

# **Environmental Impact Assessment Report (EIAR)**

## **Volume 4 of 6: Summary**

### **(Chapter 22) Summary of Significant Residual Effects**

Document no: 32105801/EIAR/C22

Version: Final

December 2025

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## **22. Summary of Residual Significant Effects**

1. This chapter summarises the likely significant residual effects which result from the Construction Phase (including Testing & Commissioning) and Operational Phase of the Proposed Project.
2. Residual effects are the effects which occur after the proposed mitigation measures have been implemented. They refer to the degree of change that would occur after the proposed mitigation measures have taken effect. This chapter focuses on the significant residual effects. Effects which are not significant are detailed within Chapter 6 to Chapter 21 in Volume 3 of this EIAR.
3. Table 22.1 presents the residual effect significance following implementation of mitigation as set out in Chapter 6 to Chapter 21 and the Construction Environmental Management Plan (Appendix A5.1). The residual effects presented are adverse unless otherwise stated as positive/beneficial. Mitigation for the significant residual effects is presented in Table 22.1. Annex G of the Construction Environmental Management Plan (Appendix A5.1) is the Register of Environmental Actions and Commitments, which identifies all specific mitigation measures and commitments included within the EIAR, NIS and Water Status Impact Assessment Report to address the environmental effects of the Proposed Project.
4. The terminology used in this chapter to describe the residual effect significance is a reflection of the assessment terminology and guidelines used within Chapter 6 to Chapter 21. While the terminology in the Environmental Protection Agency's 2022 guidelines on information to be contained in environmental impact assessment reports is predominantly used, some chapters use discipline specific guidelines, and this terminology is presented within this summary chapter to maintain consistency with the assessments of Chapter 6 to Chapter 21.

Table 22.1: Summary of Significant Residual Effects

| Environmental Topic                                | Impact Description  | Effect Significance (Pre-Mitigation)            | Mitigation   | Residual Significance (Post-Mitigation)  |
|--|---|---|--|--|
| <b>Chapter 6: Noise and Vibration</b>              | <b>Construction Phase</b>   |   |  |  |
|  | Construction/set-up of temporary infrastructure sites – three noise sensitive receptors (NSL) at Pipe Storage Depot (PSD) 1, one NSL at PSD9 and one NSL at PSD10.  | Significant to Very Significant                 | <ul style="list-style-type: none"> <li>Standard, good practice measures as set out in the Noise and Vibration Management Plan (Appendix A5.1, Annex D)</li> <li>Selection of plant with low generation of noise and the situation of noisy plant as far away from sensitive properties as practicable</li> <li>Hoarding around each side of the Construction Compounds and Pipe Storage Depots.</li> </ul>   | Moderate to Significant (effect is Significant)  |
|  | Night-time works at trenchless crossings – Six trenchless crossing locations where NSL are within 110m of the crossing locations (17 NSLs would have Significant to Very Significant residual effects), and an additional six trenchless crossing locations where NSL are between 110m and 190m of the crossing locations (19 NSL would have Moderate to Significant residual effects). | Significant to Very Significant                 | <ul style="list-style-type: none"> <li>Standard, good practice measures as set out in the Noise and Vibration Management Plan (Appendix A5.1, Annex D)</li> <li>Selection of quiet plant</li> <li>Localised screening around noisy items of plant</li> <li>Monitoring and liaison with the public during the planned night-time works.</li> </ul>  | Significant to Very Significant (17 NSL)<br>Moderate to Significant (19 NSL) (effect is Significant) |
|  | Vibration from rock breaking (human response) – one residential vibration sensitive receptor (VSL) would experience short-term vibration levels above 1mm/s ppv.  | Moderate to Significant (effect is significant) | <ul style="list-style-type: none"> <li>Moving the rock breaking further from the receptors using the defined construction flexibility</li> <li>Reducing the duration of rock breaking below 10 or more days or nights in any 15 consecutive day or night period</li> <li>Using non-hydraulic rock breaking methods close to sensitive properties. This will include the use of conventional excavators with toothed buckets or 'ripping' tools where practical</li> <li>Using of lower vibration emitting breakers when working in close proximity to sensitive properties.</li> </ul> | Moderate to Significant (effect is significant)  |
|  | Vibration from trenchless construction techniques (human response) – two residential VSLs would experience short-term vibration levels above 1mm/s ppv.   | Moderate to Significant (effect is significant) | <ul style="list-style-type: none"> <li>Moving the alignment of the trenchless crossing further from the receptors using the defined construction flexibility</li> <li>Reducing the duration of trenchless effects on receptors below 10 or more days or nights in any 15 consecutive day or night period</li> <li>Designing the cutting face of the tunnel boring machine (or equivalent) so that the level of vibration generated at source is reduced.</li> </ul>  | Moderate to Significant (effect is significant)  |
|  | <b>Operational Phase</b>  |   |  |  |
| No likely significant residual operational effects |   |   |  |  |

