

## 8.7 Embedded Mitigation

- 8.7.1 This section sets out the measures which have been assumed to be included as integral parts of the implementation of the Project, i.e. The Project could not be delivered without them.
- 8.7.2 The assessment of impacts on ecological receptors assumes that these measures will be implemented, with the initial significance of impacts assessed on the basis that these embedded measures are effective. Where embedded mitigation measures are considered relevant to a VER they are referred to in that section of the impact assessment.
- 8.7.3 Where the embedded mitigation measures do not fully avoid or mitigate impacts upon VERs, additional targeted mitigation measures are recommended.

### Mitigation Included in Design

- 8.7.4 The design of the final Project layout has been an iterative process (refer to Section 5).
- 8.7.5 The Gas Connection route was decided following a feasibility study taking into consideration various limitations (refer to Section 5). The chosen Gas Connection route avoids several ponds which have been assessed as having ecological value.
- 8.7.6 The Electrical Connection route was decided following a feasibility study (refer to Section 5) with ecology as one of the considerations. The final route was selected partly as this would avoid any significant impacts to Hirwaun Industrial Estate SINC.
- 8.7.7 The layout of the PGP has also been modified through the design process to avoid any land-take within the Hirwaun Industrial Estate SINC.

### Description of 'Designed In' Measures / Mitigation and Monitoring Measures

- 8.7.8 There are a range of environmental mitigation and monitoring measures included within the proposed design and development to ensure adverse impacts upon the environment are avoided (in the first instance) or minimised.
- 8.7.9 Mitigation and monitoring measures which impact on the scope of effects described in subsequent sections include:

- The design has been significantly altered during the detailed design process, to avoid direct effects on wetland habitats within Hirwaun Industrial Estate SINC.
- Implementation of a Construction Environmental Management Plan (CEMP);
- Adherence to all relevant, Best Practice Guidance / Regulations, British Standards, and monitoring in respect of air quality, noise and vibration, and water resources;
- Implementation of industry standard methods and procedures to ensure air quality impacts are minimised throughout all phases of the project;
- The 1.7 ha of the Hirwaun Common SINC affected by the Gas Connection will be reinstated following installation of the pipeline.

#### Mitigation Applied During Works Planning/Construction

- 8.7.10 Construction impacts are assessed with consideration given to the implementation of a Construction Environmental Management Plan (CEMP), which it is envisaged would be secured by a DCO condition. During the detailed planning of construction works, efforts will also be made to minimise the footprint of all construction activities to less than the worst case scenario assessed within this ES.
- 8.7.11 The draft CEMP, identifies the construction site management which will be implemented to avoid/minimise generation of excessive litter, dust noise and vibration. Monitoring will ensure the measures are effective.
- 8.7.12 The CEMP identifies measures that will be implemented to avoid/minimise potential for fuel and chemical spills and spill kits will be ready to hand in the unlikely event of a fluid spill. There will be no storage of potentially contaminating materials in areas of ecological / hydrological sensitivity. A Pollution Incident Response Plan is included as part of the CEMP to ensure that impacts from any potential accidental spills can be reduced to a minimum.

#### Air Quality Risk/ 'Designed In' Measures

- 8.7.13 The air quality assessment has identified the construction-phase dust effects impacts on ecological receptors are no more than minor with appropriate dust mitigation measures (see Section 6). These minor effects apply only to the SINC sites within 100 m of the Project.
- 8.7.14 No other designated sites are likely to be subject to detrimental effects as a result of dust deposition. This is because all other designated

sites are in excess of 250 m from the Project, well beyond the range at which perceptible dust deposition will occur.

8.7.15 A site specific dust management plan (DMP) will be developed as part of the CEMP for the site, in consultation with the local authority and relevant regulatory bodies. It is envisaged that the CEMP (and hence DMP) will be secured by a requirement attached to the DCO for the Project. This will ensure dust-related effects on the Hirwaun Common and Hirwaun Industrial Estate SINC are suitably mitigated.

