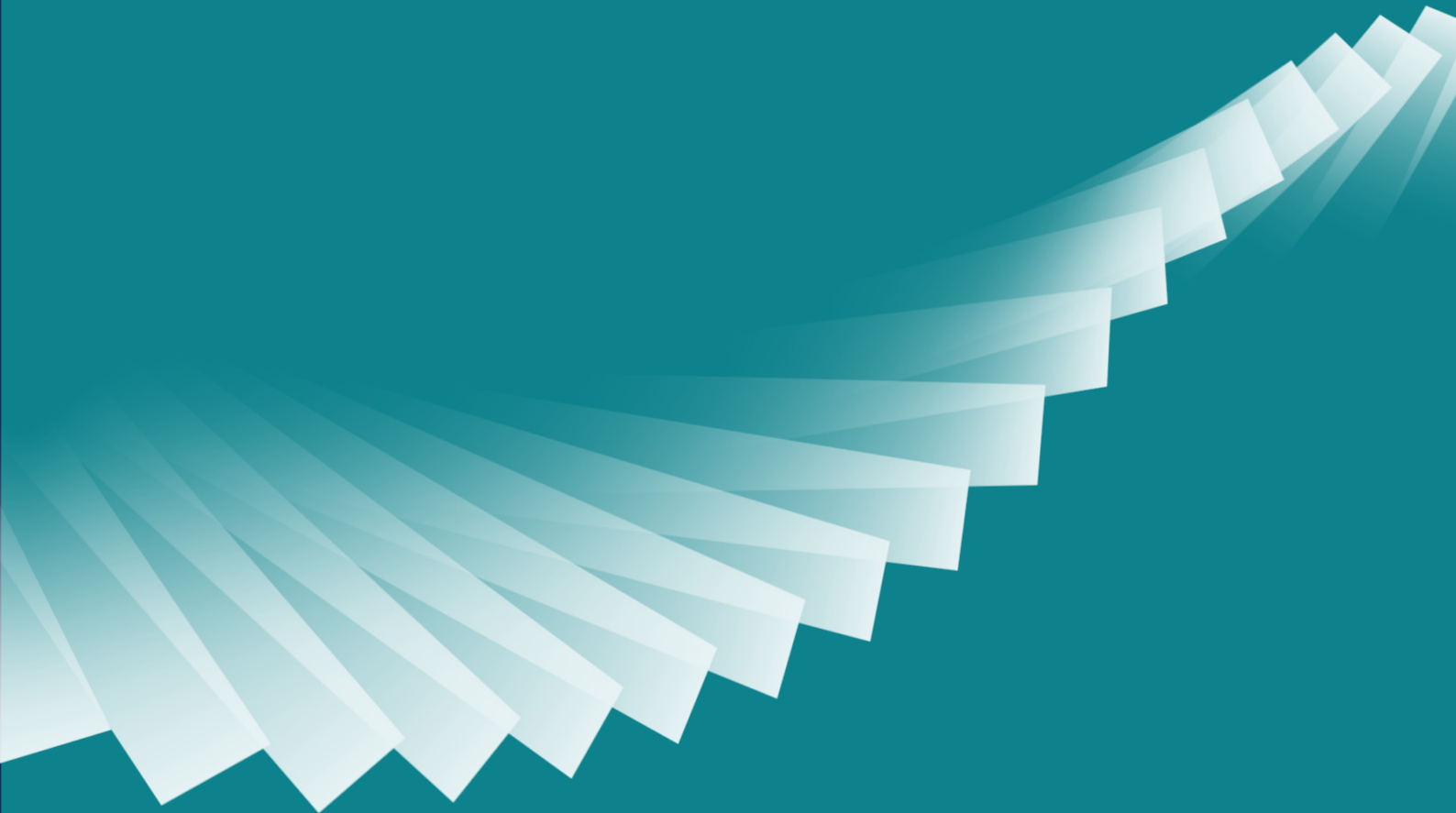




Bute Energy
Aberedw Energy Park

Appendix 12.1:

Schedule of Mitigation and Monitoring



Aberedw Energy Park Limited

Aberedw Energy Park Environmental Statement

Appendix 12.1: Schedule of Mitigation Measures

Prepared by LUC
June 2025



Aberedw Energy Park Limited

Aberedw Energy Park Environmental Statement
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Appendix 12.1: Schedule of Mitigation and Monitoring

A.1 This appendix provides a consolidated list of the embedded, applied and additional mitigation measures which have been identified in the Environmental Statement (ES). Any ongoing monitoring requirements are also included. Measures are presented on a topic-by-topic basis, reflecting the chapters of the ES. Applied mitigation measures listed below which are related to standard construction practices and considered to be good practice will also be detailed in the final Construction Environmental Management Plan (CEMP). The outline Construction Environmental Management Plan (oCEMP) is available as **Appendix 4.2, Volume 3**. Further details in relation to the approach to mitigation is provided in **Chapter 2: Approach to the EIA**.

Table A.1: Schedule of mitigation and monitoring

Topic	Type of Mitigation	Detail
Chapter 4: Development Description	Embedded Mitigation	To reduce the volume of stone brought onto the Site from another location for construction of the Proposed Development, and any other associated environmental effects, suitable stone will be sourced from borrow pits, if feasible, to provide the material necessary for new or upgraded tracks and hardstanding construction.
	Applied Mitigation	Prior to the construction of the Proposed Development, the Applicant will develop a detailed CEMP an outline of the content of which is provided in Appendix 4.2. Adherence to the CEMP, as well as referenced legislation and guidance documents, will be a contractual requirement for the appointed Principal Contractor and their sub-contractors. The purpose of the CEMP will be to: ■ Provide a mechanism for ensuring that construction methods avoid, minimise and control potentially adverse significant environmental effects as identified in the ES; ■ Ensure that good construction practices are adopted and maintained throughout the construction of the Proposed Development; ■ Provide a framework for the mitigation of unexpected effects during construction; ■ Provide assurance to third parties that agreed environmental performance criteria are met; ■ Establish procedures for ensuring compliance with environmental legislation and statutory consents; and, ■ Detail the process for monitoring and auditioning environmental performance. The CEMP will contain the following documents, which the Principal Contractor and their sub-contractors will be required to adhere to throughout the construction process: ■ Pollution Prevention Plan (PPP); ■ Construction Method Statements (CMS); ■ Soil Management Plan (following the principles set out in the Outline SMP at Appendix 9.6); ■ Site Waste Management Plan (SWMP); ■ A Construction Traffic Management Plan (CTMP) (see Appendix 11.3); ■ Path Management Plan (PMP) (following the principles set out in Chapter 11); ■ Borrow Pit Restoration Plan (BPRP) (following the principles set out in the Outline BPRP at Appendix 4.1); and ■ Site Restoration Plan.