| Environmental Topic                                | Impact Description  | Effect Significance (Pre-Mitigation) | Mitigation  | Residual Significance (Post-Mitigation)                     |
|--|---|--------------------------------------|---|---|
| <b>Chapter 7: Traffic and Transport</b>            | <b>Construction Phase</b>   |                                      |   |   |
|  | Temporary significant effects limited to Link Y R421 (9 weeks), Link AL R400 (5 weeks), and Link AF R422 (4 weeks) during peak construction periods. Effects caused by increase in annual average daily traffic and/or increase in percentage of heavy vehicles using the road links. | Significant                          | Traffic management measures set out in the Traffic Management Plan (Appendix A7.2), such as, but not limited to: <ul style="list-style-type: none"> <li>• Temporary signals</li> <li>• Heavy vehicle movement controls</li> <li>• Monitoring of key junctions and links</li> <li>• Convoy systems</li> <li>• Timing restrictions near sensitive areas such as schools.</li> </ul> | Moderate-Significant (effect is Significant)                |
|  | Temporary significant effects limited to Junction 18 (5 weeks), Junction 30 (4 weeks), and Junction 50 (5 weeks) during peak construction periods. Effects caused by increased queue lengths and delay time.  | Significant to Very Significant      |   | Moderate-Significant to Significant (effect is Significant) |
|  | <b>Operational Phase</b>  |                                      |   |   |
| No likely significant residual operational effects |   |                                      |   |   |

| Environmental Topic                   | Impact Description  | Effect Significance (Pre-Mitigation) | Mitigation  | Residual Significance (Post-Mitigation) |
|---------------------------------------|---|--------------------------------------|---|---|
| <p><b>Chapter 8: Biodiversity</b></p> | <p><b>Construction Phase</b></p>  |                                      |   |   |
|                                       | <p>The Proposed Project would result in a permanent loss of habitats located within the infrastructure sites, access roads and other permanent infrastructure (such as valves), including:</p> <ul style="list-style-type: none"> <li>• Dry-humid acid grassland</li> <li>• Wet grassland</li> <li>• Wet heath</li> <li>• Wet heath and cutover bog mosaic</li> <li>• Wet heath and raised bog mosaic</li> <li>• Wet heath and bog woodland mosaic</li> <li>• Raised bog</li> <li>• Cutover bog</li> <li>• Cutover bog and bog woodland mosaic</li> <li>• Poor fen and flush</li> <li>• Mixed broadleaved woodland</li> <li>• Mixed broadleaved woodland and scrub mosaic</li> <li>• Mixed broadleaved/conifer woodland</li> <li>• Mixed broadleaved/conifer woodland and scrub mosaic</li> <li>• Mixed conifer woodland/Hedgerows</li> <li>• Treelines</li> <li>• Oak-ash-hazel woodland</li> <li>• Riparian woodland</li> <li>• Wet willow-alder-ash Woodland</li> <li>• Bog woodland</li> <li>• Bog woodland and scrub</li> <li>• Scrub.</li> </ul> <p>None of the habitats impacted are Annex I habitats.</p> | <p>Significant</p>                   | <ul style="list-style-type: none"> <li>• Like-for-like landscaping and replanting in accordance with recommendations from an Ecological Clerk of Works (ECoW), using locally native species, will be monitored and subject to a condition assessment</li> <li>• Treelines and hedgerows will be retained where practicable</li> <li>• Protective barriers to avoid damage to adjoining woodlands</li> <li>• Retained trees will be fenced off using the Root Protection Area as a guideline. If fencing is not feasible, hessian sacking or timber cladding will be used</li> <li>• No storage of hazardous materials within 10m of any retained trees or hedgerows</li> <li>• Extensive tree cutting and lopping will be minimised</li> <li>• Main pipeline construction works will be carried out outside of winter period to reduce impacts towards surface and groundwater caused by sediment loading</li> <li>• Groundwater from trenches will be treated and recharged back to groundwater at sensitive locations</li> <li>• Direct discharge of untreated water from groundwater dewatering will not be allowed</li> <li>• Invasive non-native plant material (INNS) will be removed off site and disposed of at an appropriate licensed waste disposal facility. Any high impact INNS found to occur within 15m of working areas will require a specialist method statement for its eradication.</li> </ul> | <p>Significant</p>                      |

