

**Beauly to Blackhillock to New Deer to  
Peterhead 400 kV Project  
Environmental Impact Assessment Report  
Volume 5 | Appendices**

**Appendix 10.5.2 – Phase 1 Environmental  
Assessment – Longside Airfield Interface with  
Proposed Development**



## APPENDIX 10.5.2 – PHASE 1 ENVIRONMENTAL ASSESSMENT – LONGSIDE AIRFIELD INTERFACE WITH PROPOSED DEVELOPMENT

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# 1 Introduction

## 1.1 Introduction

- 1.1.1 WSP UK Limited (WSP) was commissioned by Scottish and Southern Electricity Networks Transmission (SSEN Transmission) (the 'Applicant') to undertake a Phase 1 Geo-environmental Preliminary Risk Assessment (PRA).
- 1.1.2 The Applicant proposes to submit an application for consent to construct and operate a new double circuit steel structure 400 kilovolt (kV) overhead line (OHL) to connect into new substation sites at Beauly, New Deer and Peterhead. The project is referred to as the Beauly to Blackhillock to New Deer to Peterhead 400 kV OHL Project (and hereafter as 'the Proposed Development') and will pass through the local planning authority areas of Highland, Moray and Aberdeenshire.
- 1.1.3 A portion of the Proposed Development passes through the 1 km search area for radioactive substances (Radium-226) associated with the historical use of the former Royal Naval Airship Station (RNAS) at Longside. SEPA issued a pre-application response (Ref: ENQ/2024/0242, dated 8 July 2024) to the Applicant requesting consideration of effects of Radium contamination [associated with the historical use of RNAS at Longside]. This PRA has been produced to identify the potential for radioactive contamination within the cable route limits of deviation and establish whether any further detailed assessment is required.
- 1.1.4 The study area for this Preliminary Risk Assessment (PRA) is approximately 1.5 km long and 170 m wide, extending west to east across open agricultural land and partially wooded terrain, located to the north of the former Royal Naval Airship Station (RNAS) at Longside, also known as Lenabo Airship Station. The study area covers the portion of the Proposed Development which passes through the 1 km search area for radioactive substances and is illustrated in **Figure 10.5.2: Study Area Layout**.

## 1.2 Legislative Context and Guidance

- 1.2.1 The assessment was undertaken in the legislative context of:
- Part 2A of The Environmental Protection Act (1990)<sup>1</sup>; and
  - Scottish Government Planning Advice Note 33 (PAN 33)<sup>2</sup>.
- 1.2.2 The following good practice and statutory guidance were considered, and the assessment was undertaken in general accordance with:
- Environment Agency 'Land Contamination Risk Management' (LCRM), 2025<sup>3</sup>;
  - CIRIA 'Assessing Risks Posed by Hazardous Ground Gases to Buildings', C665, 2007<sup>4</sup>;
  - British Standard 'Investigation of Potentially Contaminated Study areas – Code of Practice', BS EN 10175:2011 + A2: 2017; and
  - Defra 'Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance', PB13735, 2012<sup>5</sup>.

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<sup>1</sup> Scottish Government (2006). Environmental Protection Act 1990 – Part IIA Contaminated Land: statutory guidance edition 2. Available at: <https://www.gov.scot/publications/environmental-protection-act-1990-part-ii-a-contaminated-land-statutory-guidance/>

<sup>2</sup> Scottish Government (2017). Planning Advice Note 33: Development of contaminated land. Available at: <https://www.gov.scot/publications/pan-33-development-of-contaminated-land/>

<sup>3</sup> Environment Agency (2025). Land contamination risk management (LCRM). Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

<sup>4</sup> Construction Industry Research and Information Association (2007). Assessing Risks Posed by Hazardous Ground Gases to Buildings, C665. Available at: <https://www.ciria.org/ProductExcerpts/C665.aspx>

<sup>5</sup> Department for Environment, Food and Rural Affairs (2012). Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance. Available at: <https://assets.publishing.service.gov.uk/media/5a757dfa40f0b6360e47489d/pb13735cont-land-guidance.pdf>

## 2 Approach

- 2.1.1 The identification of potential pollutant linkages is a key aspect of the evaluation of potentially contaminated land. The approach of this assessment is based on the UK CIRIA report C552 (Contaminated Land Risk Assessment: A Guide to Good Practice, 2001). This assessment considers the source – pathway – receptor pollutant linkages that are likely to be plausible and potentially complete, and the potential risk they represent. For each of the pollutant linkages, an estimate of the potential severity (consequence) of the risk and the probability (likelihood) of the risk occurring has been undertaken to assess the potential risk associated with a complete pollutant linkage. The full methodology can be found in **Annex D: CIRIA Risk Definitions**.

