EIRGRID

East West Interconnector Project

Wales Land

Environmental Report

Volume 1 *Non-technical summary*

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EWIP-UK DC CONVERTER STATION ENVIRONMENTAL REPORT (ER) Volume 1 – Non-Technical Summary

November 2008

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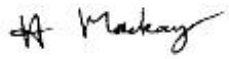
Prepared by	**:**	 **Alison Mackay**
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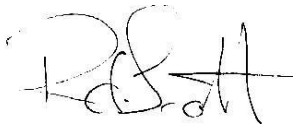
Approved by	**:**	 **David Scott**

CONTENTS

VOLUME 1

NON-TECHNICAL SUMMARY

PROJECT OVERVIEW AND NEED FOR THE PROPOSED DEVELOPMENT

1 INTRODUCTION

1.1.1 This document comprises the Non-Technical Summary of the Environmental Report (ER) prepared to accompany the planning application for a proposed high voltage direct current (HVDC) converter station at the site of the former coal fired power station in Deeside, Connah's Quay, Flintshire, North Wales.

1.1.2 The Converter Station is a part of the 'East-West Interconnector Project' (EWIP), which the Government of Ireland has decided to be a strategic energy link between Ireland and the UK.

1.1.3 There are underground electricity cables associated with the proposed EWIP Converter Station – alternating current (AC) cables from the grid connection point to the Converter Station continuing with direct current (DC) cables to the landfall; submarine cables across to Ireland; and underground cables to the connection point at Woodland, Co. Meath, Ireland. Underground and submarine cables are not part of this ER, but are discussed in the context of consents and alternatives considered for the scheme.

1.2 Requirement for an Environmental Impact Assessment (EIA)

1.2.1 A converter station is not considered as 'EIA development' in Schedules 1 and 2 of the Town and Country Planning (EIA) (England and Wales) Regulations 1999, as amended, or the Electricity Works (EIA) (England and Wales) Regulations 2000, as amended, and a formal EIA in accordance with either Regulation is not required.

1.2.2 However, in general a planning authority (in this case, Flintshire County Council), requires sufficient information indicating the principal potential environmental effects and how these would be controlled / mitigated. This environmental report contains that information and has a similar structure to an Environmental Statement.

1.2.3 The environmental category chapters within the ER for the proposed development have been conducted in accordance with the latest relevant UK Regulations and best practice guidance, and use the principles of the EIA process comprising the compilation, evaluation and presentation of all the significant environmental effects of a proposed development.

1.3 Environmental Impact Assessment Team

1.3.1 This ER was undertaken, co-ordinated and managed by Parsons Brinckerhoff (PB Ltd). TEP undertook planning advice and the Landscape and Visual Intrusion section, supplying all technical data to PB Ltd.

1.4 Key Stages of the ER

Consultation

1.4.2 The key issues to be addressed within the ER were agreed by Flintshire County Council in consultation with the Environment Agency (EA) and the Countryside Council for Wales (CCW).

Preparation of the Environmental Report

1.4.3 The ER preparation included the review of available documents and data for the site

and proposed development; site visits; consultation with a number of consultees; environmental surveys; review of existing environment legislation and government guidance; impact identification, prediction and significance assessment; and iterative inclusion of mitigation measures in the design of the development.

Impact Assessment

1.4.4 Impacts are defined as changes in the environment that result from an event that interacts with it. In general terms, impact significance was assessed by considering the value, importance or sensitivity of the environmental resource and receptor being affected, and the scale and nature (i.e. beneficial or adverse) of the potential impact.

1.4.5 To identify the scale of the impact the following factors were considered:

- Spatial extent;
- Probability;
- Temporal extent;
- Reversibility or irreversibility;
- Magnitude of change;
- Potential for mitigation;
- Direct, indirect or secondary impact;
- Sensitivity of the receptor.

1.4.6 As far as possible, standard terms have been used to define the significance of impact as 'major', 'moderate', 'slight' or 'negligible'. These terms are provided as general guidance only as flexibility is required for each particular environmental issue.

1.4.7 The ER has also considered cumulative effects which may arise as a result of interactions with other developments in the surrounding area.

Mitigation Measures and Residual Effects

1.4.8 Mitigation involves the introduction of measures to avoid, reduce, remedy or compensate for any significant adverse impacts. Based on environmental information collected and in consultation with statutory bodies, mitigation measures have been proposed to reduce the frequency, likelihood or extent of the impact.

1.4.9 Residual effects are those which remain following mitigation, and are described where applicable.

2 EXISTING SITE AND PROPOSED DEVELOPMENT

2.1 Location and Surroundings

2.1.1 The proposed Converter Station site at Conah's Quay is located within an area of industrial, residential, and open space.

2.1.2 The immediate surroundings, and adjacent to the River Dee, are heavily industrialised. In close proximity are a number of designated sites, including the internationally recognised Dee Estuary Ramsar / SPA (Special Protection Area) / SSSI (Site of Special Scientific Interest), two SACs (Special Areas of Conservation)

and three SSSIs, including the River Dee SSSI immediately adjacent to the north of the site. Residential areas and the local centre of Conah's Quay and facilities are situated to the south. Areas of public open space and green space are also located to the south, with a large area of agricultural land to the west.

