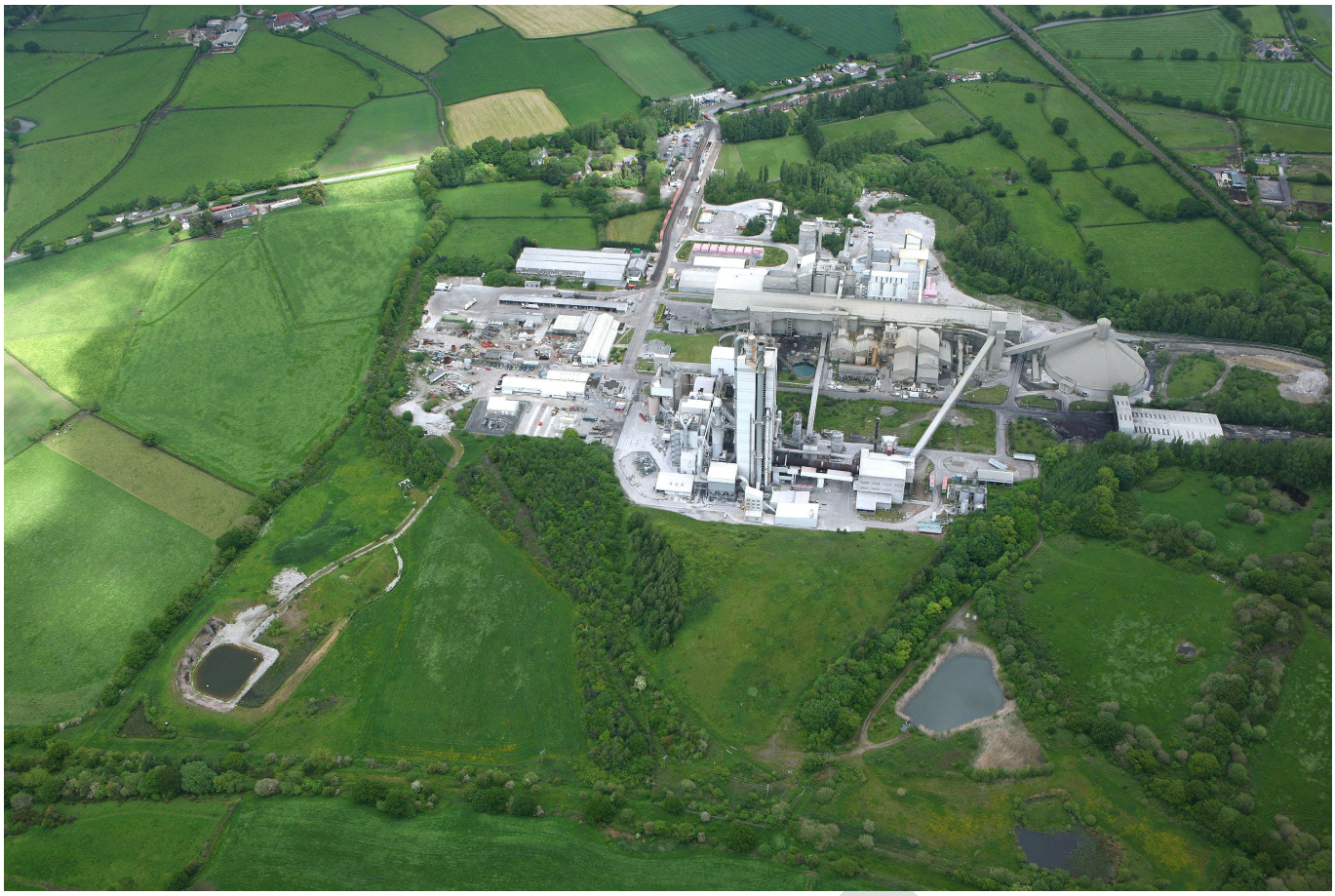

Castle Cement Limited

Carbon Capture and Storage Project – Padeswood, North Wales

Volume 4, Draft Technical Appendix 5.3

Habitats Regulations Screening Assessment

RSK

JUNE 2024

CONTENTS

TABLES

1 INTRODUCTION

1.1 Purpose of this report

1.1.1 This is a Stage 1 screening document forming part of a Habitats Regulations Assessment (HRA) and has been produced to record a Screening Assessment in relation to the Padeswood Carbon Capture and Storage Project located within the Padeswood Cement Works, near Mold, Flintshire (OS Grid Reference: SJ 29127 62227) (the 'Proposed Development'). This assessment was required due to the Proposed Development's location within 10km of the Deeside and Buckley Newt Sites Special Area of Conservation (SAC). This document specifically considers the potential for likely significant effects of the Proposed Development on the great crested newt (*Triturus cristatus*) population of the Deeside and Buckley Newt Sites SAC.

1.1.2 All other statutory designated sites were considered too distant from the Proposed Development for any likely significant effects to occur during construction or operation.

1.1.3 RSK was commissioned by Castle Cement Limited to undertake the initial stages of the HRA process, i.e. a screening assessment. The results of this can then lead to the production of a 'No Significant Effects' report or identify the need for a 'Statement to Inform the Appropriate Assessment' (following consultation with Natural Resources Wales).

1.1.4 A desk study review and review of field survey data has been undertaken, to determine any potential impacts of the Proposed Development which could result in likely significant effects on habitats and species listed as 'primary reasons' or 'qualifying features' for SAC designation in light of the conservation objectives of the SAC.

1.1.5 A desk-based assessment and review of previous data was considered sufficient to undertake a robust screening exercise.

1.2 Proposed Development description

1.2.1 The Proposed Development aims to capture up to 800,000t of carbon dioxide (CO_2) per year from Padeswood Cement Works. The Carbon Capture Plant will comprise of:

- A Combined Heat and Power plant with 15MWe (minimum) and 83MW (minimum) thermal of installed capacity, to produce electricity and heat to power the carbon capture equipment; and
- A Post combustion carbon capture and compression plant, to extract CO_2 from waste gases and compress it for transport and storage.