## 3 Environmental Setting

### 3.1 Study Area

- 3.1.1 The study area is approximately 1.5 km long and 170 m wide, extending from north of Easterton of Lenabo to south of Auchtydore as illustrated in **Figure 10.5.2: Study Area Layout**. The study area is based on the alignment section from the alignment selection stage of the Proposed Development as discussed in **Chapter 4: The Routeing Process and Alternatives**.
- 3.1.2 High level details of the study area are summarised in **Table 3.1**.

**Table 3.1: Study Area Details**

| Aspect                                  | Details                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| National Grid Reference                 | 402743.5,843389.2 (approximate study area centre)                                                                                                                                                                                                                                                                                                                                                                                                    |
| Study area setting and surrounding area | The centre of the study area is located approximately 500 m north of the former Royal Naval Airship Station (RNAS) Longside within a predominantly agricultural area. Several roads intersect the area, including a prominent east–west route passing north of RNAS Longside. This main road is accompanied by minor roads and agricultural access tracks, some of which appear to be single-track and link surrounding farmland and forested areas. |
| Study area size                         | Approximately 19 Hectares (Ha), 1.5 km in length and 170 m in width.                                                                                                                                                                                                                                                                                                                                                                                 |

### 3.2 Survey Details

- 3.2.1 WSP conducted a walkover survey of the study area on 24 October 2024, after access was permitted. The purpose of the walkover was to visually assess potential geo-environmental risks associated with the study area in the context of the Proposed Development.
- 3.2.2 A photographic record from the walkover is provided in **Annex A: Study Area Walkover Photographs** and a summary of the walkover observations provided below in **Table 3.2**.

**Table 3.2: Survey Observations**

| Aspect                 | Details                                                                                                                                                                                                                                                                                                                 |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Current study area use | The study area primarily comprises of agricultural land. A road intersects the study area near the western boundary. The edge of an irregular shaped area of forest lies within the study area. The study area remains an undeveloped, grass-covered area, with the surface predominantly comprising agricultural soil. |
| Topography             | Topography varies across the study area, where the eastern half slopes southwestward (forming part of 'the Hill of Ludquharn'), and the western half is generally flat.                                                                                                                                                 |
| Electrical substations | No electrical substations were noted in the study area.                                                                                                                                                                                                                                                                 |

| Aspect                               | Details                                                                                                                                                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazardous Materials Storage          | No hazardous materials were observed in the study area.                                                                                                                 |
| Waste Storage                        | No waste storage was noted in the study area.                                                                                                                           |
| Drainage Description                 | An unnamed burn / watercourse intersects the central study area, flowing in a northwesterly direction before meeting the Burn of Ludquharn northwest of the study area. |
| Asbestos Containing Materials (ACMs) | No obvious ACM were observed.                                                                                                                                           |
| Invasive Species                     | No invasive plants were noted during the walkover. WSP note that a full Invasive Non-Native Species (INNS) survey was not undertaken as part of this study.             |
| Anecdotal information                | N/A                                                                                                                                                                     |

### 3.3 Desk-based Environmental Baseline

#### Historical Records

- 3.3.1 A review of historical Ordnance Survey (OS) maps has been undertaken to identify potential former sources of contamination and sensitive receptors. The historical OS maps reviewed are provided within the Groundsure Report (GS-7KY-ZO2-1NG-IGF small scale and large-scale map - (**Annex B: Additional Information – Groundsure and UXO**)), and pertinent findings are summarised below.
- 3.3.2 The earliest available mapping (1869-1870) shows the study area as agricultural land with unnamed access roads. The study area remains undeveloped until the present. A building at Auchtydore is noted at the eastern part of the study area in 1901-1902 mapping until the present.
- 3.3.3 Surrounding area features identified relevant to contaminated land and receptors are listed below with their distance located from the study area:
- Mill Dam recorded on maps between 1901, was located approximately 600 m south of the study area;
  - Forest of Deer located within and extending approximately 50 m south of the study area (1955).