2.2 Proposed Development

2.2.1 The EWIP would comprise 185 kilometres (km) of undersea cable and circa 45km of land cable in Ireland, and 29km of land cable in Britain connecting two converter stations, one in Ireland (cable landing at Rush) and the other in Britain (cable landing at Barkby Beach) which convert the power from AC to DC and back again from DC to AC when landed on the receiving side.

2.2.2 The EWIP Converter Station would essentially comprise the following equipment:

- **Converter building to house the following equipment**: Converter valves, HVDC switchgear, Converter reactor, AC switchgear, and Converter valve cooling equipment;
- **Ancillary buildings to house the following**: Control room, Amenities, Multi-voltage switchgear, Store room, Workshop, and Office and meeting rooms;
- **Outdoor High Voltage (HV) equipment consisting of the following**: Converter station security fence and gates; Converter transformer enclosed inside fire walls and bunded area for oil containment; AC filter capacitors and reactors; and AC switchyard consisting of circuit breakers, disconnectors, instrument transformers, earth switches, surge arrestors bus-bars and insulators;
- **Other equipment of:** Diesel generator; Auxiliary transformer; Other AC switchgear; AC current and voltage transducers; Station earthing; and Civil Works for equipment and building foundations, drainage, roading and electrical earth mat conductor including oil interception and containment from the converter transformers; and
- **Miscellaneous equipment of:** Control system interface and communications; 400kV high voltage alternating current (HVAC) cable of approximately 1km length between Deeside National Grid substation and converter substation; and Converter station security fence, roads, and lighting.

2.3 Existing Facilities

2.3.1 The UK has several interconnections with the larger European grid, one with France and another under development with the Netherlands. Crossing the Irish Sea between Northern Ireland and Scotland is the Moyle Interconnector, and further interconnection exists between the transmission systems in Northern Ireland and the Republic of Ireland.

2.4 Need for Proposed Development

2.4.1 The EirGrid East-West Interconnector would ensure Ireland is more closely integrated into the wider European energy market, in line with European policy for a single European electricity market.

2.4.2 EirGrid was mandated by the Government under its Energy Policy and in cooperation with the UK to build an Interconnector between Ireland and the UK, scheduled for completion in 2012. The EirGrid East-West Interconnector would link the Irish Transmission System to the British Transmission System's National Grid, enabling a two way transmission of electricity of both importing and exporting capacity.

2.5 Construction Programme

2.5.1 The programme for the Converter Station, until planning application consent, is as follows:

- Contract awarded to chosen contractor – February 2009. Limited notice to proceed (LNTP) would be granted by EirGrid to the chosen contractor with advisement that consents have still to be issued;
- Final notice to proceed (FNTP) following granting of consents – December 2009;
- Commencement of construction – February 2010. The construction period would have long periods of limited activity, with the major civils works taking 6 months;
- Commissioning from September to November 2012; and
- Decommissioning in typically 40 years time. Throughout the project lifespan, various equipment upgrades / replacement may be required.

2.6 Alternatives

2.6.1 Identification of the Connah's Quay site was a culmination of engineering, environmental and planning considerations of various UK cable landing sites and routes, and potential converter station locations.

2.6.2 Suitable industry and employment allocations in local development plans and potentially suitable converter station sites were determined to be in the Deeside Area. Five alternative converter station sites and possible cable connection routes were identified within a notional 5km radius (in order not to constrain capacity) of the proposed connection point at the Deeside 400 kilovolts (kV) Substation. These are:

- Land adjacent to UPM (Shotton Paper Mill), Weighbridge Road – three potential sites within this area (UPM1, UPM2, and UPM3 to the north west: all areas of low lying and open land, with UPM1 bound by close proximity to the River Dee statutory designations; and UPM3 covered by coppice trees);
- Northern Gateway site;
- Queensferry Industrial Estate;
- National Grid Property adjoining the present study area; and
- Dock Road Industrial Estate and Crumps Yard, Connah's Quay.

2.6.3 Further discussion about the commercial costs and the technical aspects of crossing the River Dee conclude that the best possible location for the E.on site is still the site formerly occupied by Connah's Quay coal-fired power station. However, if the E.on site is not available, the site with the minimum constraints is considered to be the UPM1 site.

3 PLANNING POLICY CONTEXT

3.1 Planning Policy Context

3.1.1 The review of the relevant planning policy framework has considered the following:

- Relevant European policy and legislation;
- Relevant Technical Advice Notes;

- Relevant local and development plans, namely: Structure Plan Second Alteration: Flintshire Edition (strategic guidance up to 2011); Clwyd Structure Plan Second Alteration (1997); and the Flintshire County Council Unitary Development Plan (consultation draft 2000); and
- Planning Policy Wales (2002); and supplementary planning guidance.