| Environmental Topic                   | Impact Description   | Effect Significance (Pre-Mitigation) | Mitigation  | Residual Significance (Post-Mitigation) |
|---------------------------------------|--|--------------------------------------|---|---|
| <p><b>Chapter 8: Biodiversity</b></p> | <p>There would be a loss of five bat roosts during the Proposed Project construction, as well as potential for disturbance to roost(s) during construction. In addition, there would be effects from habitat loss and fragmentation during construction of the Proposed Project.</p> | <p>Significant</p>                   | <ul style="list-style-type: none"> <li>• Hedgerows, treelines and mature trees located adjacent to the Proposed Project that are not directly impacted will be retained</li> <li>• Mitigation for felling trees with confirmed bat roosts:                             <ul style="list-style-type: none"> <li>- Bats will be relocated by a licensed bat specialist and the NPWS will be informed</li> <li>- Trees identified as Potential Bat Roost and proposed to be felled will be re-surveyed at least one month prior to felling</li> <li>- Alternative roosting sites (bat boxes) erected six months prior to tree felling</li> <li>- Trees will be felled on mild days</li> </ul> </li> <li>• Mature trees to be removed that have a moderate to high potential for bat roosts will be felled from late August to early November to avoid breeding populations</li> <li>• Vegetation replanting will be aimed at increasing species diversity to help support insect life and bat prey</li> <li>• Mitigation for destruction of bat roosts:                             <ul style="list-style-type: none"> <li>- One alternative bat roost (bat house) in a planted woodland at the WTP, at least one year prior to tree/building removal</li> <li>- NPWS licence has been submitted for this work</li> <li>- Bat house building specifications and principles will be followed as per Section 8.8.2.2.6 of Chapter 8</li> <li>- Bat boxes will be erected under the supervision of a bat specialist and seasonal inspections will take place for a minimum of two years (excluding mid-June to mid-August)</li> </ul> </li> <li>• Lighting will be restricted in areas of high bat activity and near roosting sites</li> <li>• Use of directional lighting</li> <li>• All lighting will be restricted to working hours</li> <li>• A bat specialist will check the lighting pattern once assembled and make recommendations regarding perimeter lux levels</li> <li>• Works will cease at sunset at watercourse crossings and replanting of riparian habitats will commence once works have been completed in the area</li> <li>• Works will cease before sunset where construction is taking place in close proximity to a known roost or an important commuting corridor/ foraging area.</li> </ul> | <p>Significant</p>                      |