#### Geology

- 3.3.4 The following published geological sequence, summarised in **Table 3.3** below, is anticipated in the study area based on British Geological Survey (BGS) 1:50,000 scale (Sheet 87 – Barnsley, Bedrock and Superficial Geology, 2008)<sup>6</sup> geological maps and the Groundsure report provided in **Annex B: Additional Information – Groundsure and UXO – B.1 and B.2**:

**Table 3.3: Summary of Geology**

| Geological Unit             | Estimated Thickness (based on historical boreholes)                                      | Description                                                                                                                                             |
|-----------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Superficial Deposits</b> | Unknown (noted to be up to 2.5 m thick from BGS borehole records west of the study area) | The study area is underlain by Banchory Till Formation (gravelly and sandy diamicton) and / or Alluvium Fluvial deposits (clay, silt, sand and gravel). |
| <b>Bedrock</b>              | Unknown                                                                                  | The study area is underlain by the Forest Of Deer Pluton (Melagranite / Biotite / Diorite)                                                              |

- 3.3.5 No BGS borehole logs are recorded within the study area at the time of writing.

<sup>6</sup> British Geological Survey (2008). New Series 1:63 360/1:50 000 geological map series – Sheet 87 Barnsley, Bedrock and Superficial Geology, 2008. Available at: <https://largeimages.bgs.ac.uk/iip/mapsportal.html?id=1001576>

## Mining

- 3.3.6 Reference to the Coal Authority's (CA) Interactive Map Viewer online<sup>7</sup> indicated that the study area does not lie within a Coal Mining Reporting Area.

## Groundwater Quality

- 3.3.7 In accordance with the Water Framework Directive<sup>8</sup>, the Scottish Environment Protection Agency (SEPA) maintains its quality classification of the water environment following River Basin Management Planning (RBMP)<sup>9</sup>. This information is available on SEPA's Water Environment Hub<sup>10</sup>. Groundwater quality information for the study area is presented in **Table 3.4** below:

**Table 3.4: Groundwater Quality Summary**

| Waterbody Name       | Type    | Local Authority            | Overall Classification | Comments            |
|----------------------|---------|----------------------------|------------------------|---------------------|
| Mintlaw (ID: 150655) | Bedrock | Aberdeenshire Council (AC) | Good                   | 2022 Classification |

- 3.3.8 Drinking Water Protection Zones are not defined in Scotland. All of Scotland's groundwater bodies are designated as Drinking Water Protected Areas (DWPAs) and therefore their associated groundwater resource potential must be protected.

## Groundwater Vulnerability

- 3.3.9 The BGS Groundwater Vulnerability Map of Scotland<sup>11</sup>, scale 1:625,000, reports vulnerability in terms of the thickness of the overlying superficial deposits. Based on the Groundsure report (**Annex B: Additional Information – Groundsure and UXO**), the geological classification of the study area is a low-productivity aquifer (Unnamed Igneous Intrusion), where flow is virtually all through fractures and other discontinuities presented in **Table 3.5**.

**Table 3.5: Groundwater Vulnerability Summary**

| Rock Unit                 | Character                | Flow Mechanism                                                    | Summary                                                   |
|---------------------------|--------------------------|-------------------------------------------------------------------|-----------------------------------------------------------|
| Unnamed igneous intrusion | Low productivity aquifer | Flow is virtually all through fractures and other discontinuities | Forest Of Deer Pluton – (Melagranite / Biotite / Diorite) |

## Water Abstractions

- 3.3.10 A Private Water Supply Risk Assessment (PWSRA) has been conducted for water supplies that may be affected during the construction and operation of the Proposed Development. For further details see **Appendix: 10.6 Private Water Supply Risk Assessment**.