Topic	Type of Mitigation	Detail
		The CEMP will also contain the following information: ■ The job titles or roles of those responsible for implementing and monitoring environmental management measures on site. It shall also outline the relevant competencies and responsibilities associated with each role; ■ A completed register of contacts confirming the contact detail for all key personnel for managing environmental issues, including the Applicant's representatives, the Environmental and Ecological Clerks of Works (ECoW), Archaeological Clerk of Works (ACoW), and appropriate regulator contacts (and updated with Principal Contractor contacts once appointed); ■ The construction programme; ■ A site-specific action plan, providing a register of environmental risks and outlining the requirement for accompanying site-specific mitigation, monitoring, and reporting procedures; and, ■ Audit and inspection procedures. Performance against the CEMP and accompanying method statement will be monitored by the Applicant's Construction Project Manager and the ECoW throughout the construction period. They will ensure that the works carried out are in accordance with the relevant best practice guidance documents. Habitat Management Plan and Net Benefit for Biodiversity Assessment The Outline Habitat Management Plan ('HMP') and Net Benefit for Biodiversity (NBB) Assessment can be found in Appendix 7.5 and provides a high-level approach to implement positive land management for the benefit of nature conservation, both to mitigate and/or compensate for the effects of the Proposed Development and to deliver wider enhancement to the nature conservation value of the Site and its surroundings. The main aim of the HMP is to identify positive land management measures that will be implemented for the benefit of nature conservation to deliver a net benefit in biodiversity for the Proposed Development. Measures to protect existing habitats during construction are presented in the Outline CEMP (Appendix 4.2) which will be finalised prior to construction. The HMP sets out: ■ An overview of habitats of conservation concern and protected species within the Site; ■ Objectives for the creation and management of habitats of conservation concern; ■ Spatial opportunities for habitat creation and management; and, ■ Outline prescriptions to achieve habitat creation and management. A detailed HMP will be secured as a condition of any consent and will be developed after planning permission has been granted in line with good practice and through further detailed consultation with relevant stakeholders.

Topic	Type of Mitigation	Detail
		Waste Management Waste will be generated, and will require management during construction, in particular the topsoil removed and stockpiled prior to construction area activities, and construction waste such as packaging and used formwork. Measures to reduce potential environmental effects associated with the storage and transportation of waste will include: ■ The careful location of stockpiles and other storage areas; ■ The use of good practice in the design of storage areas and the use of suitable containers; ■ The use of sheeting, screening, and damping where appropriate and practicable; ■ The control and treatment of runoff from soil and soil stockpiles; ■ Minimising storage periods; and, ■ Minimising haulage distances. Health and Safety To further reduce possible health and safety risks, a Health and Safety Plan for the project will be drawn up prior to construction commencing. All staff and contractors working on the construction will be required to comply with the safety procedures and work instructions outlined in the plan at all times. Risk assessments will be undertaken for all major construction activities, with measures put in place to manage any hazards identified.
	Additional Mitigation	Following construction, the Site will be reinstated by the contractor. The anticipated type and extent of reinstatement is outlined below: ■ Where a re-turfing method is appropriate, such as along track verges, the surface layer of soil and vegetation will be stripped and stored separately from the lower soil layers and replaced as intact as possible once construction is complete; ■ Local reinstatement will be carried out to retain the structure and composition of the original plant communities, as well as forming a stable area over reformed ground, thus reducing erosion by rain, run-off and wind; and, ■ Bare soil areas will be allowed to revegetate naturally in combination with reseedling using a low-density seed mix which mirrors local vegetation to help bind the soil more quickly.
	Monitoring	HMP During the preparation of the detailed HMP, a detailed programme of monitoring will be developed. Monitoring is likely to be resource-intensive initial years, while the success of implementation will require close attention. However, annual monitoring is likely to be undertaken throughout the operational lifetime of the Proposed Development.

Topic	Type of Mitigation	Detail
		The monitoring programme will ensure that appropriate mechanisms are in place to remediate any failed measures, or implement essential management, throughout the operational lifetime of the Proposed Development.
Chapter 5: Landscape and Visual Impact Assessment	Embedded Mitigation	The overall design strategy for the Proposed Development has aimed to provide the best balance between energy yield and minimising effects on the local and wider environment. The design strategy from a landscape and visual perspective has been to: ■ Locate wind turbines on the flatter plateau area of the Site where the landscape scale is larger; ■ Set turbines back from the steeper edges of the plateau (i.e. the break of the slope), particularly the distinctive profile of the northern escarpment of Aberedw Hill which occupies a prominent position and forms a distinguishable feature above the Wye Valley; ■ Avoid burial monuments, and medieval settlement remains that contribute to the time depth of the landscape of Aberedw Hill; ■ Achieve as consistent a height and spacing of turbines as feasible (in light of other constraints), to achieve a well-balanced composition overall; ■ Ensure no turbine is too dominant or overwhelming in the main view from a property, such that the Proposed Development could result in unacceptable living conditions for nearby communities or individual dwellings; and, ■ Minimise the effects of visible aviation lighting through the implementation of all available mitigation measures to reduce the number, frequency and intensity of visible lighting required. The tracks have been designed to utilise existing track where possible, minimising the necessity for new excavation. They have also been kept away from highly visible slopes where possible. The tracks will be finished with locally sourced (where possible) cap-stone/wearing course of graded crushed rock (the adjacent grassland will be allowed to extend across the edges and middle, reducing the extent of the visibility of tracks in the landscape). The engineered appearance of any embankments will be smoothed out to ensure any landforms blend in with topography (using sinuous forms rather than straight lines) – and will be reinstated through measures such as re-seeding with locally occurring species, top-soil reuse and/or turf replacement to blend with the surroundings. Measures such as grass-reinforcement may be applied where the track widens on steeper bends and in passing places. The onsite substation is located within the north of the Site, where it will connect to the proposed Green GEN Towy Usk 132 kV overhead line. It is situated on a flat area (away from the development area of the proposed turbines), that is free of on-site constraints and along the A481 which will provide access. The substation will comprise a compound measuring 110 m x 80 m, secured with 2.5m high palisade fencing, painted in a colour that assimilates into the winter colours found in the landscape on the Site (using the Natural Colour System), and will be agreed with PCC. A 6 m high control and operations building will be located within the substation compound and its colour will