1.2.2 The aim of the Proposed Development is to integrate into the HyNet North West network through the capture of CO_2 from the cement works for transportation and subsequent storage in Liverpool Bay CCS Limited's Liverpool Bay storage facilities.

1.2.3 The screening assessment considers the construction works and operation within the Proposed Development. A full description of the Proposed Development can be found in **Volume 2, Chapter 2: Description of the Purpose and Nature of the Proposed Development.**

1.3 Ecological context

1.3.1 The Site as denoted includes the entire boundary (i.e., the red line boundary) of the existing Padeswood Cement Works and the landownership boundary of Castle Cement Limited. This is to allow flexibility of the locations for enabling development and environmental enhancements; however it does not imply that the whole site will be redeveloped.

1.3.2 The Site is bordered to the north by the A5118 road, to the south and west by agricultural fields and to the east by railway lines. The wider landscape is predominantly agricultural with the residential areas of Buckley to the north west and Penyffordd and Penymynydd to the east.

1.3.3 The Site contains a variety of man-made and natural habitats including woodland, scrub, grassland, standing and running water, ditches and hedgerows. The centre of the Site is an active cement works dominated by areas of hardstanding, buildings and industrial structures.

1.3.4 A population of great crested newts is known to be present in ponds within the Site. The Proposed Development will therefore be subject to a separate great crested newt European protected species licence from Natural Resources Wales.

2 PROTECTED SITES POTENTIALLY AFFECTED BY THE PROPOSED DEVELOPMENT

2.1.1 There is one National Sites Network statutory designated site of nature conservation importance located approximately 1.7km away from the Proposed Development – Deeside and Buckley Newt Sites SAC.

2.2 Deeside and Buckley Newt Sites SAC

2.2.1 Deeside and Buckley Newt Sites SAC is a composite site and comprises of three component SSSI's: Buckley Claypits and Commons SSSI, Connah's Quay Ponds and Woodlands SSSI, and Maes y Grug SSSI. This site is included in the National Sites Network series primarily for the population of great crested newts for which it is considered to be one of the best areas in the United Kingdom. It is also of European interest for the area of old sessile oak woodland, for which the Site is considered to support a significant presence.