<sup>7</sup> Mining Remediation Authority (2025). Mining Remediation Authority Map Viewer. Available at: <https://datamine-cauk.hub.arcgis.com/>

<sup>8</sup> European Commission (n.d.). Water Framework Directive. Available at: <https://environment.ec.europa.eu/topics/water/water-framework-directive>

<sup>9</sup> Scottish Environment Protection Agency (n.d.). River Basin Management Planning. Available at: <https://www.sepa.org.uk/environment/water/river-basin-management-planning>

<sup>10</sup> Scottish Environment Protection Agency (2015). Water Classification Hub. Available at: <https://informatics.sepa.org.uk/WaterClassificationHub/>

<sup>11</sup> British Geological Survey (n.d.). Hydrogeological maps of Scotland, scale 1:625,000. Available at: <https://www.bgs.ac.uk/datasets/hydrogeological-maps-of-scotland/>

## Hydrology

- 3.3.11 According to the Groundsure Report (**Annex B: Additional Information – Groundsure and UXO**), the only surface water feature flowing through the study area is a tributary of the Burn of Ludquharn and is classed in the report as a 'an inland river'. The Burn of Ludquharn lies approximately 350 m west of the study area's western part and flows northwest to south. The Burn of Ludquharn (ID: 23225) is classified to have an overall water quality of 'Moderate' in the year 2022 according to SEPA's Water Classification Hub. Approximately 45 surface water features are reported within 250 m of the study area.

## Flooding

- 3.3.12 The Groundsure Report (**Annex B: Additional Information – Groundsure and UXO**) indicates that areas with inland rivers in the study area have the highest river flooding risk as (1 in 30 years, 0.3–1.0 m), highest surface water flooding risk as flooding (1 in 30 years, greater than 1.0 m) and ground water flooding risk as high. However the rest of the site has low or negligible risk to surface water river and groundwater flooding. The risk from coastal flooding is considered to be negligible within the study area.

## Sensitive Land Uses

- 3.3.13 The Groundsure Report (**Annex B: Additional Information – Groundsure and UXO**) indicates that no environmentally designated sensitive land uses are recorded in the study area.

## 3.4 Environmental Sensitivity

- 3.4.1 Overall, in line with relevant guidance, the study area setting is considered to be of low to moderate environmental sensitivity, due to the following:
- absence / limited record of Made Ground on the Study area;
  - presence of 'moderate' quality surface water feature within 350 m;
  - presence of a 'good' quality low productive bedrock aquifer underlying the study area;
  - absence of any sensitive residential land uses within 250 m; and
  - presence of designated ancient woodland on study area.

## 4 Regulatory Information

### 4.1 Groundsure Regulatory Information Summary

- 4.1.1 The Groundsure Report (**Annex B: Additional Information – Groundsure and UXO – B.1 to B.2**) includes information and data collected from several organisations, including SEPA, Aberdeenshire Council (AC), the British Geological Survey, the Department for Environment, Food and Rural Affairs (DEFRA) and Health and Safety Executives (HSE). **Table 4.1** summarises this information.

**Table 4.1: Regulatory Information Summary**

| Groundsure Feature              | Within Study Area | 0 - 50 m | 50 m - 250 m | 250 m - 500 m | Details                                                                                                                                                                                                |
|---------------------------------|-------------------|----------|--------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Historical Industrial Land Uses | 0                 | 0        | 4            | 7             | The closest record related to an unspecified quarry is located 100 m east of the study area. Other records are related to unspecified disused pit, quarry, heap, smithy, garage, tanks and gravel pit. |
| Historical Tanks                | 0                 | 0        | 6            | 10            | The closest record is related to an unspecified tank located 152 m southeast of the study area.                                                                                                        |