3.1.2 The proposed Converter Station site is consistent with the zoning for employment and industrial use by Flintshire County Council's Unitary Development Plan.

ASSESSMENT OF POTENTIAL IMPACTS AND MITIGATION MEASURES

The following sections describes the existing environment, potential impacts, mitigation and any residual effects from the proposed development for the environmental resources considered to be affected. These are summarized in the table at the end of this summary.

4 AIR QUALITY

4.1 Existing Environment

4.1.1 The potential air quality impacts both during construction and operation from the proposed development have been predicted and assessed by using qualitative and quantitative methodologies.

4.1.2 Current air quality conditions in the vicinity of the proposed development have been established through a review of available air quality data, and concluded that existing air quality conditions at the proposed site are good. No Air Quality Management Areas have been declared within Flintshire, and there are currently no exceedences of any of the air quality objectives for any pollutant within the study area. There are no odour issues.

4.2 Potential Impacts, Proposed Mitigation and Residual Effects

4.2.1 Emission impacts and dust associated with construction traffic movements on and off site have the potential to impact temporarily on sensitive receptors within the 200m study area (such as designated sites and residential properties).

4.2.2 However, these impacts are considered insignificant and by applying appropriate mitigation measures described below there would be only minor short-term impacts:

- A Code of Construction practice should be developed, including appropriate dust and PM_{10} (particles measuring 10µm or less) monitoring and visual inspections.
- Where possible, activities with significant dust generation potential should be located as far as possible from sensitive receptors and resources.
- Wheel washes should be installed at site exits.
- During dry conditions, stockpiling should be limited and, if required, dampened to minimise dust generation.
- Drop heights for materials handling should be minimised.
- Plant and construction vehicles should be regularly maintained and inspected.
- Idling of vehicles should be minimised.
- Haulage vehicle loads should be covered.

4.2.3 Since operation of the facility would not result in air emissions, there are no expected air quality impacts associated with the development during the operational phase.

4.2.4 Overall, there would be no significant residual effects as a result of the proposed development.

5 COMMUNITY AND SOCIO-ECONOMICS

5.1 Existing Environment

5.1.1 The existing socio-economic conditions have been established following a desk study, with particular reference to population, employment and the economy. Accordingly, Wales has a rapidly changing and growing economy, within which Flintshire has a steadily growing population and employment.

5.2 Potential Impacts, Proposed Mitigation and Residual Effects

5.2.1 The potential socio-economic impacts resulting from the proposed development have been assessed by means of a qualitative assessment, supplemented by quantitative predictions where possible. Future assessment has been determined by the relevant land use proposals determined within the Flintshire Unitary Development Plan (UDP).

5.2.2 During the construction phase, adverse impacts are anticipated to be minor and short-term due to potential disturbance to community and businesses such as Air Quality, Landscape and Visual Intrusion, Noise and Vibration, and Traffic and Transport. Beneficial impacts include construction related employment, and increased spend on goods and services.

5.2.3 Operational impacts are expected to be very minor, again relating to potential disturbance to community and businesses such as Landscape and Visual Intrusion, Noise and Vibration, and Traffic and Transport. There would be no change in the employment profile during operation of the Converter Station. The construction and operation of the proposed development are likely to have no impact on the existing housing stock or on property values in the area.

5.2.4 In conclusion, the socio-economic impacts of the proposed Converter Station at Deeside are likely to be insignificant with only a slight beneficial effect on the economy during construction.

5.2.5 No specific mitigation measures are proposed, and no residual effects are anticipated from the proposed development.

6 ECOLOGY AND NATURE CONSERVATON

6.1 Existing Environment

6.1.1 The existing ecological and conservation value of the site and surrounding area has been established and assessed in terms of the potential impacts of the proposed development. A desk-based ecological study and a subsequent walkover assessment were undertaken. Existing data and information were obtained through consultations. Further ecological studies were carried out to inform the baseline assessment; comprising surveys for habitat, reptiles, and badgers. Upon this basis, the impact assessment was undertaken in accordance with published guidelines, following the identification of key ecological receptors within the site and surrounding area.

6.1.2 The existing ecological value of the site is limited as it does not contain areas of nature conservation importance, with the majority of the site area comprising a mix of semi-improved grassland, ruderal, trees, scrub and herbs. There are no associated habitat plans. South of the site is an area of grassland with mature trees, standing water with no notable vegetation, and buildings. The area located adjacent to the north of the site is the designated River Dee SSSI (Site of Special Scientific Interest)

of high ecological importance, with associated mudflats and salt marsh, and one of the top five estuaries in the UK for wintering and migrating waterfowl populations.

6.1.3 The internationally designated Dee Estuary is located approximately 4,910m north of the proposed development site, and is designated as a Ramsar site, SPA (Special Protection Area), pSAC (candidate Special Area of Conservation), and SSSI. There are two further SACs: Deeside and Buckley Newt Sites, and the River Dee and Bala Lakes situated 1,465m south and 70m north (and east) of the site respectively. Two SSSIs are located 70m and 506m to the north: the River Dee; and Shotton Lagoons and Reedbeds; with a further SSSI: Conah's Quay Ponds and Woodland 1465m to the south. Four proposed Local Wildlife Sites range from 994m to 1,585m south of the site.