Annex II species that are a primary reason for the selection for this site:

- Great Crested Newt (*Triturus cristatus*).

Annex I habitats which present as a qualifying feature, but not a primary reason for selection:

- Old sessile oak woods with Ilex and Blechnum in the British Isles.

Conservation Objectives[1]

2.2.2 Ensure that the integrity of the SAC is maintained or restored as appropriate, and ensure that the SAC contributes to achieving the Favourable Conservation Status of its Qualifying Features.

Feature 1 – great crested newts

2.2.3 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- No less than 600 great crested newts will be present on the site;
- At least 50 display/breeding ponds will be found throughout the entire site;
- Great crested newt larvae will be found in 25 or more of the breeding ponds;
- Half of the display/breeding ponds on the site will have a water depth of 10cm of more during the summer months;
- Native macrophytes will cover at least half of the pond surface yet some of the water surface (40%) will still remain open;

[1] https://naturalresources.wales/media/671740/Deeside_and_Buckley_WES32_Plan_English.pdf

- Aquatic marginal vegetation will be present around the ponds;
- Breeding/display ponds will not be heavily shaded by surrounding vegetation;
- Algal blooms and surface sheens will be absent from display/breeding ponds;
- Fish will not be present in breeding/display ponds which support great crested newts;
- Only small numbers of water and wildfowl will be seen on the ponds;
- The terrestrial habitat surrounding breeding ponds will comprise of refuge areas for newts, foraging areas, areas of hibernacula and corridors which will aid the dispersal of great crested newts;
- Off-site habitats that function as stepping stone or corridors located between SAC compartments will be maintained for migration, dispersal, foraging and genetic exchange purposes;
- Off-site features that impact on successful dispersal, such as roadside gully-pots, will not be subject to future construction;
- Non-native aquatic species will not be present;
- Amphibian chytridiomycosis will not be present; and
- All factors affecting the achievement of the foregoing conditions are under control.

Feature 2 – Old sessile oak woods

2.2.4 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- Old sessile oak woodland will occupy at least 10% of the total site area;
- The woodland is maintained as far as possible by natural processes;
- The trees and shrubs are mainly native broadleaved species dominated by oak with some, birch, alder and ash;
- The occasional sycamore may be present but will not become dominant anywhere in the canopy or the under-storey;
- Beech and conifer species will be largely absent from the canopy, under-storey and the woodland as a whole;
- The abundance of individual native tree species will vary throughout the woodland. There may be dense stands of one species or mixture of several species occupying a given area at any one time;
- Existing canopy gaps which occur over great crested newt ponds will be maintained, and supplemented by a changing patchwork of naturally occurring pattern of gaps and temporary glades which will give rise to structural diversity;
- The woodland will contain trees and shrubs of all ages and sizes, as a mixture or in single aged groups;

- Plentiful native tree seedlings throughout the site will develop into saplings in the open glades;
- The field and ground layers will contain such species as ivy, bramble, honeysuckle, broad-buckler fern, male fern and greater wood-rush;
- Exotic species such as rhododendron and cherry laurel will not be tolerated within the woodland;
- There will be abundant dead and dying trees with holes and hollows, rot columns, torn off limbs and rotten branches throughout the woodland; and
- All factors affecting the achievement of these conditions are under control.

3 POTENTIAL IMPACTS ON THE PROTECTED SITE

3.1 Methodology

Desktop review and Field Survey

3.1.1 For the purposes of this report, a desk-based assessment was undertaken covering 10km (for National Sites Network sites) of the area surrounding the Proposed Development, focussing on the habitats and species which are listed as 'primary reasons' or 'qualifying features' in the designation of Deeside and Buckley Newt Sites SAC site. Information was collated from the organisations and websites listed below:

- Multi-Agency Geographic Information on the Countryside (MAGIC); and
- Joint Nature Conservation Committee (JNCC).

Air Quality Assessment

3.1.2 **Volume 2, Chapter 6: Air Quality** of the draft Environmental Statement provides modelled process contributions at the relevant designated sites for:

- Atmospheric nitrous oxide concentration;
- Atmospheric sulphur dioxide concentration;
- Atmospheric ammonia concentration;
- Nitrogen deposition; and
- Acid deposition.