| Environmental Topic  | Impact Description  | Effect Significance (Pre-Mitigation)                      | Mitigation  | Residual Significance (Post-Mitigation)  |  |
|--|---|---|---|--|--|
| <p><b>Chapter 8: Biodiversity</b></p>                      | <p>There would be a loss of 33 badger setts during the Proposed Project construction. In addition, there would be effects from habitat loss, habitat fragmentation, disturbance/displacement and mortality or injury during construction of the Proposed Project.</p> | <p>Significant</p>  | <ul style="list-style-type: none"> <li>• Pre-construction surveys will be undertaken to identify any new setts within the Proposed Project. This will inform site clearance activities and in turn will minimise the risk of mortality</li> <li>• No machinery will be used within 30m of a sett or within 50m during the breeding season. A qualified ECoW will supervise all works within 30m of an active sett. Pile driving (at RWI&amp;PS) will not take place within 150m of active setts. Pile driving is not advised during the breeding season. If required, it will be done under the supervision of an ECoW. This will ensure that there is no accidental damage to setts</li> <li>• Fencing and appropriate signage will be used along the Proposed Project to demarcate prohibited working areas to minimise noise and vibration disturbance</li> <li>• Setts that require exclusion and/or destruction will be carried out as per National Roads Authority guidelines and under the supervision of a suitably qualified ECoW. The correct sett closure and destruction techniques will minimise the risk of mortality while destruction is being carried out</li> <li>• Night-time working will be restricted and will not be carried out within 150m of a sett</li> <li>• Spoil heaps will be situated at least 20m away from a sett. This will reduce the risk of habitat loss and fragmentation</li> <li>• The construction of artificial sett(s) within the Proposed Project may be proposed – this is dependent on the pre-construction surveys. Artificial sett(s) will be established in close proximity to existing setts.</li> </ul> | <p>Significant<br/>(for loss of setts only; mitigation would reduce effects from habitat fragmentation, disturbance/displacement and mortality or injury to Not Significant)</p> |  |
|  | <p><b>Operational Phase</b></p>   | <p>No likely significant residual operational effects</p> |   |  |  |
|  | <p><b>Chapter 9: Water</b></p>  | <p><b>Construction Phase</b></p>                          |   |  |  |
| <p>No likely significant residual construction effects</p> |   |   |   |  |  |
| <p><b>Operational Phase</b></p>                            |   | <p>No likely significant residual operational effects</p> |   |  |  |

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| Environmental Topic  | Impact Description  | Effect Significance (Pre-Mitigation)  | Mitigation   | Residual Significance (Post-Mitigation)  |
|--|---|---|--|--|
| <b>Chapter 10: Soils, Geology and Hydrogeology</b>   | <b>Construction Phase</b>   |   |  |  |
|  | Construction of the pipeline would result in the removal (and subsequent reinstatement) of peat from areas of degraded raised bog (none of which are active raised bog or degraded raised bog capable of regeneration).         | Temporary Moderate (Significant) effects for the duration of the construction phase   | No mitigation feasible prior to reinstatement of the peat at the end of construction.  | Moderate (effect is Significant) in the short-term. Long term effects are Not Significant/Slight (Not Significant) |
|  | <b>Operational Phase</b>  |   |  |  |
|  | No likely significant residual operational effects  |   |  |  |
| <b>Chapter 11: Agriculture</b>   | <b>Construction Phase</b>   |   |  |  |
|  | Construction of the proposed infrastructure sites would result in pre-mitigation significant impacts on 16 agricultural land parcels. Post-mitigation, eight of these agricultural land parcels would have significant effects. | Significant to Very Significant   | Measures including: communication with landowners; protection of sensitive and valuable stock; timing and scheduling of works; provision of temporary access points; maintaining (or providing alternative) electricity and water supplies; biosecurity; soil management; and land reinstatement (for temporary loss).   | Moderate to Significant (eight land parcels) (effect is Significant)   |
|  | Construction of the proposed pipeline would result in pre-mitigation significant effects on 394 agricultural land parcels. Post-mitigation, 181 of these agricultural land parcels would have significant effects.              | Moderate to Very Significant (effect is Significant)  | Measures including: communication with landowners; protection of sensitive and valuable stock; timing and scheduling of works; provision of temporary access points; maintaining (or providing alternative) electricity and water supplies; biosecurity; soil management; and land reinstatement (for temporary loss).   | Moderate to Very Significant (181 land parcels) (effect is Significant)  |
|  | Construction of the proposed pipeline would result in pre-mitigation significant effects on 15 equine only enterprises. Post mitigation, 12 of these equine only enterprises would have significant effects.                    | Moderate to Profound (effect is Significant)  | Measures including: providing advanced notice to the landowner prior to construction works commencement to sufficient time to relocate bloodstock to alternative pastures; access to severed lands will be maintained throughout the construction period; and noise and visual screening.<br><br>At one location, management practices will be used to keep a gallop operational during the Construction Phase (except for during haul road construction, pipeline installation, and reinstatement). | Moderate to Significant (12 equine only enterprises) (effect is Significant)                                       |
|  | <b>Operational Phase</b>  |   |  |  |
| Operation of the proposed pipeline would result in pre-mitigation significant effects on six equine only enterprises. Post mitigation, one of these equine only enterprises would have a significant effect. | Moderate to Significant (effect is Significant)   | Above ground infrastructure will be fenced off in accordance with equine industry standards to ensure safety for grazing and exercising horses. | Moderate (one equine only enterprise) (effect is Significant)  |  |