Topic	Type of Mitigation	Detail
		also be suitably chosen and agreed with PCC. Hardstanding and parking areas within the substation compound will be finished with locally sourced cap-stone/wearing course of graded crushed. Two borrow pit search areas are located within the north-eastern part of the Site, north of the summit of Wylfre and either side of turbine T17. The aim has been to minimise visibility (although some visibility during construction will be inevitable) whilst ensuring that they are in suitable locations for resourcing on-site stone (as advised by the civil engineer). Sensitive restoration as set out in the Outline Borrow Pit Restoration Plan (Appendix 4.1) will minimise long-term visibility of these temporary interventions (once appropriate vegetation has established).
	Applied Mitigation	In order to minimise impacts arising from construction, the construction of turbines and associated infrastructure will follow an agreed Construction Environmental Management Plan (CEMP) (see Appendix 4.2 for an outline plan) and Outline Soil Management Plan (oSMP) (see Appendix 9.6 for an outline plan) which will include arrangements for implementation of various aspects of the works such as turf and soil removal, storage and replacement, and stream crossings. The statement will also set out restoration of landscape earthworks, soils and surface vegetation once the construction phase is complete.
	Additional Mitigation	N/A
	Monitoring	N/A
Chapter 6: Archaeology and Cultural Heritage	Embedded Mitigation	The design of the Proposed Development has sought to avoid or minimise (as far as reasonably possible) effects to historic assets. Each iteration of the design has been reviewed to ensure that direct physical effects to known historic assets are avoided where possible. Where direct physical effects occur, it is only to assets of low importance. Similarly, how turbines will appear within the setting of historic assets has been a key consideration in design refinements. Care has been taken to reduce the prominence of turbines in key lines of sight to and between historic assets.
	Applied Mitigation	Construction Good practice measures to prevent, reduce, and/or where possible offset potential physical effects to historic assets, including previously unrecorded buried archaeological remains, are proposed. Measures which will be adopted include: ■ The temporary fencing off or marking out of historic assets in proximity to the construction footprint to prevent accidental damage during construction; ■ Implementation of a working protocol should previously unrecorded buried archaeological remains (e.g. archaeological deposits and features) be discovered; ■ The use of a Construction Environmental Management Plan (CEMP), supplemented by toolbox talks as appropriate, to highlight the historic environment sensitivities of areas of the Site to those working on the Proposed Development; and

Topic	Type of Mitigation	Detail
		■ Appointment of an ACoW to supervise targeted ground-breaking operations and provide onsite advice on avoidance of effects (e.g. providing onsite identification and recording of previously unrecorded historic assets and liaising with the local authority archaeological adviser (HCPA) as necessary). CPAT will be consulted to provide guidance on appropriate conditions to be applied to any consent.
	Additional Mitigation	Direct Physical Effects During Construction The cables and working area within the cable route will avoid physically interacting with the traditional farm building at Cwm, farmstead (HCPA Ref. PRN137420) between NGR308530253011 and NGR308495253002. During construction the building will be fenced off along with an appropriate buffer and clearly demarcated to prevent accidental damage. For developments of this sort, it is difficult to fully mitigate impacts to historic assets resulting from setting change during the operation beyond those changes to the design and layout identified as the Proposed Development evolves (embedded mitigation). Therefore, no specific additional mitigation to reduce the potential effects to historic assets due to setting change resulting from the presence of the Proposed Development in the landscape have been identified. To mitigate the potential for previously unrecorded buried archaeological remains to be present within the construction footprint of the substation and construction compounds, a staged approach to post-consent mitigation is proposed. Following consent, a programme of archaeological evaluation will be agreed with PCC archaeological advisors (HCPA). This may include both non-intrusive and intrusive archaeological investigations within the construction footprint of the substation and construction compounds. The results of the archaeological evaluation will be used to inform any subsequent mitigation requirements. Mitigation may include the strip/map/excavate methodology during groundbreaking or targeted area excavation, including preparation of a report on the results of the landscape survey and preparation and submission of an ordered archive. The programme of archaeological evaluation and any subsequent mitigation will be undertaken in line with a Written Scheme of Investigation agreed with HCPA. Direct Effects due to Setting Change For developments of this sort, it is difficult to fully mitigate impacts to historic assets resulting from setting change during the operation beyond those changes to the design and layout identified as the Proposed Development evolves (embedded mitigation). Therefore, no specific additional mitigation to reduce the potential effects to historic assets due to setting change resulting from the presence of the Proposed Development in the landscape have been identified.
	Monitoring	No further survey requirements or monitoring have been identified for the historic environment at this stage.