6.1.4 A number of protected and notable species have been identified within approximately 2km of the site: badgers, otters, breeding birds, wading and estuarine birds, and flora.

6.2 Potential Impacts, Proposed Mitigation and Residual Effects

6.2.1 No habitat of ecological value would be lost due to the construction of the Converter Station or the associated infrastructure. Any potential impact in terms of habitat loss would be of negligible significance. No loss of habitat to any statutory sites would occur as a result of the development proposals. Impacts on protected species, in particular otters, during the construction phase associated with disturbance and potential pollution are considered to be potentially significant without mitigation.

6.2.2 During the operational phase, there are potential impacts on Valued Ecological Receptors due to noise disturbance from operational processes. However, these are considered unlikely to affect the integrity or the conservation status of the species or habitats within the designated sites, and noise issues are deemed to be negligible and not significant. A similar conclusion is reached for impacts to habitats within, and immediately surrounding the site. Impacts to protected species are also considered negligible. However, any pollution of the River Dee, without safeguards in place would be considered significant.

6.2.3 The proposed landscaping would be a mix of native plant and tree species, and certain areas of the site sown with wild grassland mix to encourage biodiversity onsite as an enhancement measure.

6.2.4 Following the successful implementation of the ecological mitigation measures, such as pollution prevention guidelines, appointment of an Ecological Clerk of Works, minimisation of lighting, best practice methods, further survey if required, and adoption of the Construction Environmental Management Plan (CEMP), the overall impact of the proposed development both during construction and operation is not considered significant, and no residual effects are anticipated.

7 FLOODING AND WATER RESOURCES

7.1 Existing Environment

7.1.1 A desk study was undertaken to provide details of the existing environment, using data obtained from the ER, published sources and best practice, and previous reports for the Connah's Quay site. This was supplemented by a site visit by a specialist hydrologist, and ongoing consultations with the EA and Dwr Cymru Welsh Water regarding flooding and drainage information. Based on this information, an assessment of both the construction and operation of the proposed development

upon water resources has been undertaken. Following consultation with the EA, a Flood Consequence Assessment (FCA) was requested to demonstrate effective management of flood risk and has been included within the ER.

7.1.2 Key water features within the area include the River Dee 200m to the northeast, the Dee Estuary 4910m north, and Kelsterton Brook 800m to the southwest, with a nearby tidal pond, and several drains.

7.1.3 The proposed Converter Station is located within an area defined by the EA to be at risk of flooding, due to its location within Zone C1; an area of floodplain developed and served by significant infrastructure, including flood defences. The EA specifies that the Converter Station is classified as a 'Highly Vulnerable Development'. The EA indicates that the critical tidal flood level associated with the site is the 1 in 200 year tidal flood event plus the effects of climate change. The critical flood level associated with the site is 7.17 metres Above Ordnance Datum (mAOD).

7.1.4 The EA has indicated that all proposed 'sensitive' or essential infrastructure / buildings / equipment is to be designed above the critical tidal flood level (7.17 mAOD) plus adequately designed freeboard. The freeboard height would also take into consideration the effects of waves and wind.

7.2 Potential Impacts, Proposed Mitigation and Residual Effects

7.2.1 Construction and operational impacts from the proposed development may result in both direct and indirect impacts on the potential water environment receptors of surrounding surface water features, underlying groundwater or aquifers, and flood sensitive areas. All surface water features are located at least 100m from the site and the site is underlain by a designated Minor Aquifer with variable permeability.

7.2.2 The proposed Converter Station would be constructed in such a way as to minimise flood risk to buildings, roads, and equipment, and would incorporate appropriately designed drainage so as to minimise flood risk to other sites in the vicinity. The EA's recommendations regarding the use of oil interceptors would be incorporated at the detailed design stage. The proposed works would not affect the nearby statutory designated sites.

7.2.3 General mitigation measures that would be implemented through the Environmental Management Plan (EMP) include:

- appropriate spill kits, fire extinguishers, etc. to be readily available on site;
- oil storage tanks to be located on an impervious base provided with bund walls to give a containment capacity of at least 110 per cent of the tank volume. All valves and couplings to be contained within the bunded area;
- any surface water used during the construction phase is to be passed through oil / grit interceptor(s) prior to discharge. Water inflows to excavated areas to be minimised by the use of lining materials;
- measures to be taken to ensure that no leachate or potentially contaminated surface water be allowed to enter directly or indirectly into any underground strata or adjoining land;
- provisions to be made so that all existing drainage systems continue to operate; and
- designated 'washdown' areas would be identified;

7.2.4 Following the implementation of appropriate mitigation measures of an EMP, the proposed drainage strategy, and flood mitigation of raising the infrastructure above the critical tidal flood level; no significant impacts are expected and anticipated residual effects are considered negligible.