| Environmental Topic             | Impact Description  | Effect Significance (Pre-Mitigation) | Mitigation                                    | Residual Significance (Post-Mitigation) |
|---------------------------------|---|--------------------------------------|---|---|
| <b>Chapter 12: Air Quality</b>  | <b>Construction Phase</b>   |                                      |   |   |
|                                 | No likely significant residual construction effects   |                                      |   |   |
|                                 | <b>Operational Phase</b>  |                                      |   |   |
|                                 | No likely significant residual operational effects  |                                      |   |   |
| <b>Chapter 13: Climate</b>      | <b>Construction Phase</b>   |                                      |   |   |
|                                 | No likely significant residual construction effects   |                                      |   |   |
|                                 | <b>Operational Phase</b>  |                                      |   |   |
|                                 | No likely significant residual operational effects  |                                      |   |   |
| <b>Chapter 14: Population</b>   | <b>Construction Phase</b>   |                                      |   |   |
|                                 | Potential positive effects on local employment (within the study area) during the Construction Phase are considered to be significant.  | Significant (beneficial)             | No mitigation required – effect is beneficial | Significant (beneficial)                |
|                                 | Potential positive effects on national employment (outside the study area) during the Construction Phase are considered to be significant.  | Significant (beneficial)             | No mitigation required – effect is beneficial | Significant (beneficial)                |
|                                 | Potential positive effects on the national economy (outside the study area) during the Construction Phase are considered to be very significant.  | Very Significant (beneficial)        | No mitigation required – effect is beneficial | Very Significant (beneficial)           |
|                                 | <b>Operational Phase</b>  |                                      |   |   |
|                                 | Potential positive effects on the national economy during the Operational Phase of the Proposed Project are considered to be significant.   | Significant (beneficial)             | No mitigation required – effect is beneficial | Significant (beneficial)                |
| <b>Chapter 15: Human Health</b> | <b>Construction Phase</b>   |                                      |   |   |
|                                 | No likely significant residual construction effects   |                                      |   |   |
|                                 | <b>Operational Phase</b>  |                                      |   |   |
|                                 | During the Operational Phase, the Proposed Project would provide for an adequate supply of clean potable water into the long term, resulting in wider societal benefits such as economic and social development and climate change resilience, which could not occur without an adequate supply of water. | Very Significant (beneficial)        | No mitigation required – effect is beneficial | Very Significant (beneficial)           |

