 0.74ha                                                      | 207                             | 2.96            | Unnamed burn               | 320,320.04E 694,218.53N m | 320,322.45E 694,283.56N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 42        | Swath: 1.27ha<br>Haul road: 0.35<br>Total = 1.62ha                                   | 454                             | 6.48            | Dispersion / Portable tank | 320,002.25E 694,434.35N m | TBC                       | Landowner       | Low        | near railway, outfall may need to be removed via portable tank<br>Future engagement with network rail could bring the option to develop a temporary connection to the railway drainage<br>Multiple dispersion point may be needed to reduce flood risk to railway line<br>further investigation needed in area         |
| AB TEMP 43        | Swath: 0.14ha<br>Haul road: 0.14ha<br>Total = 0.7ha                                  | 196                             | 2.8             | Dispersion                 | 319,905.36E 694,640.44N m | 319,881.12E 694,655.27N m | Landowner       | Low        | Dispersion into field<br>no properties at risk                                                                                                                                                                                                                                                                         |
| AB TEMP 44        | Swath: 0.89ha<br>Total = 0.89ha                                                      | 250                             | 3.56            | River Ore                  | 320,080.18E 694,917.21N m | 320,032.52E 694,917.21N m | SEPA            | Low        | In a flood risk area (1:10)                                                                                                                                                                                                                                                                                            |
| AB TEMP 45        | Swath: 0.06<br>Haul Road: 0.06<br>Total = 0.45ha                                     | 126                             | 1.8             | Dispersion                 | 320,046.87E 694,635.67N m | 320,071.27E 694,661.34N m | Landowner       | Low        | Road located to the north.                                                                                                                                                                                                                                                                                             |
| AB TEMP 46        | Swath: 1.15ha<br>Haul road: 0.1ha<br>Total = 1.25ha                                  | 350                             | 5               | River Ore                  | 320,091.87E 694,975.09N m | 320,127.88E 694,897.75N m | SEPA            | Medium     | In a flood risk area (1:10)                                                                                                                                                                                                                                                                                            |
| AB TEMP 47        | Swath: 0.67ha<br>Total = 0.67ha                                                      | 188                             | 2.68            | Dispersion                 | 320,022.80E 695,334.54N m | 320,075.17E 695,326.77N m | Landowner       | Medium     | dispersion into Road ditch approximately 1.5m deep                                                                                                                                                                                                                                                                     |
| AB TEMP 48        | Swath: 0.85ha<br>Total = 0.85ha                                                      | 238                             | 3.4             | Unnamed Brun               | 319,804.57E 695,556.32N m | 319,801.40E 695,607.90N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 49        | Swath: 0.59ha<br>Total = 0.59ha                                                      | 165                             | 2.36            | Unnamed Brun               | 319,849.04E 695,648.58N m | 319,822.50E 695,610.28N m | SEPA            | Medium     | Agricultural field - No comments                                                                                                                                                                                                                                                                                       |
| AB TEMP 50        | Swath: 0.76ha<br>Total = 0.76ha                                                      | 213                             | 3.04            | Unnamed Brun               | 320,006.03E 695,769.85N m | 320,027.24E 695,634.66N m | SEPA            | Medium     | uphill of property<br>burn located to south<br>Outfall pipe will need to be placed near property to reach outfall<br>good land for dispersion, pest nearby                                                                                                                                                             |
| AB TEMP 51        | Swath: 0.76ha<br>Total = 0.76ha                                                      | 213                             | 3.04            | Dispersion                 | 320,182.53E 695,919.27N m | 320,260.71E 695,895.88N m | Landowner       | Medium     | Field ditch and wooded area to disperse into                                                                                                                                                                                                                                                                           |
| AB TEMP 52        | Swath: 5.23ha<br>Total = 5.23ha                                                      | 1976                            | 20.92           | Unnamed burn               | 320,371.50E 696,121.06N m | 320,483.25E 696,128.97N m | SEPA            | Medium     | large basin covering a large catchment. Possibility to split into smaller basins in detailed design                                                                                                                                                                                                                    |
| AB TEMP 53        | Swath: 0.90ha<br>Total = 0.90ha                                                      | 252                             | 3.6             | Dispersion                 | 320,380.15E 697,011.24N m | 320,387.14E 697,058.92N m | Landowner       | Low        | Wooded area to disperse into, possible watercourse nearby. Shows on some maps but couldn't be seen from road.                                                                                                                                                                                                          |

| SEPA data               | FFC council regs                                            | Confidence Key |                                              |
|-------------------------|-------------------------------------------------------------|----------------|----------------------------------------------|
| FFC data: 321629,691932 | less off 4l/s/ha or 1m5 year runoff for normal watercourses | Low            | Outfall only seen on map/ not plotted        |
| BF= 0.531<br>SAR= 844   | less off 3.9l/s/ha                                          | Medium         | Outfall location plotted/ seen on Site visit |
| basin depth = 0.5m      | or 1m2 year runoff for protected watercourses               | High           | Outfall levels taken                         |