3.1.3 It is important to note that this modelling is inclusive of the emissions from the existing cement works that will in future be emitted via the Carbon Capture Plant rather than via the existing cement kiln stack. The assessment therefore includes duplication of some emissions that already occur, and as a result is likely to be a very conservative assessment of the impact of the Proposed Development.

3.1.4 The results of these modelling assessments are compared to the relevant critical load or critical level as derived from the APIS website.

3.1.5 Based on the Defra and Environment Agency (2016) screening criteria[2], the environmental concentration of substance released into the air, which is known as the process contribution, from the Proposed Development can be considered to be insignificant at a SAC, SPA or SSSI if the following primary criteria are met:

- The short-term process contribution is less than 10% of the short-term environmental standard for protected conservation areas; and
- The long-term process contribution is less than 1% of the long-term environmental standard for protected conservation area.

[2] https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit

3.1.6 The environmental standards referred in the air quality assessment are in accordance with the Defra and Environment Agency guidance, the relevant Critical Loads or Levels for the relevant sites as derived from the APIS website. Where a specific value is not available, the lower end of the range for comparable habitats is used.

3.1.7 If the primary criteria are not met, then the secondary stage criteria can be used, which are:

- The long-term predicted environmental concentration is less than 70% of the long-term standard.

3.1.8 If the second stage criteria are met, then the impact can be considered to be insignificant. However, this does not necessarily mean an impact is significant in EIA or HRA terms. The IAQM guidance '*A guide to the assessment of air quality impacts on designated nature conservation sites*', IAQM 2020[3] states:

3.1.9 *It is important to remember that a change of more than 1% does not necessarily indicate that a significant effect (or adverse effect on integrity) will occur; it simply means that the change in concentration or deposition rate cannot in itself be described as numerically inconsequential or imperceptible and therefore requires further consideration.*

3.1.10 The Environment Agency guidance is used for this assessment as there is no Welsh equivalent.

3.2 Results and Assessment

3.2.1 A screening matrix for the Proposed Development is presented in **Appendix A** of this report.

Qualifying Features

Old sessile oak woods with Ilex and Blechnum in the British Isles

3.2.2 As the Proposed Development is not situated within the SAC (i.e., no direct habitat loss or fragmentation will be anticipated), there will be no direct impacts on this qualifying feature during construction.

3.2.3 An air quality assessment has been carried out to determine whether there are any indirect effects on the habitats within the SAC during operation.

Great crested newts

3.2.4 There are a total of 14 ponds within the Site boundary and a further 15 ponds within 500m of the Site (considered the distance relevant for permanent works). Great crested newts have been recorded on the Site. The Site is suitable for great crested newts containing a variety of habitats including scrub, ruderal vegetation, woodland,

[3] air-quality-impacts-on-nature-sites-2020.pdf (iaqm.co.uk)

grassland of varying heights and refuges such as log piles, spoil heaps and rubble piles.

3.3 Potential Impacts

3.3.1 Old sessile oak woods with Ilex and Blechnum in the British Isles. The air quality assessment has determined levels of NO_x, SO_2 are below Environment Agency and Defra screening criteria and impacts are therefore insignificant. Again, it should be noted that this includes emissions that already occur from the cement works but which in future will be emitted via the Carbon Capture Plant.

3.3.2 The modelled process contribution of ammonia exceeds the 1% threshold of insignificance at five locations within the Deeside and Buckley Newt Sites SAC, with modelled values ranging up to 0.07ug/m^3, which is approximately 7% of the assumed critical level of 1ug/m^3.

3.3.3 The modelled process contribution for nitrogen deposition exceeds the 1% threshold of insignificance at five locations within the Deeside and Buckley Newt Sites SAC, with modelled values ranging up to 0.677 kg/N/ha/yr, which represents 6.7% of the critical level.

3.3.4 The modelled process contribution for acid deposition exceeds the 1% threshold of insignificance at three locations within the Deeside and Buckley Newt Sites SAC, with modelled values ranging up to 0.090 keq/ha/yr, which represents 3% of the critical load.