| Groundsure Feature                                      | Within Study Area | 0 - 50 m | 50 m - 250 m | 250 m - 500 m | Details                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------|-------------------|----------|--------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                         |                   |          |              |               | Other tanks within 500 m include. unspecified tanks and tanks / trough.                                                                                                                                                                                                                                  |
| Historical Energy Features                              | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Historical Petrol Stations                              | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Historical Garages                                      | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Historical military land                                | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Former Royal Navy Airship Station and Longside Airfield | 0                 | 0        | 0            | 1             | Aware of the features during the study area walkover.<br><br>Note: Not reported in Groundsure reports - National defence and safety concerns.                                                                                                                                                            |
| Active or Recent Landfill                               | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Historical Landfill Study areas                         | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Licenced Waste Study areas                              | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Historical Waste Study areas                            | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Recent Industrial Land Uses                             | 15                | 0        | 5            | 0             | The closest activity record within the study area relates to pylon an electrical features (infrastructure and facilities category).<br><br>Other off-study area records are related to electrical features, tanks (generic), poultry farming – equipment and supplies and unspecified quarries or mines. |
| Gas pipelines                                           | 1                 | 0        | 0            | 0             | The pipeline named "St. Fergus to Aberdeen" is located in the central portion of the study area with a diameter of 900 mm with a northeast – southwest orientation.                                                                                                                                      |
| Current or Recent Petrol Stations                       | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Control of Major Accident Hazards (COMAH)               | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Hazardous Substances Storage/Use                        | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Part A(1), IPPC and Historic IPC Authorisations         | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Pollution Inventory Substances                          | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Pollution Inventory Waste Transfers                     | 0                 | 0        | 0            | 0             | N/A                                                                                                                                                                                                                                                                                                      |
| Part B Authorisations                                   | 0                 | 0        | 1            | 0             | The closest record is related to the operator – Les Taylor Contractor undertaking the crushing                                                                                                                                                                                                           |

| Groundsure Feature | Within Study Area | 0 - 50 m | 50 m - 250 m | 250 m - 500 m | Details                                                                                   |
|--------------------|-------------------|----------|--------------|---------------|-------------------------------------------------------------------------------------------|
|                    |                   |          |              |               | process with License reference PPC / N / 30015 located 176 m northeast of the study area. |

## 4.2 Local Authority

- 4.2.1 The Environmental Health Officer at Aberdeenshire Council Planning and Environmental Services was contacted on 8 November 2024 requesting environmentally pertinent information held by Aberdeenshire Council relating to the study area. Based on the Public Register of Contaminated Land by the Aberdeenshire Council Planning and Environmental Services there are no sites identified as contaminated land within 10 km of the study area.
- 4.2.2 All identified contaminated land, as per the Public Register of Contaminated Land maintained by the Aberdeenshire Council Planning and Environmental Services lie beyond a 2 km radius of the study area. Consequently, these areas of land have not been considered as potential surrounding area sources for the source-pathway-receptor linkage. The associated risk is considered minimal.

## 4.3 Radon Gas

- 4.3.1 Based on the Groundsure report (**Annex B: Additional Information – Groundsure and UXO**) and UK Radon interactive map<sup>12</sup>, the study area lies within a low probability radon area where less than 1% of homes are estimated to be at or above the Action level<sup>13</sup>. As such, basic radon protection measures are not considered necessary for the study area. 'Basic' refers to the minimum level of construction measures required to reduce radon ingress into a building.

## 4.4 Unexploded Ordnance

- 4.4.1 Zetica Risk Maps<sup>14</sup> (**Annex B: Additional Information – Groundsure and UXO**) indicate that the study area is located in an area of low risk in regard to unexploded ordnance.

## 4.5 Radium

- 4.5.1 The study area passes through the 1 km search area for radioactive substances (Radium-226) associated with the historical use of the former Royal Naval Airship Station (RNAS) Longside at Grid Reference NK 03000 42550 located approximately 800 m south of the study area. The RNAS work started on the Longside site in 1915, and by 1917 it was operational and well established. The RNAS was supported by infrastructure including gas works, shops, a swimming pool, a theatre and a church. Radium-226 was formerly used in self-luminous paints for watches, aircraft switches, clocks, and instrument dials and panels.
- 4.5.2 Radioactive luminising material (radium-226) was widely used in aircraft instruments and other military equipment between 1915 and the early 1970s. Reluminising of instruments was often carried out in workshops as part of routine maintenance. Historic disposal practices often included burial of radioactive luminous equipment and debris from broken equipment on-site, alongside incineration of surplus equipment which may have contained luminised aircraft instruments.
- 4.5.3 Concrete foundations, anchoring blocks and various ruins still exist at the former RNAS site. A number of drains cross the RNAS Longside site and pass through the study area to connect to the Burn of Ludquhar.