Topic	Type of Mitigation	Detail
Chapter 7: Ecology (non-avian)	Embedded Mitigation	The ecological baseline has been considered throughout the design process for the Proposed Development, via the Mitigation Hierarchy and Step Wise approach to the placement of the infrastructure layout, such that it avoids interacting with sensitive ecological receptors in the first instance. Where interaction could not be avoided (for example, loss of vegetation to hard standing), the infrastructure layout was amended to minimise this interaction, where possible. Non-avian ecology factors considered throughout the design process have included the following: ■ Recommended disturbance buffers for protected species were adhered to wherever practicable. ■ As necessary, the design iteration process aimed to avoid woodland edge and linear features likely to be used by bats for foraging and commuting. ■ Avoiding or minimising losses of priority habitats. ■ Avoiding areas of peat soils (i.e. areas of >0.3 m depth). ■ Avoidance of long undisturbed soils where possible. ■ Implementing a minimum 50 m buffer for any infrastructure or construction activity around all watercourses, except where watercourse crossings/upgrading works are required. The design process has actively minimised the number of watercourse crossings required for associated infrastructure. ■ Minimising the take of potential GWDTEs even if these were subsequently assessed as being predominantly surface water or rain fed. ■ 250 m buffer round GWDTE's where possible (for GWDTE where this is not possible, specific additional mitigation is set out under Chapter 9: Hydrology, Hydrogeology, and Geology below). A number of restrictions to the micro-siting allowance relating to non-avian ecology have been applied: ■ Minimum bat buffers are to be maintained around suitable bat features (e.g. woodland edge, riparian corridors, boundary features). Micro-siting of turbines must be completed with consideration of these buffers and based on the turbine specification. The aim should be to maximise the distance between the works and suitable bat habitat features. ■ If new, active badger sett buffers are identified, micro-siting will be used to reduce the potential for impacts and avoid the need for sett closure and licencing, where possible. ■ Where GCN ponds are present, micro-siting will be used, where possible, to maximise the distance between any GCN ponds (or ponds that could be restored for GCN) to limit the impacts to immediate terrestrial habitat around ponds. Any movement of infrastructure will be dependent on other onsite constraints and subject to advice from an ECoW.

Topic	Type of Mitigation	Detail
	Applied Mitigation	Construction The following good practice and mitigation measures will be applied (post consent) during construction to ensure that effects on Important Ecological Features (IEFs) are reduced: ■ Work area buffer zones will be implemented around sensitive areas (priority habitat, water features, etc) in a manner consistent with the existing rights over common land. ■ During pre-construction, an updated survey will be carried out of features within 30 m of works that have the potential to support roosting bats and which could be directly or indirectly affected by the Proposed Development. If any evidence of a roost is identified, additional mitigation and/or compensation will be identified and implemented to ensure no breach in legislation will occur. ■ A pre-construction survey for protected species including badger will be carried out. If evidence or a high likelihood of protected species presence is identified, additional mitigation may be identified and implemented to via licencing requirements to prevent impacts on individuals. ■ A pre-construction survey will be carried out and if invasive species are found to be present, a management plan will be developed to eradicate invasive species present on Site and ensure biosecurity measures are implemented to avoid the introduction of invasive species during construction. ■ The Applicant will appoint a suitably qualified ECoW prior to the commencement of any construction activities take place. The ECoW will be present on a regular basis to oversee site clearance and construction activities, provide toolbox talks to site personnel with regards to priority species and habitats, as well as undertake monitoring works, as appropriate. ■ A Site speed limit of 15 mph will be in place at all times to reduce the risk of faunal collisions with construction vehicles. ■ Excavations will be covered at the end of each working day or a wooden plank placed inside to allow protected faunal species to escape, should they enter the hole. Any temporarily exposed open pipe system will be capped in such a way as to prevent wildlife gaining access. ■ A precautionary working method statement will be produced for dormouse prior to commencement of any construction activities. ■ Where appropriate and safe to do so, all construction working areas with potentially suitable open habitats for reptiles will initially be cut during the active season for reptiles (April to October), under the guidance of the ECoW to reduce the height of vegetation and make it less attractive for reptile habitation. The ECoW, or an approved contractor under the supervision of the ECoW, will move any potential refugia or hibernacula from working areas, either by hand or sensitively by machine. Working areas will then be kept unsuitable for reptiles through regular cutting until construction in that location commences.

Topic	Type of Mitigation	Detail
		In order to prevent pollution of watercourses within the Site (with particulate matter or other pollutants such as fuel), standard construction practice measures will be employed as set out in the CEMP. Full details of construction mitigation measures will be provided in the CEMP.
	Additional Mitigation	During Construction <i>River Wye SAC and SSSIs</i> - An Outline Drainage Strategy has been produced and will be appended to the CEMP. - During the construction phase of the works, CEMP control measures will be implemented to minimise the risk of fine sediment/debris (construction derived or otherwise) from being washed into the watercourse by installing silt screens/fences or similar. In addition, oil and fuel can be toxic for aquatic life, furthermore hydrocarbons such as oil or fuel do not degrade quickly and can remain present in the environment for some time after the spill. Industry best practice guidelines for fuel storage, refuelling and mitigation (spill kits/bunds/refuelling protocol) should be followed at all times when on Site. <i>Habitats, including ancient woodland, heathland and riparian</i> - A Habitat Management Plan (HMP) will be implemented during the construction and operation phases. An outline HMP (oHMP) is presented in Appendix 7.5 which also includes a Net Benefits for Biodiversity (NBB) assessment, in order to identify and confirm that following the DECCA framework, a net benefit to biodiversity can be achieved, whilst ensuring ecosystem a resilient measurable gain can be achieved on Site through a detailed HMP which will be secured by planning condition). - Whilst it is not currently possible to gain agreement from the Commoners Association to conservation friendly grazing levels previously set by the Glastir scheme (which ended in 2024), this could be achieved at some future date. This would improve a number of habitat communities, including acid grassland, dry and wet heath, acidic fen, blanket bog and rush pasture by improving habitat condition and species diversity. For the purposes of the Proposed Development, the oHMP sets out proposals to reinstate heathland on the Borrow Pit areas. - Woodland management will be introduced to the ancient woodland areas around the periphery of the Site (off of common land) which will be fenced and subject to enhancement measures. These are currently unfenced and grazed by sheep preventing the establishment of ground flora and a shrub layer. In addition, extensive woodland planting will create new woodland and help to connect existing woodland blocks. - Riparian restoration along sections of the Cwmblaenerw Brook and Milo Brook will be undertaken by enhancing riparian woodland through tree planting.