8.7.16 Appropriate dust mitigation measures for the Project will include:

*Site Management*

- Records of dust and air quality complaints to be kept, including likely causes and mitigation measures to reduce impacts if appropriate;
- Daily on-site and off-site visual inspections to be undertaken and recorded;
- Inspections should be increased in frequency during periods of high activity or prolonged dry, windy weather; and
- Keep site perimeter, fences etc clean.

*Site Planning*

- Consideration of weather conditions, dust generating potential of material to be excavated prior to commencement of works;
- Plan site layout to maximise distance from plant/stockpiles etc to sensitive receptors; and
- Dusty materials to be removed from site as soon as possible or stored in excess of 50 m from the boundary of the designated sites.

*Construction Traffic*

- Loads entering and leaving the site with dust generating potential should be covered and wheel washing facilities made available;
- No idling of vehicles;
- Vehicles to comply with site speed limits (15mph on hard surfaces, 10mph on unconsolidated surfaces);
- Install hard surfacing as soon as practicable on site and ensure it is maintained in good condition.

*Site Activities*

- Exposed soils should be re-vegetated as soon as practicable. Near residential properties or sensitive ecosystems (<50m), hessian/mulches shall be used where it is not possible to re-vegetate or cover with topsoil;
- Minimise dust generating activities, particularly near residential receptors/sensitive ecosystems during prolonged dry, dusty weather unless damping / other suppressants are used;
- Ensure an adequate water supply to site and use water as dust suppressant where applicable;
- Ensure any site machinery is well maintained and in full working order;
- Ensure equipment available for cleaning spills etc available at all times; and
- Sand and aggregates should be stored away from sensitive receptors and screened/shielded. Similarly concrete batching should take place away from receptors.

8.7.17 The list of standard mitigation measures ensures daily visual inspections of dust emissions and quantification are made. However, in addition, the IAQM guidance on monitoring air quality at construction sites (IAQM, 2012) recommends that ambient air monitoring be undertaken in the vicinity of high risk sites. This data is required for two reasons: the first relates to ensuring that mitigation measures are appropriate and being applied rigorously; the second is to provide on early warning of increased dust emissions which allows for the cessation or modification of activities prior to impacts occurring.

Hydrological Risk/'Designed In' Measures

8.7.18 The hydrological assessment (see Section 9 for full details) has identified that significant hydrological effects upon either Hirwaun Industrial Estate SINC are not predicted. This is largely as a result of the planned re-use of the existing foundations at the Power Generation Plant site, and the narrow footprint of the Gas Connection corridor combined with sensitive reinstatement of habitats following construction.

8.7.19 Other embedded mitigation measures will include industry standard methods and procedures to ensure impacts from construction / demolition, operation and decommissioning are minimised. These include:

- Any surface water with the potential to be contaminated by hydrocarbons to be passed through oil/grit interceptors prior to discharge to sewer;
- Measures will be taken to ensure that no leachate, or any surface water that has the potential to be contaminated, will be allowed to enter directly or indirectly any water course, underground strata or adjoining land;
- Water inflows to excavated areas will be minimised by the use of lining materials, good housekeeping techniques and by the control of drainage and construction materials in order to prevent the contamination of ground water. Site personnel will be made aware of the potential impact on ground and surface water associated with certain aspects of the construction works to further reduce the likelihood of accidental impacts;
- Refuelling of construction vehicles and equipment will be restricted to a designated area with appropriately designed fuel tanks and bunds and suitable operating procedures.
- Siting of stockpiles a minimal distance from watercourses to avoid pollution runoff and adhering to best practice working guidelines to avoid spillages near watercourses; and
- All oil and chemical storage tanks and areas where drums are stored will be surrounded by an impermeable bund. Single tanks will be within bunds sized to contain 110 per cent of capacity and multiple tanks or drums will be within bunds sized to contain the greater of 110 per cent of the capacity of the largest tank or 25 per cent of the total tanks contents, in accordance with EA PPG 2.