8 LAND CONDITION AND WASTE MANAGEMENT

8.1 Existing Environment

8.1.1 The assessment of ground conditions was based upon a review of published documents and previous reports, and the existing environment was established from PB's Phase 1 Environmental Site Assessment undertaken in April 2008 and a subsequent site investigation undertaken in July 2008.

8.1.2 Levels of heavy and phytotoxic metals and organics / hydrocarbons are considered generally indicative of reclaimed estuary land with evidence of the adjoining power station demolition landfilling. Localised visual hotspots were found, one from a brick pilled pit, with others assumed to be from organic content in the soil.

8.1.3 Monitoring of landfill gas within the Converter Station area indicates that ground gas concentrations in the vicinity of the proposed development are elevated, indicating the lateral migration of gas is potentially occurring. Landfill gas concentrations were indicative of the breakdown of underlying silt organic material.

8.1.4 With respect to waste management, the Converter Station site is situated in an industrial estate and is currently vacant. Therefore, no waste is being produced on this site and it does not have any impact on local waste disposal facilities.

8.2 Potential Impacts, Proposed Mitigation and Residual Effects

8.2.1 It is considered that the identified land condition would not cause any additional construction risks in comparison to a greenfield development with the exception of recorded soil gas levels. There may be health and safety risks to construction personnel entering deep trenches or enclosed spaces requiring health and safety risk assessments. However, it is considered this issue can be mitigated with appropriate monitoring and the use of personal protective equipment.

8.2.2 Operational impacts cover the same environmental risk as the construction impacts, and these can be addressed at the design stage. In particular, considerations for building design include: the potential ingress of soil gas into any underground chambers and ducting; and potential soil gas in sewers and pits / chambers. Gas control measures to minimise these risks are proposed in order to prevent the migration of soil gas towards the proposed Converter Station, prevent harm to human health at onsite and offsite receptors and minimise the risk of accidents.

8.2.3 The proposed site raising materials and development concrete surfacing would act as an environmental layer which would mitigate any impacts from identified land contamination.

8.2.4 With correctly identified mitigation at the design stage, there are no significant residual effects anticipated as a result of the proposed development.

8.2.5 For waste management during the construction phase, several waste types would be generated including:

- waste from excavation and construction;
- typical building waste such as wood, scrap metal and hardcore; and
- associated welfare waste from employees.

8.2.6 As part of the EMP a waste management plan would address the handling and disposal of these materials. To minimise waste, re-use of excavation material can be potentially re-used around the site as landscaping or infill, or screened and re-used off-site. Any hazardous ground materials discovered would be managed where possible with treatment and soil cleaning options, with disposal to landfill as a last resort.

8.2.7 During the operation phase, as the site is to be unmanned there would be minimal welfare waste. It is expected that any waste produced would be largely recyclable. The Converter Station would put minimal pressure on the local waste management facilities, once operational.

8.2.8 The overall effects of the waste produced both from the construction and operational phase are considered to be minimal.

9 LAND AND LAND USE

9.1 Existing Environment

9.1.1 An assessment of temporary and permanent impacts on land and property was undertaken for the construction and operational phases of the development. There are no published standard criteria for land use assessments, and significance levels for potential impacts have been developed based on general guidance from professional institutions and professional experience.

9.1.2 The existing land use at Conah's Quay in the vicinity of the proposed Converter Station site is a mix of industrial, residential, and open space. Residential areas to the south are located within approximately 80m of the site, with the Converter Station site located approximately 1.5 km west of the local centre of Conah's Quay and facilities. The immediate area surrounding the proposed Converter Station, and adjacent to the River Dee, is heavily industrialised. Areas of public open space and green space are also located to the south of the site, with a large area of agricultural land beginning 0.5km to the west.

9.1.3 The site is located within proximity to a number of designated sites, including the internationally recognised Dee Estuary Ramsar / SPA / SSSI, two SACs and three SSSIs, including the River Dee SSSI immediately adjacent to the north of the site.

9.1.4 There is a footpath network comprising a number of public footpaths connecting to roads and open spaces 1.2km to the west, with the closest public right of way 50m to the south of the site. The National Cycle Route 5 (Reading to Holyhead) is also located to the south, some 450m away.

9.2 Potential Impacts, Proposed Mitigation and Residual Effects

9.2.1 Whilst the proposed development is located in an area with a number of significant ecological designations, it would be constructed upon land currently utilised and allocated for industrial use, and within an area of historical heavy industry use. There would be no direct loss or change to any surrounding land use, designated sites, or any loss of greenfield land, or any loss to local facilities and amenity. It is concluded

that the construction phase of the proposed development would have a negligible impact upon the surrounding and receiving environment in terms of land use and amenity.

9.2.2 For the operational phase, the proposed development is consistent with the existing land use upon the site, and therefore does not constitute a significant change in terms of both type and scale of operation. The redevelopment is also consistent with the zoning for employment and industrial use by Flintshire County Council's Unitary Development Plan. There would be no impact upon existing public access, either within the site or the surrounding area, and impacts on land use during the operational phase are also deemed to be negligible.