Topic	Type of Mitigation	Detail
		Species – During Construction <i>Great Crested Newts (GCN)</i> An NRW mitigation licence will be required for the Proposed Development on a project-wide basis due to the spread of GCN on Site and the loss of pond A61 which has GCN presence. A GCN Species Protection Plan (SPP) will be required as part of the NRW mitigation licencing requirements. This will detail mitigation and compensation measures. The GCN SPP will include the following: ■ Details of the specific requirements for mitigation of impacts on GCN across the site. ■ Details of ECoW supervision, as required. ■ Details of toolbox talks. ■ Details of habitat compensation measures and enhancement. Many of the ponds on Site are currently of poorer condition and scored low on the HSI, primarily due to their drying annually, and heavily poached banks due to livestock leading to a lack of emergent vegetation and poor water quality from livestock waste eutrophication. These factors likely make the waterbodies unsuitable for breeding. The enhancements will be focused on these ponds and their surrounding terrestrial habitats and will be detailed within the GCN licence. The enhancements could include: – De-silting or extending existing ponds to ensure there are deeper sections year-round; and, – Sensitive management and enhancement of surrounding terrestrial habitat – to include: – Stock fencing ponds to prevent livestock poaching. – Enhancement of marginal and emergent vegetation by plug planting with locally native species, re-seeding pond banks and creating log piles around the ponds. – Pond creation and terrestrial habitat enhancement in appropriate areas where existing meta-populations are located. Protected Sites – During Operation <i>River Wye SAC and SSSIs</i> ■ During operation, the outline drainage strategy will be implemented. Borrow pits, temporary construction compounds and any excavations will be reinstated after construction, therefore any exposed soil and potential for sediment leakage into watercourses will be minimised. Vehicular access will generally be reduced to maintenance and survey work and pre-existing farming practices.

Topic	Type of Mitigation	Detail
		■ However, the Outline Drainage Strategy is considered sufficient to effectively limit the magnitude of change to Negligible and potentially lead to a reduction in runoff as infiltration trenches included to manage the full runoff from the 1 in 100 year with 40% climate change flood events (see Chapter 9, Table 9.12). Applied mitigation through the OEMP (Operation and Maintenance plan – including pollution control and emergency protocols,) is considered sufficient to effectively limit the impact to low or negligible in terms of reaching waterbodies on Site. The effect on the River Wye SAC is therefore considered negligible. ■ In addition, the oHMP incorporates riparian restoration measures along tributaries extending south from the Site to reduce the potential for impacts to the SAC and SSSIs downstream of the Site. Riparian restoration will reduce sedimentary runoff to the watercourses as well as improve habitat for SAC and SSSI qualifying species. Fencing off adjacent ancient woodlands and a reduction in livestock in these woodland areas will also reduce the volume of agricultural pollutants (including phosphorus) seeping into watercourses.
	Monitoring	A water quality monitoring program for the River Wye SAC and SSSI will detect any incidents and rectify them immediately during construction.
Chapter 8: Ornithology	Embedded Mitigation	The design measure below was implemented during the iterative design process to seek to avoid potentially significant environmental effects: ■ Incorporation of relevant buffers around the nesting sites of Schedule 1 birds (150 – 300m for red kite and 300 – 500m for goshawk) to reduce the potential for disturbance during the construction and operational phases (NatureScot 2022).
	Applied Mitigation	The assessment is made on the basis that a Bird Protection Plan (BPP) is drafted and agreed with NRW and implemented prior to construction commencing. The BPP will detail protocols for maintaining compliance with relevant species protection legislation and best practice during the construction phase, to ensure that bird species and important sites for birds (nests, roosts, key feeding sites) are safeguarded from disturbance during critical periods. The BPP will be cognisant of relevant legislation, especially the Wildlife and Countryside Act 1981, taking account of the enhanced protections afforded to nest sites and to nesting and roosting birds listed in the Schedules of the Act. Further requirements which will be included in the BPP are: ■ Timing of work: Where possible, tree-felling and ground clearance should be scheduled outside of the breeding bird season but should also take account of winter roosts. ■ Pre-construction surveys: If work is scheduled to take place during the breeding bird season or at other sensitive times, pre-construction bird surveys should be undertaken within a series of distance buffers from construction works, with specific buffer distances and methods dependent on target species, affected habitat and the likely stage of the breeding cycle.

Topic	Type of Mitigation	Detail
		■ Nest protection: Protocols should be developed to ensure nests and other sensitive bird sites are protected from destruction, or to ensure that disturbance is prevented or minimised during construction activities. ■ Toolbox talk: The BPP should be overseen by a suitably experienced Ecological Clerk of Works who will oversee the delivery of 'toolbox talks' to contractors to make them aware of bird sensitivities, legislative requirements and relevant working protocols. The BPP will be overseen by an Ecological Clerk of Works (ECoW), with further detail on the definition of this role and implementation as part of an outline Construction Environment Management Plan (oCEMP) provided in Appendix 4.2.
	Additional Mitigation	No significant effects are predicted for ornithology, therefore no additional mitigation is required.
	Monitoring	The HMP includes proposals to monitor breeding wader populations at the Site, to help evaluate enhancement measures which target key habitats and species. Where applicable, monitoring would be undertaken in liaison with organisations undertaking existing monitoring of target species in the region. Monitoring is proposed in the first breeding season following construction, and thereafter in the third, fifth and tenth breeding seasons following construction. Data requests to relevant organisations in intervening years will provide additional information. Monitoring would be undertaken by an independent consultant, following approved survey methods and under appropriate licences.
Chapter 9: Hydrology, Hydrogeology and Geology	Embedded Mitigation	As set out in Chapter 3, the design of the Proposed Development was undertaken in an iterative way, with increasing levels of data being collected and used to refine the design at each stage. The aim of this iterative design approach was to implement a step-wise approach to the placement of the infrastructure layout, such that it avoids interacting with sensitive receptors in the first instance. Where interaction could not be avoided (for example, where stream-crossings are required), the infrastructure layout was amended to minimise this interaction, where possible. Watercourse Crossings Watercourse crossing points have been designed at the point where crossing of the watercourse is shortest, and crossings have been re-orientated to minimise crossing widths, where possible. Watercourses and Waterbodies A 50 m buffer around watercourses and waterbodies (and their respective flood risk areas) has been applied during the preliminary project design, and the layout of the infrastructure placed to avoid this buffer, with the exception of where a watercourse crossing is required. There are locations where encroachment into this buffer surrounding areas of standing water has been unavoidable, however these are all small man-made pools in areas of improved grassland. GWDTE's