3.3.5 The modelled contributions at all other SAC/SPAs are below the assessment criteria for all pollutants and hence it is only Deeside and Buckley Newt Sites SAC which is carried forward for further assessment.

3.3.6 No exceedance of the Environment Agency threshold of 100% of the relevant critical levels is predicted.

Great crested newts

3.3.7 The great crested newt population at the Deeside and Buckley Newt Sites SAC will not be directly or indirectly impacted by the Proposed Development. The Site is c.1.7km away from the designated SAC site, with no hydrological or aquatic habitat connection. The Site is separated from the SAC by busy existing roads, making it too distant from the SAC site to affect the great crested newt population or their habitat. While a population of great crested newts is present on the Site and within the SAC, the distance of the Proposed Development from the SAC (*c.*1.7km) and the existing roads and developments means these populations are considered distinct from each other.

3.3.8 The great crested newt population on the SAC site will not be significantly affected by the Proposed Development.

3.3.9 Comprehensive mitigation measures, including the application for a European Protected Species licence and the associated translocation of great crested newts and habitat enhancements within the Site, have been implemented to safeguard the

great crested newt population on the Site, ensuring their conservation and minimising potential disruptions.

4 SUMMARY AND CONCLUSIONS

4.1.1 The estimated 2020 baseline values for the grid square (APIS) containing the part of Deeside and Buckley Newt Sites SAC closest to the cement works shows that the estimated baseline values for each parameter considered in this assessment were:

- Atmospheric ammonia: 2.15 ug/m^3;
- Nitrogen deposition: 13.21kg/N/yr; and
- Acid deposition: 1.07keq/ha/yr.

4.1.2 When assessed against these values the modelled increases associated with the Proposed Development equate to maximum increases of 3.2%, 5.1% and 8.4% respectively. Note that these values include emissions from the existing cement works that will in future be emitted via the Carbon Capture Plant. Therefore, there is expected to be some duplication between the baseline and process contribution. The Carbon Capture Plant will operate to a higher emission specification for ammonia, NO_x and SO_x emissions than the existing cement works and although not quantified by the air dispersion model, this is likely to lead to a net long-term overall reduction in emissions of these pollutants.

4.1.3 Further, the primary qualifying features of the Deeside and Buckley Newt Sites SAC is the great crested newt population, with a qualifying feature but not the primary reason for designation stated as 'old sessile oak woods with ilex and blechnum'. These qualifying features are not expected to be sensitive to increase in atmospheric ammonia, or nitrogen or acid deposition at the levels of increase predicted and hence it is not envisaged that further assessment or mitigation would be required.

4.1.4 The Proposed Development is driven by the desire to reduce carbon emissions from the existing cement manufacture process, and that in itself should be considered a positive effect on the designated site but one that cannot readily be quantified through the assessment process.

4.1.5 Works at the Site will have no direct or indirect impact or likely significant effects on the designated features of the Deeside and Buckley Newt Sites Special Area of Conservation (SAC). As the great crested newt population is listed as the primary qualifying feature within the Deeside and Buckley Newt Sites SAC citation, it has been assessed that the Proposed Development will not result in any likely significant effects on the National Sites Network site.

4.1.6 The habitats on Site are suitable to support great crested newts and this species are present within the Site. However, the ecological assessment and screening matrix have shown that the great crested newt population within the designated SAC site will not be affected due to its distance from the Site, the lack of hydrological connections, and the presence of busy roads acting as a dispersal barrier.

4.1.7 Mitigation measures, including the application for a European Protected Species licence and the associated translocation of great crested newts and habitat enhancements within the Site will be implemented to protect the great crested newt population on the Site, ensuring their conservation and minimising potential disruptions.

4.1.8 It is concluded that no further assessment is needed of air pollutants or direct impacts on the Deeside and Buckley Newt Sites SAC, or on any other European designated site.