9.2.3 No significant land use changes are envisaged as a result of the proposed development. Therefore no mitigation measures are recommended and no residual effects impacts are anticipated.

10 LANDSCAPE AND VISUAL INTRUSION

10.1 Existing Environment

10.1.1 The nature of the existing environment has been determined based upon a desktop study, computer generated diagrams, professional guidelines, planning guidance, and visual observations made during a site visit. Following which, an assessment of landscape character and potential visual impacts from the proposed development has been undertaken.

10.1.2 Existing landscape character incorporates previously developed land in the eastern part of the former Connah's Quay Power Station site and is currently vacant. The landform is generally flat across the site. The wider landscape tends to slope gently towards the River Dee which is immediately adjacent to the northern and eastern boundaries of the site. The site has a distinctly industrial character. The site falls within the Flintshire Landscape Strategy Coastal and Estuarine Flats Character Area, and is consistent with the characteristics identified in this character area which are; a flat landscape with almost continuous industrial development along the river estuary.

10.1.3 The surrounding environment consists of the Dee Estuary to the north and west, residential areas to the south, and industrial development and electrical infrastructure to the northwest and east.

10.1.4 The existing visual environment comprises walkers using the public footpaths; users of surrounding public highways (A548 to the north, Kelsterton Road, Church Street, Church Hill, Golftyn Lane and Kelsterton Lane); rail passengers; and residents (Dee View Road, Bank Road, Church Street and Kelsterton Road and those in the wider Connah's Quay area).

10.2 Potential Impacts, Proposed Mitigation and Residual Effects

10.2.1 Although there would be several additional buildings of a similar size and construction to those already nearby the site (of a scale and appearance to that seen at the Manweb 132kV and the Deeside 400kV substations 400m and 850m, all located to the northeast of the site), the new Converter Station and associated electrical equipment would have a neutral impact on the landscape character of the area.

10.2.2 The proposed installation of a converter station represents redevelopment of a disused brownfield site and forms an extension to the existing industrial land uses.

The land is allocated for employment use by Flintshire County Council in its Unitary Development Plan (UDP). The proposed form of development is consistent with the intentions of the UDP.

10.2.3 Visually, many views would remain unchanged or would only alter slightly. Changes are likely to incorporate additional elements of similar nature to the adjacent existing substation sites and in the majority of views only the upper parts of the tallest structures would be visible above the existing rooflines.

10.2.4 Opportunities for views of the development are relatively few from the surrounding area due to limited public access to surrounding land. In views from the wider area the features on the site such, as valve hall buildings, would merge against a backdrop of existing built form and industrial features.

10.2.5 Mitigating to reduce impacts on views is proposed by using soft landscaping to create new planted 'buffer zones' on the southern and eastern site boundaries which would, once established, screen views toward the site from houses on Dee View Road and Bank Road. Tree planting to the eastern site boundary would screen views looking toward the site from viewpoints to the east and from public footpaths Nos. 28 and 32. The overall significance of effects on visual intrusion is, therefore, minimal in the long term.

11 NOISE AND VIBRATION

11.1 Existing Environment

11.1.1 The assessment of the potential noise and vibration impacts of the proposed development were undertaken following a combination of site surveys, desktop studies, literature reviews, consultations and predictions. The measurement of existing background noise levels surrounding the site was undertaken to inform the assessment in consultation with Flintshire County Council.

11.1.2 The existing noise climate in the area surrounding the proposed Converter Station site is comprised of the following activities: the elevated A548 to the north of the site, the major local noise; and typical residential activity noise to the south of the site close to Church View Road (with the nearest residential properties). The measured noise levels during day, evening and night are typical for such an area with mixed residential and industrial buildings.

11.1.3 The assessment has considered the potential impact upon identified Noise Sensitive Receptors (NSRs), during both construction and operation. These have been determined to be areas representative of properties to the west, southwest, and south and east of the site respectively.

11.2 Potential Impacts, Proposed Mitigation and Residual Effects

11.2.1 Construction activities have the potential to increase noise levels at nearby NSRs. However due to the temporary nature of this noise source, the potential temporary impact upon NSRs is considered to be acceptable. Perceived vibration impact may be noticeable during the construction phase, however it is considered that there would be no damage or impact to any existing properties.

11.2.2 For the proposed development, the predicted increase in road traffic during construction and operation would not cause noise or vibration levels to increase significantly. Operational noise would be designed to ensure there is no impact at the

nearest NSRs, and at the neighbouring SSSI. Mitigation design would include: selection of the quietest available plant; site layout; site screening; and enclosure of transformers.

11.2.3 Residual effects anticipated as a result of the proposed development noise of the HVDC Converter Station would result in a slight adverse impact.