Topic	Type of Mitigation	Detail
		A 250 m buffer has been drawn around all GWDTEs, reflective of the maximum buffer within which consideration of the interaction of the Proposed Development with GWDTEs is required under SEPA guidance. The infrastructure design was placed to be outside of this buffer where possible. PWS A 250 m buffer has been drawn around all PWS abstraction. The Proposed Development lies outside of the 250 m buffer in most areas, with the exception of 4 PWSs. None of these PWS's have a clear property that they serve, and are likely to be for livestock purposes. Geology and Soils Areas of peat soils deeper than 30 cm have been identified following several phases of peat probing. The Proposed Development has been located to avoid these soils. Long undisturbed soils have been mapped using habitats and land-use as indicators. The Proposed Development has been located to avoid these soils where possible.
	Applied Mitigation	Flooding and Drainage Surface water drainage will be designed to meet the requirements of the Statutory Standards for sustainable drainage systems as described in the Outline Drainage Strategy (see Appendix 9.4). The following measures relevant to Flooding and Drainage are included in the strategy: ■ All runoff from the substation and turbine footprints will be stored and infiltrated up to the 1 in 100 year event (plus Climate Change) to manage surface water runoff effectively and return runoff back to the ground as close as possible to the source. ■ Watercourse crossings, where required, will be designed to maintain and not reduce the existing capacity of the channels (including an allowance for Climate Change). ■ Access tracks will be served by a network of surface water infiltration trenches, to accommodate runoff during a 1 in 30 year event (plus an allowance for Climate Change). These will include check dams to slow the flow and provide water treatment including removal of sediment. Relief drains will cross the access tracks at regular intervals to maintain the existing flow paths, in particular with reference to GWDTEs, and where surface water flowpaths have been identified that may feed areas of peat or other wetland habitat. This is discussed in detail in Appendix 9.4. Drainage will be installed before or during access track construction, rather than afterwards to ensure that the access track design is not compromised. Water Resources The construction of the Proposed Development will be managed by use of the Construction Environmental Management Plan (CEMP). An Outline CEMP is provided in Appendix 4.2. This document includes the following provisions for minimising effects of the Proposed Development on water resources:

Topic	Type of Mitigation	Detail
		■ A Surface Water Management plan as an appendix to the CEMP, which includes: – Provision for protection measures to control silt and other run-off within the construction site footprint (e.g. silt fencing, earth bunds etc); – Temporary works requirements in containing, managing and treating surface-water runoff as it leaves the construction site, including any necessary attenuation, settlement and treatment prior to water discharge; and, – Requirement for works sequencing, soils management etc. in order that the impacts of each section of works are minimised. ■ Proper storage and use of oils, fuels and construction chemicals; ■ Provision of Site-worker accommodation and sanitation facilities; and, ■ Management and removal of waste materials. At least three groundwater monitoring wells will be installed in the footprint of each proposed borrow pit, and data gathered on the groundwater elevation and behaviour. This information will then be used to inform the drainage design of the borrow pit, ensuring that the associated recharge/soakaway trench is situated on the down-gradient side of the excavation (thus maintaining the overall hydrogeological regime). Geology and Soils The Proposed Development requires that a significant volume of soil will be stripped. These soils will then be managed according to three different scenarios: ■ Immediate restoration upon excavation (i.e. simultaneous stripping and restoration on proximal development parcels). ■ Temporary stockpiling for a short period (weeks) and then restoration (e.g. where earthworks cut/fill is required). ■ Temporary stockpiling for a longer period (months) prior to restoration (e.g. on the footprint of temporary hardstand areas). ■ Placement within the final landscaped form of development (for example placing thicker soil on earthworks batters than was initially excavated). These areas of soil could then be used in the decommissioning phase in due course. These soils shall be those associated with the stripping of permanent hardstanding and tracks. The Outline Soil Management Plan in Appendix 9.5 provides the measures that will be implemented to minimise the effect that the Proposed Development has on soils in all of these scenarios. Appendix 4.1 provides a borrow pit restoration plan, which includes their permanent restoration at the end of the construction period.

Topic	Type of Mitigation	Detail
		Normal practice in energy park development is to undertake a detailed ground investigation beneath all pieces of proposed infrastructure and track, in order that the ground conditions can be characterised and detailed geotechnical design can be compiled. This process will be followed for the Proposed Development, in adherence with BS5930:2015 and EuroCode 7. Good practice in undertaking ground investigation and geotechnical design in areas of steep slopes and potential slope instability requires that the scope of ground investigation and geotechnical design be expended to include consideration of, and design against, ground instability. This process will be followed for the Proposed Development, in adherence with BS5930:2015 and EuroCode 7.
	Additional Mitigation	GWDTEs In order to mitigate potential effects upon GWDTEs, a sequence of additional mitigation actions will be undertaken. A bespoke drainage design will be implemented to maintain the groundwater feed to the GWDTE, both during the temporary works of the construction phase, and during the operational phase of the development. The sequence of works that will be undertaken is listed below, and described further in Appendix 9.4: ■ Ground investigation, comprising the installation of groundwater monitoring wells within boreholes, positioned to enable characterisation of any connectivity between the area of Proposed Development and the GWDTE; ■ Long-term monitoring of the groundwater elevations in boreholes; ■ Hydrogeological assessment of the data gathered, assessing the likelihood of connectivity; ■ Detailed topographical survey to determine the relative ground elevations of GWDTE and the Proposed Development infrastructure; and, ■ Use of this data to inform the detailed drainage design and detailed CEMP. PWSs To mitigate potential effects upon PWS and minimise the likelihood and consequences of any impacts, the following actions will be taken as described further in the Outline Drainage Strategy (see Appendix 9.4) and Outline Water Quality Monitoring Plan (Appendix 9.7): ■ Investigation and assessment of the connectivity between the Proposed Development and each of the two high risk PWSs, comprising an on-site assessment of each PWS and, if necessary, the drilling and installing of groundwater monitoring wells and the undertaking of groundwater elevation and chemistry monitoring. ■ Use of the information gathered to inform the detailed CEMP, which will include bespoke measures to protect each PWS, where required. Such measures could include (for example); strict prohibition of storage or transport of fuels, chemicals or other hazardous substances within at least 250 m of the PWS or the watercourse feeding it; detailed silt and run-off control measures in areas where