<sup>12</sup> UK Health Security Agency (2022). UK maps of Radon. Available at: <https://www.ukradon.org/information/ukmaps>

<sup>13</sup> Action Level for Radon in Groundsure report refers to a threshold concentration of radon gas in indoor air, above which remedial or preventative measures are recommended to reduce exposure.

<sup>14</sup> Zetica UXO (2025). Risk Maps. Available at: <https://zeticauxo.com/guidance/risk-maps/>

## 5 Initial Conceptual Study Area Model

### 5.1 Introduction

- 5.1.1 This section of the report provides a systematic indication of the potential contamination risks to enable uncertainties and further assessment needs or other actions to be identified. It draws on the information presented in earlier sections of the report to identify plausible contaminant-pathway-receptor linkages. Details regarding the legislative framework for this assessment are presented within **Annex C: Legislative Background**.

### 5.2 Potential Contamination Sources

- 5.2.1 Based on the information reviewed as part of this desk study, and findings of the walkover, the following potential sources of contamination have been identified:

- Study area:
  - Made Ground and other contamination associated with historical use (roads, OHL, hoppers, silos and electrical features).
- Surrounding area:
  - Radium-226 associated with the Former RNAS located approximately 800 m from the study area boundary;
  - Contamination associated with gasworks within the Former RNAS located approximately 800 m from the study area boundary;
  - Made Ground associated with development within 500 m radius of the study area boundary;
  - historical tanks located within 500 m radius of the study area boundary;
  - historical garage located within 500 m radius of the study area boundary; and
  - contamination associated with off study area historical land uses.

- 5.2.2 Based on the potential sources listed above, the following contaminants may be present within the study area:

- Radium-226;
- heavy metals, poly-aromatic hydrocarbons (PAH), petroleum hydrocarbons (TPH), and asbestos; and
- ground gases associated with Made Ground including methane, carbon dioxide, carbon monoxide, hydrogen sulphide or oxygen-deficient air.

### 5.3 Potential Receptors

- 5.3.1 In the context of the Proposed Development, the following potential receptors were identified:

- Human Health
  - Future and current study area occupiers / visitors;
  - adjacent study area users; and
  - construction workers and below-ground maintenance workers.
- Water Environment
  - bedrock aquifer Forest of Deer Pluton – (Melagranite / Biotite / Diorite); and
  - surface water (Tributary of the Burn of Ludquharn located in the study area).
- Infrastructure
  - foundations and tower bases for the Proposed Development; and
  - drinking water supply pipes.

## 5.4 Potential Contaminant Pathways

5.4.1 Relevant potential pathways are considered to include:

- direct contact, ingestion or inhalation of soil-bound contaminants / dust (including permeation of water supply pipes);
- direct inhalation of asbestos fibres within soils;
- inhalation of vapours associated with soil / groundwater contamination;
- migration of leachable / mobile contamination laterally and vertically through granular soils;
- ground gas migration, inhalation and accumulation; and
- irradiation.

## 5.5 Plausible Contaminant Linkages

5.5.1 **Table 5.1** provides an evaluation of those potential contaminant linkages considered to be plausible given the current study area understanding.

## 5.6 Preliminary Contaminant Linkage Assessment

5.6.1 Based on consideration of the study area conditions, the environmental setting, and the information currently available for the study area, potential plausible contaminant linkages have been identified. These are based on an assumed proposed industrial or commercial end-use.

5.6.2 The terms describing Probability and Consequence are referenced from the CIRIA 552 document. Tables 6.3, 6.4 and 6.5 from CIRIA 552 are provided for reference in **Annex D: CIRIA Risk Definitions**.

## 5.7 Preliminary Risk Classification for the Study area

5.7.1 Based on the contaminant linkage assessment completed for the study area in consideration of its assumed commercial / industrial use, the following risk classifications have been determined (in line with relevant guidance):

- with respect to human health, the risks have been assessed as Low;
- with respect to surface waters, the risks have been assessed as Low;
- with respect to groundwater, the risks have been assessed as Low; and
- with respect to buildings and services, the risks have been assessed as Low.