8.7.20 In terms of interruptions to lateral drainage / surface water drainage from construction of the Gas Connection, the following mitigation measures will also be included in the CEMP:

- Access roads / haul routes will be constructed to effectively manage drainage;
- Soil bunds will be placed strategically so that drainage catchments are not diverted or altered;
- Temporary wheel washing facility will be installed to prevent transfer of soil onto nearby public roads if necessary;
- If deemed necessary, temporary drainage routes / silt fences will be constructed (of geo-textile);
- Care will be taken during construction to ensure that silt laden water does not enter watercourses. This will be achieved by

plugging existing drains, intercepting surface water above the working width and where appropriate by leaving filter strips of unstripped topsoil along main watercourses / ditches. Topsoil will be replaced over post-construction drains as soon as possible to prevent site water from getting into drains;

- Any de-watering pumping will be undertaken using an appropriately sized pump at such a rate to avoid disturbance or erosion of stream banks;
- De-watering pipes will be carefully positioned; and
- All pumps, pipes and connections used during construction will be regularly inspected.

## 8.8 Assessment of Impacts

### Predicted Changes to the Baseline

- 8.8.1 Significant changes in the baseline conditions between the present time and the proposed commencement of construction are considered unlikely although it should be noted that the agricultural activities undertaken in the Gas Connection area of the scheme could influence the ecological diversity of that part of the site based on the regimes being implemented, should management of the site change.
- 8.8.2 Given construction is predicted to commence within five years of production of this ES (in 2019) it is considered that the key components that have a fundamental bearing on ecological diversity are likely to remain broadly similar.
- 8.8.3 Consideration has been given to where conditions for some receptors could improve and change their status within this time period, in order to ensure an accurate assessment of the potential future baseline is included. This is in line with IEEM guidance for assessment of ecological impacts<sup>55</sup>.

### Predicted Impacts and Effects of Project Activities to Ecological Receptors

- 8.8.4 The construction impacts have potential varying Zol which are considered in detail below in order to allow an effective assessment of potential construction phase impacts on VER's:
- Permanent and temporary habitat loss (within Project Site);

<sup>55</sup> Institute of Ecology and Environmental Management (2006). Guidelines for Ecological Impact Assessment.



- Site Boundary
- - - Land within HPL's Control
- Building Requiring Demolition
- Proposed location for bat and bird boxes
- Proposed location of bat house with barn swallow nesting mitigation
- Contingency location for additional bird nesting mitigation



Rev	Date	Description	By	Chk	App

**PARSONS  
BRINCKERHOFF**

Queen Victoria House  
Redland Hill, Redland  
Bristol BS6 6US

Tel: 44-(0)117-9339300  
Fax: 44-(0)117-9339250

Client:

**Hirwaun  
power**

Site/Project:

Hirwaun Power  
Gas Fired Power Station

Title:

Bat and Bird Mitigation  
Reg 5(2)(l)