Topic	Type of Mitigation	Detail
		infrastructure is within 250 m of a PWS or a watercourse feeding it; detailed emergency measures for deployment in the event of an accident or event that may risk release of pollutants. ■ water quality monitoring of the abstracted water and the watercourse(s) upstream of it, including baseline, construction-phase and post-construction phase monitoring will also be undertaken, enabling the rapid identification of any deviation from baseline water conditions. In the extremely unlikely event that such a deviation is detected, swift action shall be undertaken to make good any such effect. There are several options that could be employed in this event, including: – The addition of simple water treatment to the PWS (e.g. filtration, UV treatment). This could be implemented rapidly. – The introduction of intervening measures to sever any pathway that has developed between the Proposed Development and the PWS (e.g. filtration, treatment and redirection of effected surface or groundwater). In all but the most unlikely of cases, such measures could be implemented immediately. – Flushing of pipework and systems to purge of effected water. This could be implemented rapidly. – Replacement of the PWS with an alternative source. For example, were a spring supply to be affected by changes to surface water flows, a borehole supply could be provided which would be protected from such effect. – Redrilling of a borehole supply to greater depth or to target a different strata.
	Monitoring	The following surveys and monitoring will be undertaken during the post-consent, detailed design phase of the development: ■ Detailed ground investigation beneath the footprint of the Proposed Development. This will be primarily aimed at informing geotechnical and earthworks design, but will also provide information on soils, and provide the opportunity to install groundwater monitoring wells. ■ Specific additional focus during the ground investigation and subsequent geotechnical assessment on slope stability in those areas identified as higher than Low risk in this regard. ■ Installation of at least three groundwater monitoring wells in the vicinity of GWDTE B, C and D. Groundwater monitoring using dataloggers over a period of months to enable characterisation of the groundwater elevations and behaviour at each GWDTE. ■ Groundwater and surface water quality sampling and analysis from groundwater wells installed in the vicinity of GWDTEs, and from surface water bodies on the Site. This will include monitoring of watercourses between the Proposed Development and the PWS's identified as having potential connectivity to the Proposed Development. Sampling & analysis to include baseline (pre-works, construction phase and post-construction phase monitoring).

Topic	Type of Mitigation	Detail
		Water quality sampling and analysis of water abstracted from PWS's identified as having potential connectivity to the Proposed Development. Sampling & analysis to include baseline (pre-works, construction phase and post-construction phase monitoring). The scope of the groundwater and surface water monitoring, sampling and analysis shall be set out in a Water Monitoring Plan and agreed with NRW and Powys County Council. It is intended that this Water Monitoring Plan will be the subject of a pre-commencement condition of planning permission.
Chapter 10: Noise and Vibration	Embedded Mitigation	The turbine layout of the Proposed Development has been iteratively developed to avoid significant operational wind turbine noise effects, based on a representative candidate turbine model, whilst maintaining as far as possible the generation capacity of the Proposed Development (in addition to other design considerations). This included consideration of the cumulative effects with neighbouring wind farms. Specifically, the process involved the calculation of noise emission levels for the initial turbine layout, and advice was provided on this basis to the design team to ensure compliance with successive iterations including the final layout, based on the derived ETSU-R-97 noise limits, whilst considering cumulative effects where relevant from the operation of other wind farms. The location of the proposed substation was also determined with consideration of the proximity of noise-sensitive locations while considering other design constraints.
	Applied Mitigation	To reduce the potential effects of construction noise, the following good practice measures are proposed and where appropriate are to be included in the CEMP: - Those activities that may give rise to audible noise at the surrounding properties and heavy goods vehicle (HGV) deliveries to the Site (except for abnormal loads) will be limited to the hours 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays. Those activities that are unlikely to give rise to noise audible at noise-sensitive receptors may continue outside of the stated hours, such as small deliveries. Concrete pours for foundation or turbine component lifting may also be required outside the above working hours, but this will not include the associated preparation and mobilisation work which will be restricted to the above working hours. - Traffic movements will be managed by a Construction Traffic Management Plan (CTMP) (see Appendix 11.3) as part of the Construction Environmental Management Plan (CEMP) (Appendix 4.2). Turbine deliveries will only take place outside these times with the prior consent of PCC and relevant authorities and this will be controlled by an Abnormal Load Transport Management Plan as part of the CTMP - All construction activities shall adhere to good practice as set out in BS 5228. - All equipment will be maintained in good working order and any associated noise attenuation such as engine casing and exhaust silencers shall remain fitted at all times.

Topic	Type of Mitigation	Detail
		■ Where flexibility exists, construction activities will be separated from residential neighbours by the maximum possible distances. ■ Construction plant capable of generating significant noise and vibration levels will be operated in a manner to restrict the duration of the higher magnitude levels. ■ If blasting is used at the proposed borrow pits: — Blasting should take place under strictly controlled conditions with the agreement of PCC and relevant authorities, at regular times within the working week, that is, Mondays to Fridays, between the hours of 10.00 and 16.00. — Good practices during the setting and detonation of charge should be followed, in order to control air overpressure, in line with guidance set out in Minerals Technical Advice Note (Wales) 1 (MTAN1) and British Standard BS 5228-2. — Vibration levels at the nearest sensitive properties are best controlled through onsite testing processes, with progressively increased charges, carried out in consultation with PCC.
	Additional Mitigation	Construction effects Additional measures, to be set out in the CEMP (Appendix 4.2), will be taken to minimise the impact of the Site Entrance construction works, including notifying the residents of Craiglea for works taking place in proximity to this property and use of quieter construction techniques where reasonably practicable. This and the relative short duration of the works, similar to road improvement works, would reduce the impact of these works to a minor magnitude Operational effects The Proposed Development has been designed such that predicted operational noise levels associated with the Proposed Development can meet the limits derived in accordance with ETSU-R-97 with assumed operation of T13, T14, T16 and T7 in reduced noise modes and the remainder of the turbines operating unconstrained, based on the assumed candidate turbine. However, appropriate due diligence will need to be undertaken in respect of the actual turbine to be installed at the site such that the site-specific noise limits listed in full in Table 15 of Appendix 10.1 are achieved at the surrounding properties. These specific noise limits for the Proposed Development were based on the lowest of the resulting day-time and night-time ETSU-R-97 noise limits. Mitigation of noise from the substation can be achieved through selection of suitable plant and design of the transformer enclosure building, considering layout and ventilation to minimise noise break-out, to provide effective sound insulation of the transformer noise. Any externally located plant such as cooling units can also be located and/or attenuated as needed. These measures can be designed to achieve a reduction of at least 5 to 8 dB on the assumed emission levels, such that the total rated noise level following mitigation will no more than LAr 35 dB at the nearest residential properties.