Table 5.1: Plausible Contaminant Linkages

| Potential Source                                                                                                                                                | Exposure Pathway                                      | Receptor                                                                         | Probability of Exposure | Consequence of Exposure | Risk | Plausibility of Pathway                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------|-------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Contaminants associated with adjacent land uses.</p> <p>Contaminants include Radium-226, inorganic and organic contaminants, ground gases, and asbestos.</p> | Inhalation, ingestion, irradiation and dermal contact | Human health risks, including current and future study area users, groundworkers | Unlikely                | Medium                  | Low  | <p>Study area users may be exposed to potential contaminants via direct dermal contact, ingestion and inhalation, or hazardous ground gases. The principal human health risk is likely to be from contaminants within the soils and groundwater due to potentially contaminated Made Ground. Significant Made Ground is not expected to be encountered in study area due to the limited historical development, while some historical industrial development of the surrounding area has occurred.</p> <p>Noting the proposed land use, direct dermal contact and ingestion would be limited to areas of soft landscaping / gravel cover with hardstanding and building cover reducing the likelihood that study area users would be exposed to subsurface contaminants under normal conditions.</p> <p>In the event of below-ground works, study area workers may be exposed to subsurface contamination should it exist. Yet it is generally accepted as both reasonable and an expectation that future construction workers would adopt appropriate procedures to manage health and safety risks on the assumption that a risk exists.</p> |
|                                                                                                                                                                 | Migration via infiltration into groundwater           | Groundwater within superficial and bedrock deposits                              | Unlikely                | Medium                  | Low  | <p>The absence of hardstanding and building cover should facilitate the infiltration of precipitation and increase the potential for leaching and off-study area migration of any contamination. However, given the current / historical uses of the study area, the potential for legacy contaminants to migrate to</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Potential Source | Exposure Pathway                            | Receptor                                                     | Probability of Exposure | Consequence of Exposure | Risk | Plausibility of Pathway                                                                                                                                                                                                                                                              |
|------------------|---------------------------------------------|--------------------------------------------------------------|-------------------------|-------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |                                             |                                                              |                         |                         |      | the underlying bedrock aquifer is considered to be Low.                                                                                                                                                                                                                              |
|                  | Migration via infiltration into groundwater | Building and study area foundations, underground water pipes | Unlikely                | Medium                  | Low  | Aggressive ground conditions may affect any proposed building foundations and any underground pipes. With any new development, planning would likely be required, and such would require a study area investigation, which would need to assess whether any mitigation was required. |