| Environmental Topic                                  | Impact Description                                  | Effect Significance (Pre-Mitigation) | Mitigation | Residual Significance (Post-Mitigation) |
|--|---|--------------------------------------|------------|---|
| Chapter 16:<br>Landscape and Visual                  | <b>Construction Phase</b>                           |                                      |            |   |
|  | No likely significant residual construction effects |                                      |            |   |
|  | <b>Operational Phase</b>                            |                                      |            |   |
|  | No likely significant residual operational effects  |                                      |            |   |
| Chapter 17:<br>Cultural Heritage                     | <b>Construction Phase</b>                           |                                      |            |   |
|  | No likely significant residual construction effects |                                      |            |   |
|  | <b>Operational Phase</b>                            |                                      |            |   |
|  | No likely significant residual operational effects  |                                      |            |   |
| Chapter 18:<br>Material Assets                       | <b>Construction Phase</b>                           |                                      |            |   |
|  | No likely significant residual construction effects |                                      |            |   |
|  | <b>Operational Phase</b>                            |                                      |            |   |
|  | No likely significant residual operational effects  |                                      |            |   |
| Chapter 19:<br>Resource and Waste Management         | <b>Construction Phase</b>                           |                                      |            |   |
|  | No likely significant residual construction effects |                                      |            |   |
|  | <b>Operational Phase</b>                            |                                      |            |   |
|  | No likely significant residual operational effects  |                                      |            |   |
| Chapter 20: Risk of Major Accidents and/or Disasters | <b>Construction Phase</b>                           |                                      |            |   |
|  | No likely significant residual construction effects |                                      |            |   |
|  | <b>Operational Phase</b>                            |                                      |            |   |
|  | No likely significant residual operational effects  |                                      |            |   |

| Environmental Topic                                      | Impact Description  | Effect Significance (Pre-Mitigation) | Mitigation   | Residual Significance (Post-Mitigation) |
|--|---|--------------------------------------|--|---|
| <b>Chapter 21: Cumulative Effects &amp; Interactions</b> | <b>Construction Phase</b>   |                                      |  |   |
|  | Cumulative effect with a residential development in South Dublin County on bats and badgers on a local scale as it is likely that foraging zones / home ranges overlap between the other project and the Proposed Project.  | Significant                          | None in addition to the mitigation proposed for the Proposed Project in Chapter 8 (Biodiversity), which includes, for example, reinstatement of habitat, landscape planting at the infrastructure sites, provision of bat boxes and artificial badger setts. Further measures could not mitigate the cumulative effects. | Significant                             |
|  | Cumulative effect with a Eirgrid development (uprating of existing overhead lines) in Kildare County on grassland and scrub habitat at a local geographic scale should the Construction Phases overlap.   | Significant                          |  | Significant                             |
|  | Cumulative effect with a Eirgrid development (uprating of existing overhead lines) in Offaly County on grassland and scrub habitat at a local geographic scale should the Construction Phases overlap.  | Significant                          |  | Significant                             |
|  | Cumulative effect with a wind farm development (laying of an underground electricity cable) in Offaly County on habitats and bats at a local geographic scale should the Construction Phases overlap.   | Significant                          |  | Significant                             |
|  | Cumulative effect with Cycle Connects (National Transport Authority) at the local geographic scale. As there is limited information available for this other project, a precautionary approach has been taken to assume that if Construction Phases were to overlap, and the other project concludes with Significant residual cumulative effects on badger, bats or habitats, they would act cumulatively with the Proposed Project to result in residual effects at a local geographic scale. | Significant                          |  | Significant                             |
|  | Cumulative effect with Electricity Transmission Network: Capital Project 966 on grassland, hedgerow and treeline habitats at a local geographic scale should the Construction Phases overlap.   | Significant                          |  | Significant                             |
|  | <b>Operational Phase</b>  |                                      |  |   |
| No likely significant residual operational effects       |   |                                      |  |   |