Topic	Type of Mitigation	Detail
	Monitoring	Should the Proposed Development be granted planning permission, a suitably worded noise condition (s) will be attached to any permission that will require operational noise monitoring to be undertaken should complaints in respect of noise be received by the operator directly or PCC.
Chapter 11: Transport and Access	Embedded Mitigation	Borrow pits are located onsite and will provide material requirements for the access tracks, hardstandings and compound sub-bases. Where possible, existing tracks within the Site have been used. Concrete batching will be accommodated onsite to reduce deliveries to Site.
	Applied Mitigation	No applied mitigation is proposed.
	Additional Mitigation	The following measures would be implemented during the construction phase through the CTMP, to be secured via an appropriately worded planning condition: ■ Agree AIL route modifications and improvements with PCC, NMWTRA and other relevant stakeholders. ■ Where possible the detailed design process will minimise the volume of material to be imported to site to help reduce HGV numbers. ■ Where necessary, a site worker Staff Travel Plan, including transport modes to and from the worksite (including pick up and drop off times) will be prepared. ■ All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads. ■ Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway. ■ Wheel cleaning facilities may be established at the site entrance, depending on the views of PCC. ■ Unless otherwise agreed with the roads authorities, normal site working hours will be limited to between 07:00 and 19:00 Monday to Friday and 07:00 and 13:00 Saturday though component delivery, foundation pours and turbine erection may take place outside these hours. No work is proposed on Sundays and public holidays unless otherwise agreed with the Local Planning Authorities. ■ Appropriate traffic management measures would be put in place on the A44 leading through to the Site, to avoid conflict with general traffic, subject to the agreement of PCC. Typical measures would include HGV turning and crossing signs and/or banksmen at the site access and warning signs. ■ Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the Site.

Topic	Type of Mitigation	Detail
		■ Adoption of a voluntary speed limit of 15 mph through Llandegley, Penybont, Crossgates, Llandrindod Wells, Ridgebourne, Crossway, Builth Wells, Llanelwedd Erwood and Llyswen for HGV construction traffic. Site specific speed limits will be adhered to within the Site. ■ All drivers will be required to attend an induction to include: – A tool box talk safety briefing; – The need for appropriate care and speed control; – A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations through the villages); and, – Identification of the required access routes and the controls to ensure no departure from these routes. ■ Any necessary repairs to the abnormal loads access route will be coordinated with the relevant authority and any damage caused by traffic associated with the Proposed Development during the construction period that will be hazardous to public traffic will be repaired immediately. ■ Damage to road infrastructure caused directly by construction traffic arising from the Proposed Development will be repaired and street furniture that is removed on a temporary basis will be fully reinstated. ■ There will be a regular road and road edge review, which will include the areas within the highway boundary and any debris and mud will be removed from the public highway to keep the road clean and safe during the initial months of construction activity, until the site entrance and immediate access track works are complete. Before the AILs traverse the chosen transport route, the following tasks will be undertaken to ensure load and road user safety: – Ensure any vegetation that may foul the loads is trimmed back to allow passage; – Confirm there are no roadworks or closures that could affect the passage of the loads; – Check no new or diverted underground services on the proposed route are at risk from the abnormal loads; and, – Confirm the police are satisfied with the proposed movement strategy. ■ Abnormal Load Transport Management Plan will be prepared to cater for all movements to and from the Proposed Development. An outline TMP is included in Appendix 11.2. ■ A Path Management Plan (PaMP) will be developed and will detail appropriate measures for the diversion, either temporary or permanent of PRoWs. A PaMP is to be secured by planning condition and will be developed in consultation with PCC and other relevant stakeholders. The PaMP will establish the extent and location of diversions that will be necessary and will be confirmed following the micro-siting exercise post-consent. The temporary and permanent diversions will be secured through the appropriate

Topic	Type of Mitigation	Detail
		processes to secure the requisite consents to facilitate them. It should be noted that there is sufficient land within the Site to accommodate any necessary diversions. The PaMP will include: – Proposals to establish a construction liaison committee to ensure the smooth management of the project/public interface with the Applicant, the construction contractors, the local community, and if appropriate, the police forming the committee. This committee will form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising; – Details of temporary closures that may be needed and whether alternative routes can be provided; – Details outlining the management if temporary accommodation work affecting rights of way and access; – Measures to manage the risks associated with construction traffic encountering members of the public, especially where the room for avoidance is limited; – Public information including legal and advisory signage; and – Plans for the reinstatement of public paths. Mitigation measures for PRoW users during construction will include: – The Principal Contractor will ensure that speed limits are always adhered to by their drivers and associated subcontractors. This is particularly important close to the PRoW network and at crossing points. Advisory speed limit signage will also be installed on approaches to areas where PRoW users may interact with construction traffic. – Signage will be installed on the Site exit that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians, equestrians and cyclists in the area. This will also be emphasised in weekly toolbox talks. – Users of the PRoWs will be separated from construction traffic through the use of barriers (where permitted and appropriate) and this will ensure that safe access to the Site for recreational purposes will be maintained. Crossing points will be provided where required, with path users having right of way. Appropriate Traffic Signs Manual Chapter 8 compliant temporary road signage will be provided to assist at these crossings for the benefit of all users. ■ A Strategic Recreation Framework will be submitted with the DNS application, which sets out proposals of how access to and across the Site for recreation could be enhanced. This is an aspirational document therefore the proposals therein are not considered as mitigation within this assessment. ■ A Staff Travel Plan will be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport, especially car-sharing. A package of measures could include: – Appointment of a Travel Plan Coordinator; – Provision of public transport information;

Topic	Type of Mitigation	Detail
		— Mini-bus service for transport of site staff; — Promotion of a car sharing scheme; and, — Car parking management. ■ Information on the turbine convoys will be provided to local media outlets to help assist the public. These could include: — Local newspapers; — Online media outlets; — Community Councils; and, — PCC website. ■ Information will relate to expected vehicle movements from the PoE through to the Site access junction. This will assist residents becoming aware of the convoy movements and may help reduce any potential conflicts.
	Monitoring	N/A