5 REFERENCES

Countryside Council For Wales (2013). *Core Management Plan Including Conservation Objectives for Deeside and Buckley Newt Sites Area of Conservation (SAC)*. Available at: https://naturalresources.wales/media/671740/Deeside_and_Buckley_WES32_Plan_English.pdf

Joint Nature Conservation Committee (2023). *Deeside and Buckley Newt sites*. Available at: https://sac.jncc.gov.uk/site/UK0030132#:~:text=This%20composite%20site%20in%20north,Triturus%20cristatus%20in%20Great%20Britain [Accessed 30 November 2023].

MAGIC (2023). *Interactive Mapping Tool*. Available at: https://magic.defra.gov.uk/ [Accessed 30 November 2023].

APPENDIX A – SCREENING MATRIX

Table 1 shows the screening matrix for Deeside and Buckley Newt Sites SAC site.

Table 1 Screening Matrix

Project Name	Padeswood Carbon Capture and Storage Project
National Sites Network site under Consideration	Deeside and Buckley Newt Sites Special Area of Conservation (SAC) (UK0030132)
Date	**Author**
01/12/2023	Iveta Nikandrovaite
Brief description of the Proposed Development	The Proposed Development aims to capture up to 800,000t of CO_2 per year from the cement works and will comprise the following main project components: A Carbon Capture Plant comprising: • A Combined Heat and Power plant with 15MWe (minimum) and 83MW (minimum) thermal of installed capacity, to produce electricity and heat to power the carbon capture equipment; and • A Post Combustion Carbon Capture and Compression plant, to extract CO_2 from waste gases and compress it for transport and storage.
Brief description of the National Sites Network site	Deeside and Buckley Newt Site SAC is a composite site and is designated for great crested newt population and old sessile oak woodland. Of particular relevance to the Proposed Development is the great crested newt population.
Assessment criteria	

Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the National Sites Network site.	The great crested newt population at the Deeside and Buckley Newt Sites SAC will not be directly or indirectly impacted by the Proposed Development. The Proposed Development is c.1.7km away from the designated SAC site, with no hydrological or aquatic habitat connection. The Proposed Development is separated by busy existing roads, making it too distant from the SAC site to affect the great crested newt population or their habitat. Operational indirect impacts from air quality have been assessed in this screening document as not significant.
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the National Sites Network site by virtue of:	
size and scale;	The proposed Carbon Capture and Storage Plant area is c.17.2 ha. The Proposed Development includes a demolition of a number of existing structures and buildings. It also involves the construction of new buildings, plants and a flue gas stack.
land-take	There will be no habitat loss as the Proposed Development is not within the SAC.
distance from the National Sites Network site or key features of the Site	The Proposed Development is *c*.1.7km of the SAC.
resource requirements (water abstraction etc.)	No resource requirements are needed from within the SAC.
emissions (disposal to land, water or air)	The air quality assessment has determined insignificant effects during operations from NOx and SO_2. The assessment also concluded that indirect impacts from other pollutants will not be significant. There will be no discharges to the surrounding waters, other than clean surface water run-off.
excavation requirements	No excavations within the SAC proposed.
transportation requirements	Access to the Proposed Development for construction traffic will be from the existing road network.
duration of construction and operation	The construction phase is anticipated to take place over a 37 month period. The operational lifespan of the Proposed Development is assumed to be for as long as the cement works exists.
other	-

Describe any likely changes to the Site arising as a result of:	
reduction of habitat area:	No reduction in the area of the SAC.
disturbance to key species	There will be no disturbance to great crested newts at the Deeside and Buckley Newt Sites SAC as the SAC is too far away from the works site and is not connected hydrologically or by aquatic habitat and is separated by busy roads.
habitat or species fragmentation	None.
reduction in species density	None.
changes in key indicators of conservation value (water quality etc.)	None.
climate change	None.
Describe any likely impacts on the National Sites Network site as a whole in terms of:	
interference with the key relationships that define the structure of the Site	None.
interference with key relationships that define the function of the Site	None.
Provide indicators of significance as a result of the identification of effects set out above in terms of:	
loss	No impacts anticipated.
fragmentation	No impacts anticipated.
disruption	No impacts anticipated.
disturbance	No impacts anticipated.
change to key elements of the Site (e.g. water quality etc.).	No impacts anticipated.

Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	No impacts anticipated.