## 6.6 Appendix F -- CABLE ROUTE, CONSTRUCTION SWATHE, BELLMOUTHS AND HAUL ROADS

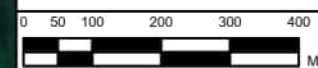


-  Red line boundary
-  Chainage marker
-  Bellmouth
-  Cable route
-  Construction swathe
-  Haul road
-  Earthwork road
-  Compound

**Notes**

1. This drawing is scaled at paper size A3, and smaller size prints will affect accuracy of measurements and should not be scaled against.

Coordinate System: British National Grid



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| 03    | 26/03/25 | For Information | CF    | CJ      | JW       |
| 02    | 21/08/24 | For Information | CF    | CJ      | JW       |
| 01    | 13/07/24 | For Information | CF    | CJ      | JW       |
| Issue | Date     | Remarks         | Drawn | Checked | Approved |

Title

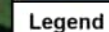
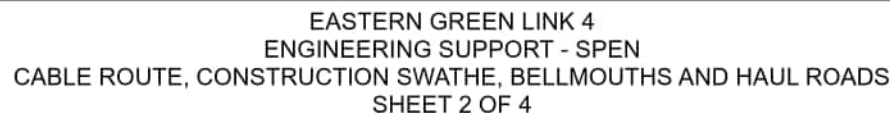
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, CONSTRUCTION SWATHE,  
BELLMOUTHS AND HAIL ROADS  
SHEET 1 OF 4



|                    |     |
|--------------------|-----|
| Application Number | N/A |
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113643-MMD-SPEH-XX-RP-ZZ-0182 - APPENDIX E

|              |                   |              |              |
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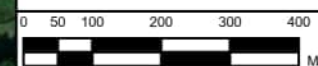


-  Red line boundary
-  Chainage marker
-  Bellmouth
-  Cable route
-  Construction swathe
-  Haul road
-  Private road
-  Earthwork road
-  Compound

**Notes**

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EASTERN GREEN LINK 4  
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CABLE ROUTE, CONSTRUCTION SWATHE,  
BELLMOUTHS AND HAIL ROADS  
SHEET 2 OF 4



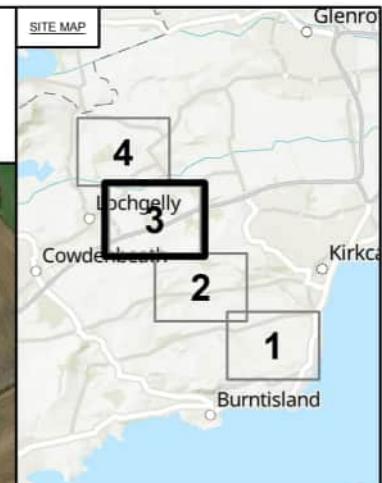
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EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, CONSTRUCTION SWATHE, BELLMOUTHS AND HAUL ROADS  
SHEET 3 OF 4

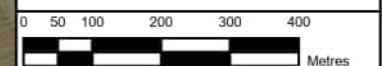


Legend

- Red line boundary
- Chainage marker
- Bellmouth
- Cable route
- Construction swathe
- Haul road
- Compound

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EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, CONSTRUCTION SWATHE,  
BELLMOUTHS AND HAUL ROADS  
SHEET 3 OF 4