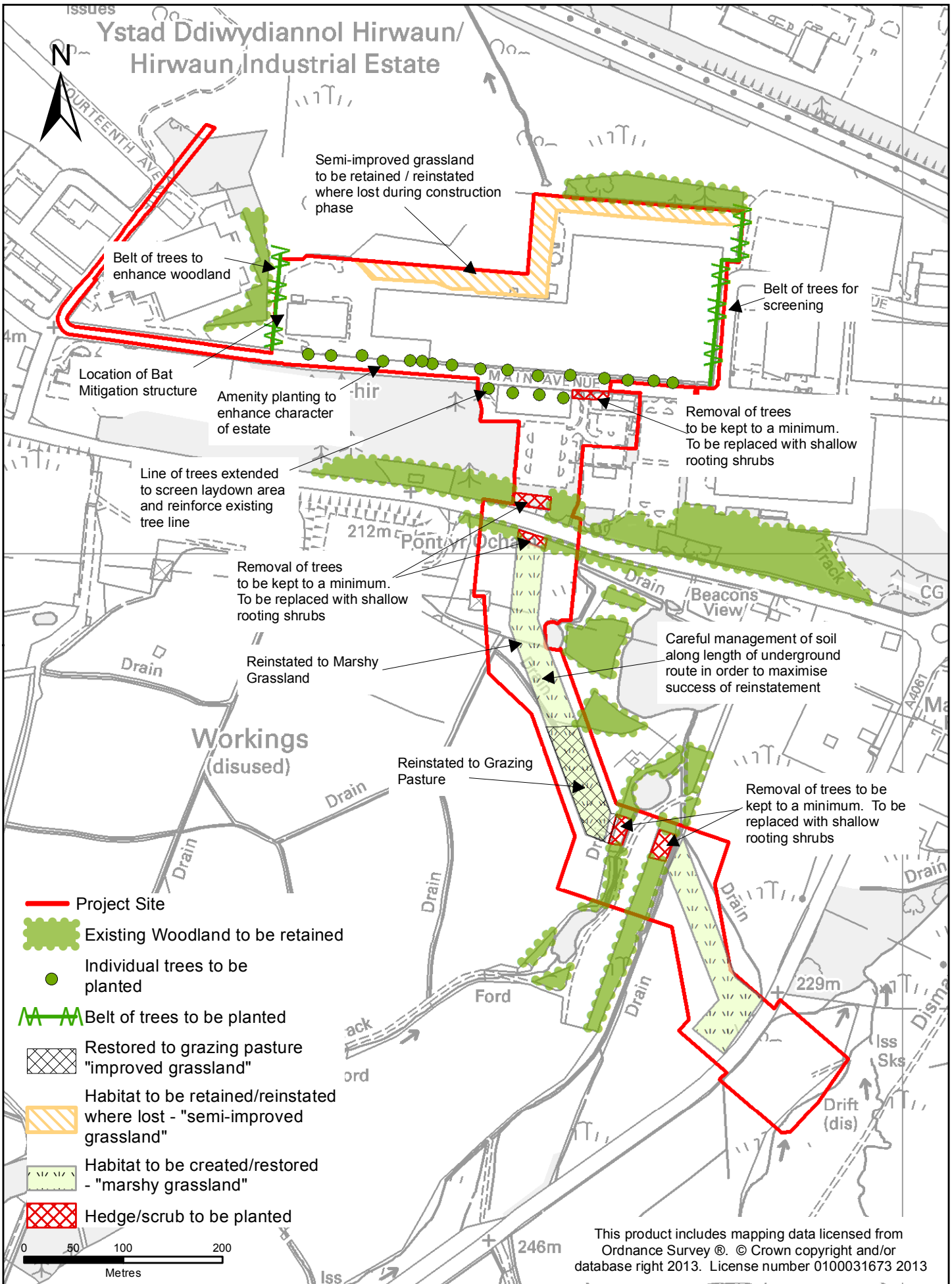
Drawn: JL	Checked: SA
Designed: GS	Approved: PD
Date: 14/03/2014	Scale: 1:2,500
Project Number:	Drawing Number:
Revision:	

3512438A      Figure 8.5      0

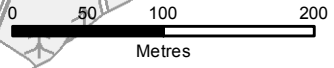
File Name: \\EALONFLO2\Data\GIS\3512438A\_Hirwaun Industrial Site\Mxd\20140314\_3512438A\_8\_5\_Bat\_Mitigation.mxd

Login: chris.davies  
Plot Date: 14/03/2014

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



- Project Site
- Existing Woodland to be retained
- Individual trees to be planted
- Belt of trees to be planted
- Restored to grazing pasture "improved grassland"
- Habitat to be retained/reinstated where lost - "semi-improved grassland"
- Habitat to be created/restored - "marshy grassland"
- Hedge/scrub to be planted



This product includes mapping data licensed from Ordnance Survey ©. © Crown copyright and/or database right 2013. License number 0100031673 2013

**PARSONS BRINCKERHOFF**

Queen Victoria House  
Redland Hill, Redland  
Bristol BS6 6US

Tel: 44-(0)117-9339300  
Fax: 44-(0)117-9339250

Client/Project: **Hirwaun power**

Title: **Landscape Mitigation Proposals**

Drawn: JSdS	Checked: CS
Designed: CS	Approved: CS
Date: 14/03/2014	Scale: 1:5,000
A4	Sheet:
Project Number: 3512438A	Drawing Number: Figure 11.5
	Revision: 0

© Copyright Parsons Brinckerhoff

Document Path: N:\35124\3512438A Hirwaun Power Project - Landscape\Dwg\GIS\Mxd\3512438A-F11.5.mxd  
Plot Date: 14/03/2014  
User Name: DeSouzaJ