12 TRAFFIC AND TRANSPORT

12.1 Existing Environment

12.1.1 The transport impact of the proposed development has been assessed and a Transport Assessment produced by PB Ltd. The assessment has been undertaken using professional guidance, consultation with Flintshire County Council on the route identified for construction traffic, information on traffic count and potential accident data, volume of construction traffic predicted, and the assumption that 2012 is the year of opening for the proposed development.

12.1.2 All construction traffic is assumed to access the site from the A548 Chester Road, and the B5129 Kelsterton Road (south of the A548, between the A548 junction and the southern access to the former Connah's Quay power station).

12.1.3 Discussions with Flintshire County Council officers highlighted the residential and educational land uses along Kelsterton Road (south), where such sensitivities would mean heavy use by construction vehicles could result in a significant impact.

12.2 Potential Impacts, Proposed Mitigation and Residual Effects

12.2.1 During construction, it is considered that a "worst-case" scenario of construction traffic impact is a 10% increase. However the existing daily traffic flow during the peak period would be higher than the two HGVs proposed per hour, and it is therefore considered that the impacts of traffic resulting from the proposed redevelopment would not have a material impact on the local highway network.

12.2.2 Good management practices would be employed with traffic movements to and from the site restricted to core periods outside normal peak travel times and construction routes would be agreed with Flintshire County Council to minimise potential impacts. Furthermore, the hours of delivery for plant and materials would be specified in advance of commencement of works on site. No pedestrian diversions are expected given the site access route.

12.2.3 During operation, the proposed route would pass residential areas along Kelsterton Road. However, operational traffic impacts are expected to be minimised as the site would not be manned during normal operations. Maintenance trips would be infrequent and generally limited to light vehicles only, and if larger vehicles are required routes and times would be agreed with the relevant highway authorities in advance.

12.2.4 As no significant impacts or effects have been identified by the assessment, no mitigation measures are expected to be necessary, and there are no residual effects.

13 CUMULATIVE EFFECTS

13.1.1 The potential for significant cumulative effects has been assessed, following the identification of key sensitive receptors, and major developments within the

surrounding area. A search of recent planning applications and a review of existing planning designations has been undertaken in order to provide information on identified developments.

13.1.2 The area under consideration is already highly developed and it is not likely that significant industrial or commercial development would occur nearby thus minimizing the potential for direct cumulative impacts. However, there is still the possibility of small incremental impacts from the development of employment, housing, commercial and waste facilities that could result in cumulative effects.

13.1.3 The impact assessment identified several resources and receptors that could potentially be impacted from the construction and / or operation of the Converter Station. These are: flora and fauna; air quality; water resources and flooding; noise; land condition; and landscape and visual intrusion. However, these potential impacts can be mitigated resulting in little or no cumulative impacts to the environment. Subsequently, an assessment of the potential for cumulative effects from the proposed Converter Station concluded that no cumulative impacts would be expected from construction and operation of the Converter Station.

14 SUMMARY

14.1.1 The following table provides a summary of the findings from the impact assessment undertaken in the ER.

Table 14.1 – Potential impacts reported in the Environmental Report

TOPIC	POTENTIAL IMPACTS	MAGNITUDE IMPACTS	SIGNIFICANCE OF IMPACTS	PROPOSED MITIGATION
Air Quality	• Increase in air pollutants during construction activities. • Generation of dust and its deposition. • Fine particulate pollution may affect ecosystems. • No air quality impacts expected during the operational phase.	• Air quality impacts associated with construction traffic movements on and off site are considered insignificant. • Small short-term increase in air pollutants. • Small short-term increase in dust.	No significant effects have been identified from the construction or operation of the scheme.	Application of Best Practicable Means, adverse impacts due to construction dust and PM_{10} are unlikely to occur.
Community and Socio-economics	• Slight increase in construction related employment opportunities. • Increased spend on local goods and services during construction phase. • Potential disturbance to community and business as a result of indirect effects from the other environmental categories considered within this ER.	• Minor short-term beneficial increase. • Minor short-term beneficial increase. • Discussed within each environmental category.	No significant impacts upon the facilitation of employment and housing developments within Connah's Quay or Flintshire.	None required.
Ecology and Nature Conservation	<u>Habitats</u>: • Loss of habitat on site during construction. • The Dee Estuary (cSAC/SSSI) ➢ Habitat degradation / pollution during construction. ➢ Disturbance during construction and operation.	<u>Habitats</u>: • Permanent and temporary habitat loss of grassland habitat. • The Dee Estuary (cSAC/SSSI) ➢ Low magnitude. ➢ Low magnitude.	<u>Habitats</u>: • Locally significant. • The Dee Estuary (cSAC/SSSI) ➢ Significant at international level. ➢ Not significant.	<u>Habitats</u>: • Some reinstatement (detailed in habitat management plan, in cooperation with property owner). • The Dee Estuary (cSAC/SSSI) ➢ Implement CEMP and apply good construction site management. ➢ Lighting schemes, screen planting and fencing.