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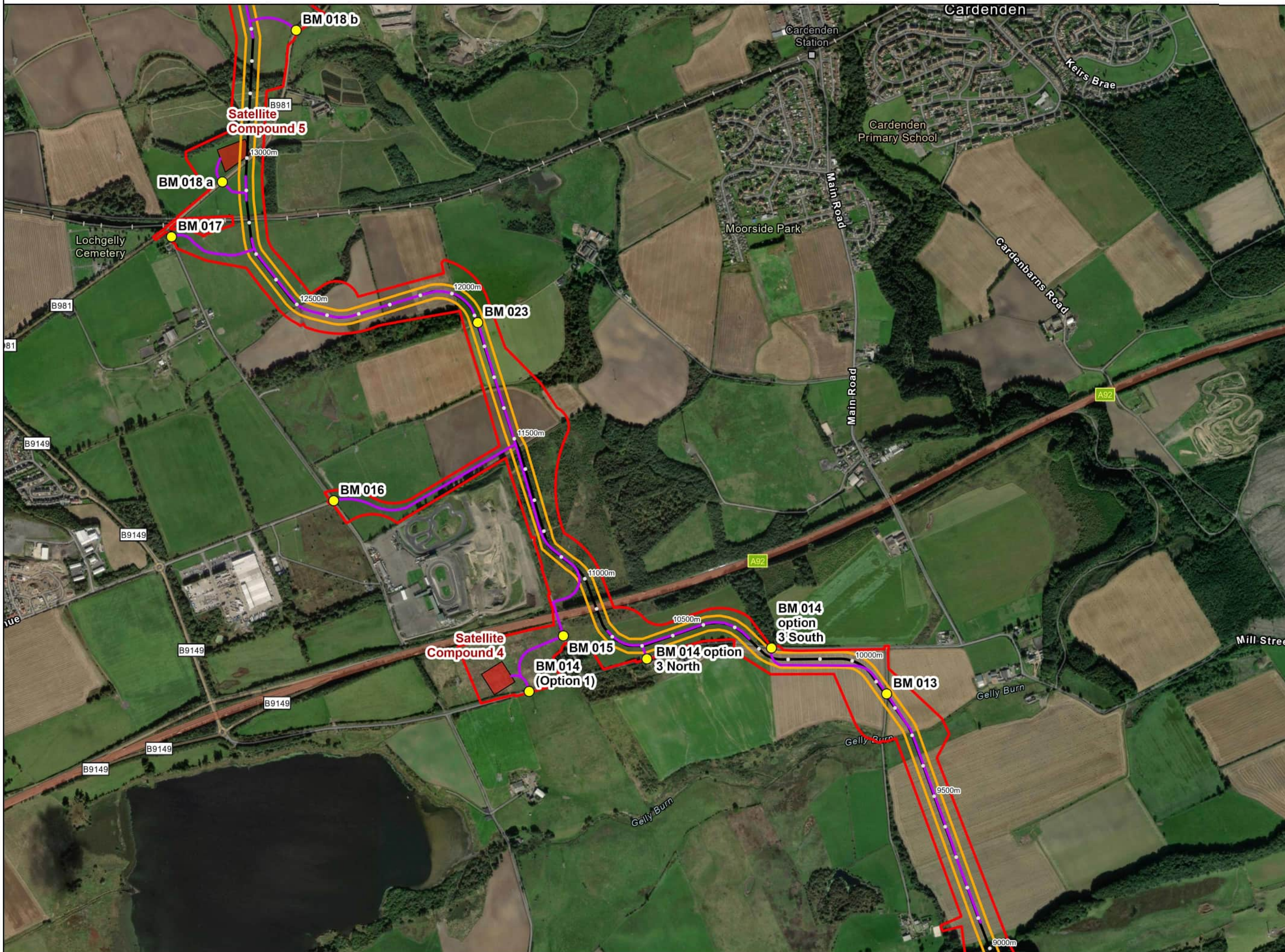
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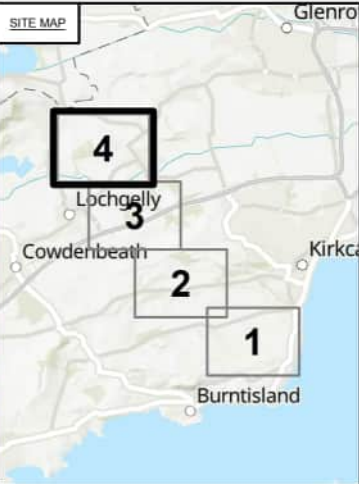
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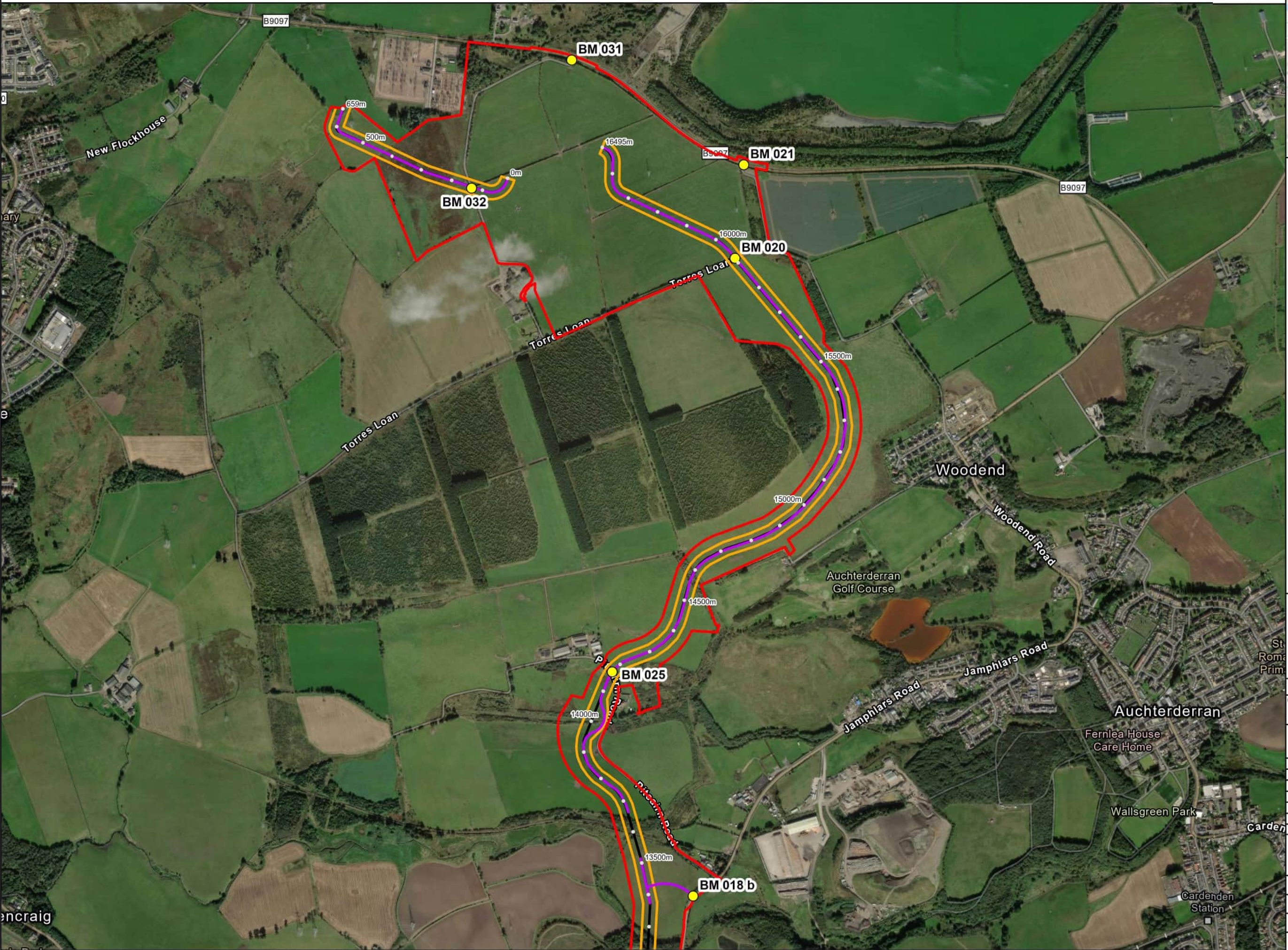




EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
CABLE ROUTE, CONSTRUCTION SWATHE, BELLMOUTHS AND HAUL ROADS  
SHEET 4 OF 4

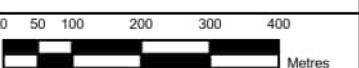


- Legend**
- Red line boundary
  - Chainage marker
  - Bellmouth
  - Cable route
  - Construction swathe
  - Haul road



**Notes**  
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CABLE ROUTE, CONSTRUCTION SWATHE,  
BELLMOUTHS AND HAUL ROADS  
SHEET 4 OF 4

Application Number  
N/A

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113643-MMD-SPEN-XX-RP-ZZ-0182 - APPENDIX E

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| Scale    | Sheet Size | Sheet        | Issue |
| 1:11,000 | A3         | SHEET 4 OF 4 | 05    |

## 6.7 Appendix G -- FEH RAINFALL DATA

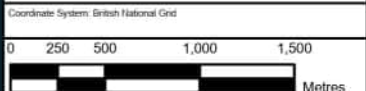


EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FEH RAINFALL DATA  
SHEET 1 OF 1



- Legend**
- Red line boundary
  - FEH rainfall data
  - Cable route
  - Construction swathe

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| 01    | 19/07/24 | For Information | CF    | OJ      | JW       |

**Title**  
EASTERN GREEN LINK 4  
ENGINEERING SUPPORT - SPEN  
FEH RAINFALL DATA  
SHEET 1 OF 1

**Application Number**  
N/A

**National Grid Drawing Reference**  
113643-MMD-SPEN-XX-RP-ZZ-0184 - APPENDIX G

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