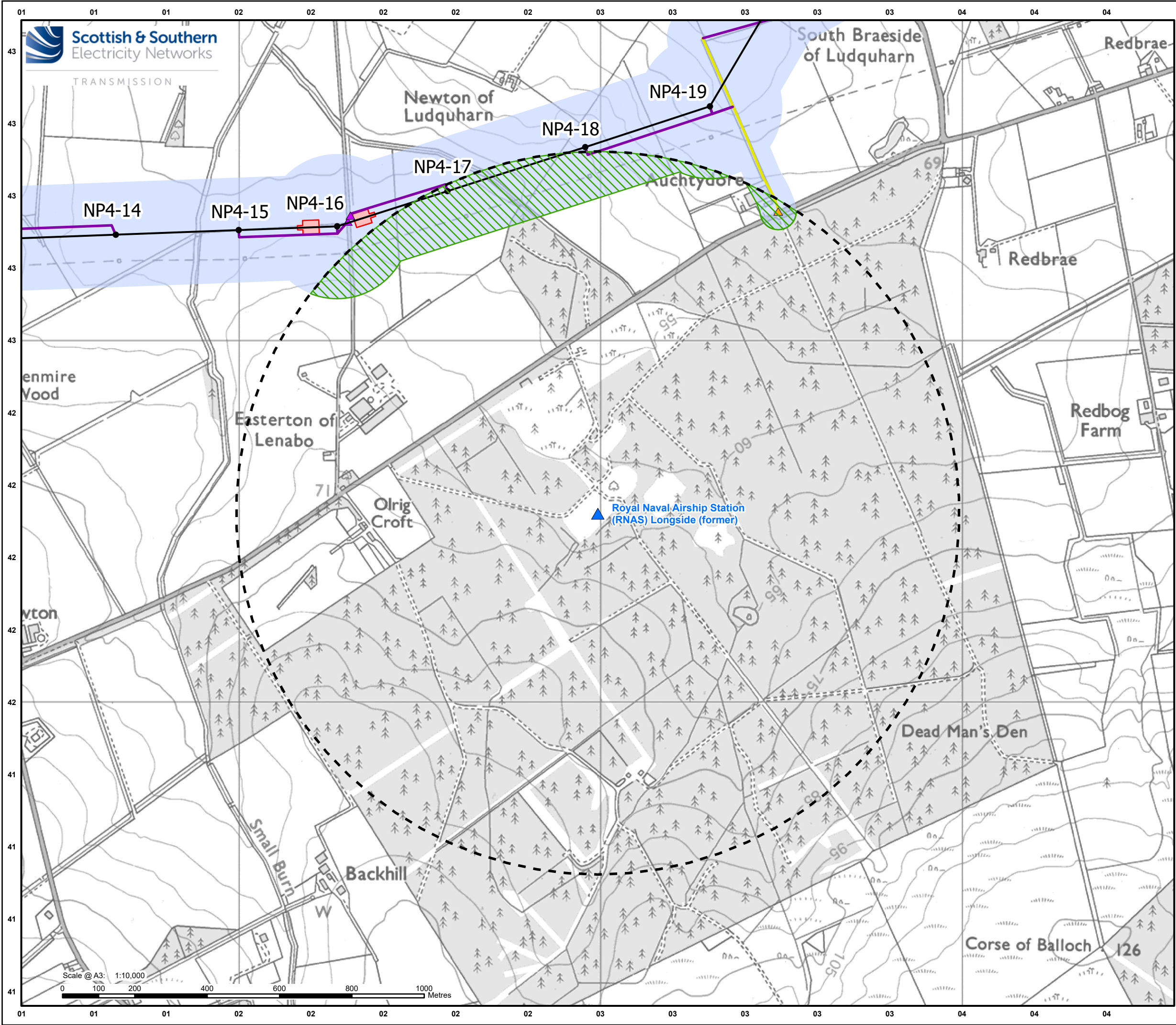
## 6 Conclusions and Recommendations

### 6.1 Conclusions

- 6.1.1 The potential for legacy ground contamination in shallow soils is considered possible (based on current and historical land uses in and surrounding area), however the risk to human health is classified as low.
- 6.1.2 The principal risks are considered to be to the current and future study users of the study area. However, the probability of site users experiencing exposure at significant concentrations (should such contamination exist in these areas) is considered low.
- 6.1.3 Based on the information contained within this PRA, and in line with relevant guidance, it is considered that the study area represents a Low risk with respect to contaminated land liabilities.

## 7 Limitations

- 7.1.1 Unless WSP has knowledge to the contrary, WSP has assumed the correctness and completeness of third-party information supplied and shall have no liability in respect of any inaccuracy, defect or omission in any information or materials provided, anecdotally or otherwise, by the Applicant or any other third party to WSP. WSP does not assume any liability for misrepresentation of information or for items not visible, accessible, present or supplied at the time of the study.
- 7.1.2 The general limitations of the PRA are outlined in **Annex E: General Limitations**.



**Legend**

**Development for which Section 37 Consent is Sought**

- Proposed OHL Alignment - 400 kV
- Proposed Tower - 400 kV (with tower number)
- Limit of Deviation - Proposed Development

**Ancillary Development**

- Proposed Conductor Pulling Area (EPZ)
- Existing Access – Upgrade – Good / Fair Condition
- Proposed Access – Temporary
- Proposed Bellmouth - Temporary
- Proposed Bellmouth - Upgrade

**Study Area and Environmental Baseline**

- Contaminated Land Site
- 1 Km Buffer
- Study Area

Fraserburgh

Peterhead

A96

Scale- 1:1,000,000

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Project: Beauly to Blackhillock to New Deer to Peterhead 400kV OHL Project

Title: Figure 10.5.2 - Phase 1 Environmental Assessment: Study Area and Environmental Baseline

Drawn by: MAL Date: 07/07/2025

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