TOPIC	POTENTIAL IMPACTS	MAGNITUDE IMPACTS	SIGNIFICANCE OF IMPACTS	PROPOSED MITIGATION
Ecology and Nature Conservation *(continued)*	Habitats: • River Dee and Bala Lake (SAC) ➢ Habitat degradation / pollution during construction. ➢ Disturbance during construction and operation. Species: • Otters ➢ Habitat degradation / pollution during construction and operation. ➢ Disturbance during construction. ➢ Disturbance during operation. • Reptiles ➢ Habitat loss during construction. ➢ Disturbance during construction and operation. • Badgers ➢ No potential impacts. • Birds ➢ No potential impacts.	Habitats: • River Dee and Bala Lake (SAC) ➢ Medium magnitude. ➢ Negligible. Species: • Otters ➢ Medium magnitude. ➢ Medium magnitude. ➢ Negligible magnitude. • Reptiles ➢ Low magnitude – permanent loss of suitable habitats. ➢ Low – temporary effects on areas supporting reptiles. • Badgers ➢ No potential impacts. • Birds ➢ No potential impacts.	Habitats: • River Dee and Bala Lake (SAC) ➢ Significant at national level. ➢ Not significant. Species: • Otters ➢ Significant at district level. ➢ Significant at district level. ➢ Not significant. • Reptiles ➢ Not significant at local level. ➢ Not significant at local level. • Badgers ➢ No potential impacts. • Birds ➢ No potential impacts.	Habitats: • River Dee and Bala Lake (SAC) ➢ Implement CEMP and apply good construction site management. ➢ Lighting schemes, screen planting and fencing. Species: • Otters ➢ Implement CEMP and apply good construction site management. ➢ Lighting schemes, screen planting and fencing. ➢ Screen planting. • Reptiles ➢ Implement habitat manipulation/ enhancement and creation of safe receptor areas. ➢ Habitat enhancement as appropriate. • Badgers ➢ Monitoring of badger sett prior to construction phase. • Birds ➢ Schedule site clearance out with the breeding season.

TOPIC	POTENTIAL IMPACTS	MAGNITUDE IMPACTS	SIGNIFICANCE OF IMPACTS	PROPOSED MITIGATION
Flooding and Water Resources	• Potential flood risk.	• Medium impact potential that will need to be mitigated.	• Significant.	• Infrastructure will be raised above the critical tidal flood level.
	• Contamination of surface and ground waters during site enabling and construction.	• Small to negligible potential.	• Moderate significance.	• Oil interceptors will be incorporated at the detailed design stage.
	• Increase in surface water runoff.	• Small to negligible increase.	• Not significant.	• Appropriately designed drainage.
Land Condition and Waste Management	• Waste generated during site enabling and construction.	• Small to negligible increase.	• Low significance.	• Re-use of excavation material, treatment and soil cleaning if required, with disposal to landfill as a last resort.
	• Contaminated soils from construction activities.	• Small to negligible increase.	• Not significant.	• Testing of soils prior to disposal.
	• Ground gas from underlying silt organic material released during construction activities.	• Small increase.	• Low significance.	• Raising the site will reduce the potential impact. To be further addressed within the Environmental Management Plan.
Land and land Use	• Loss of land use and amenity during the construction phase.	• Negligible impact.	• Not significant.	None required.
Landscape and Visual Intrusion	• Changes as a consequence of development will particularly affect a currently open character within the application site.	• The proposed new elements are similar in scale and type to existing features. A neutral impact on the local landscape is predicted.	• Not significant.	• Inherent design of the buildings and site layout.
	• Slight alteration to views within the surrounding area.	• Negligible impact on the wider industrial landscape because the existing landscape is dominated by urban form and heavy industry.	• Not significant in the long-term.	• Site screening with the creation of planted 'buffer zones' on the southern and eastern site boundaries.

TOPIC	POTENTIAL IMPACTS	MAGNITUDE IMPACTS	SIGNIFICANCE OF IMPACTS	PROPOSED MITIGATION
Noise and Vibration	• Increased noise above baseline during construction. • Increase in noise during operation. • Increase in vibration during site enabling work.	• Medium short-term increase. • Small long-term increase. • Medium short-term increase.	• Low significance. • Not significant. • Not significant.	• Work restricted to normal working hours. • Measures to include; selection of the quietest available plant, site layout, and the enclosure of transformers. • None required.
Traffic and Transport	• Large vehicle access during construction. • Increase in disturbance, delay and severance in local community from traffic. • Increased vehicular activity during site enabling and construction.	• Small short-term periodic disturbances. • Small short-term vehicle increase. • Medium short-term disruption of local traffic.	• Not significant. • Low significance. • Low significance.	Employment of good management practices with traffic movements to and from the site restricted to core periods outside normal peak travel times and construction routes agreed with Flintshire County Council to minimise potential impacts.
Cumulative Effects	• Other major infrastructure projects in the area. • Potential incremental impacts from economic development of the area.	• Moderate, long-term impact. • Small, long-term impact.	• Not significant as area already highly developed. • No cumulative impact expected.	None required.