ARUP

# Ornithological Summary & Working Mitigation Measures, Chapel Reen

Authored by: Joseph Shepherdson CBiol, MCIEEM, MRSB, Senior Ecologist
Issued to: David Jenkins, NRW
Date: 08/12/2025
Rev: 3

# Summary of Bird Survey Findings to Date

More than 30 high-tide ornithological watching briefs have been completed at Chapel Reen during the autumn passage and wintering bird period. Surveys have been undertaken 120 minutes either side of high tide. Several surveys commenced pre-sunrise and prior to any works beginning on site for that day. Across all surveys conducted to date, no disturbance attributable to site activities has been recorded.

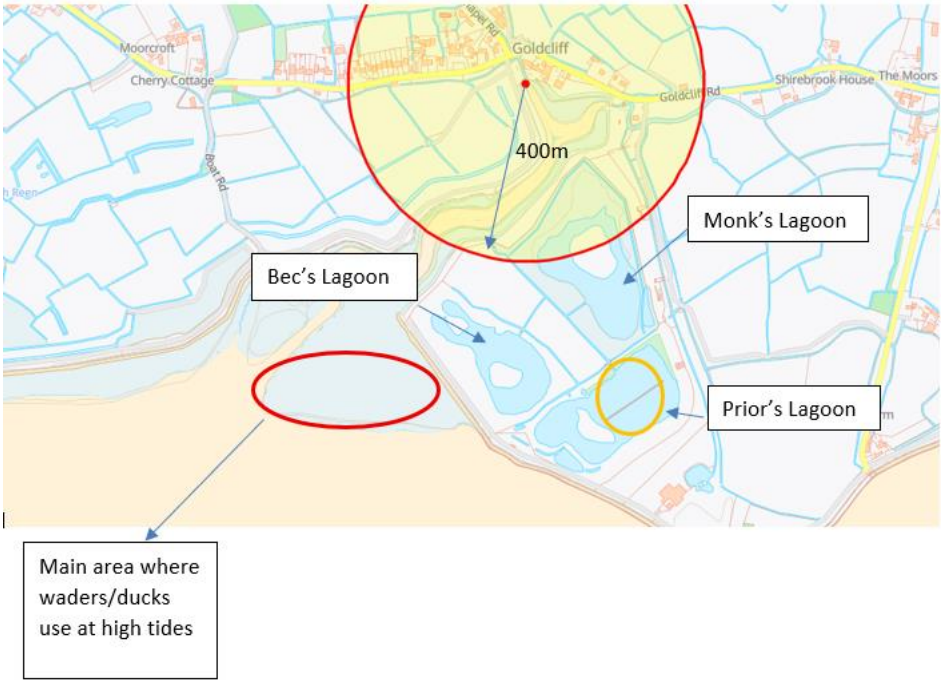
Across all visits, the area downstream of the site has consistently supported a typical assemblage of non-breeding waterfowl and waders associated with the Severn Estuary / Bristol Channel SPA and Ramsar site.

## Species Most Frequently Observed

- **Wildfowl:** Shelduck, Teal, Wigeon, Mallard, Shoveler, Gadwall
- **Waders:** Dunlin, Curlew, Redshank, Knot
- Additional regularly occurring species include lapwing, ringed plover, snipe, black-tailed godwit, oystercatcher, grey plover. See reports for a comprehensive list.

## High-Tide Behaviour

- During moderate tides, most birds remain on the **seaward side of the sea wall**.
- During higher tides, **Prior's Lagoon**, **Monk's Lagoon**, and occasionally **Bec's Lagoon** act as important **high-tide roosts**.
- Mixed flocks have used these lagoons reliably throughout the monitoring period.



## Disturbance Assessment

Across all visits:

- **No disturbance has been recorded as a result of construction works.**
- Work activities (including piling and machinery use) have not caused flushing, displacement, or visible stress responses in birds.

The lack of disturbance observed to date is likely related to the specific topography and layout of the site. Several characteristics appear to minimise the potential for noise or visual disturbance to wintering birds using the adjacent designated habitats:

- Screening provided by the existing downstream embankment. The main works are located below the crest of the primary existing embankment and behind a secondary downstream embankment, meaning plant, personnel, and vehicle movements are largely hidden from the estuary. This natural screening prevents sudden visual cues that could otherwise trigger disturbance responses.
- The site is positioned more than 400m away from the most common high tide roosts, with closer roosts well utilised during only the highest tides. This buffer reduces the likelihood that noise or movement will be perceived at intensities capable of causing disturbance.
- Machinery, site offices, and materials are stored below the local horizon line, ensuring minimal visibility from the estuary. Deliveries and general site traffic also occur within this screened zone, further reducing visual intrusion.
- The footprint of the site is small and highly contained, with activities concentrated within a defined area rather than spread across the site. This reduces the extent of potential disturbance.

These site characteristics appear to effectively mitigate noise and visual impacts. The current working practices are therefore considered appropriate, effective, and compliant with the disturbance-avoidance requirements of the SPA / Ramsar designations.

# Current Ornithological Watching Brief Protocol

The project is now operating under a formalised **SPA/Ramsar disturbance-threshold protocol** designed to ensure that works do not impact qualifying non-breeding bird features of the Severn Estuary / Bristol Channel SPA.

## Watching Brief Procedure

- A qualified ornithologist undertakes a **120-minute watching brief either side of the high tide**.
- Observations cover the **0–300 m zone** around the working area.
- Bird numbers are compared against SPA population thresholds (1% and 2%).
- Works may only proceed when numbers remain **below threshold**.

**Population Thresholds for Watching Brief**

| Species | Mean SPA population (non-breeding) | 1% threshold (0–100 m zone) | 2% threshold (0–300 m zone) |
|---|---|---|---|
| Shelduck | 2,892 | 29 birds | 58 birds |
| Gadwall | 330 | 3 birds | 7 birds |
| Pintail | 838 | 8 birds | 17 birds |
| Teal | 2,059 | 21 birds | 41 birds |
| Shoveler | 136 | 1–2 birds | 3 birds |
| Pochard | 246 | 2–3 birds | 5 birds |
| Tufted Duck | 1,028 | 10 birds | 21 birds |
| Wigeon | 4,255 | 43 birds | 85 birds |
| Mallard | 1,850 | 19 birds | 37 birds |
| Dunlin | 41,683 | 417 birds | 834 birds |
| Knot | 3,320 | 33 birds | 66 birds |
| Curlew | 3,008 | 30 birds | 60 birds |
| Redshank | 2,013 | 20 birds | 40 birds |
| **Total waterfowl assemblage** | 68,026 | **680 birds** | **1,361 birds** |

**Sources:** Natural Resources Wales (2009) *Severn Estuary SAC/SPA/Ramsar Regulation 33 Advice*, Devon & Severn IFCA (2023) *Birds and Intertidal Activities Report*, and WeBS SPA citation data.

## Threshold

- **0–100 m zone:** No works if ≥ **1%** of any species (or 1% of the assemblage) is present.
- **0–300 m zone:** No works if ≥ **2%** of any species (or 2% of the assemblage) is present.

## Actions When Thresholds Are Exceeded

1. Works do **not** commence (or are paused).
2. The ornithologist continues to monitor until birds naturally drop below thresholds.
3. The ornithologist confirms when works may safely resume.

In addition to the watching brief a cold weather construction restriction (cessation of works) shall be implemented following seven consecutive days of freezing (zero or sub-zero temperature) weather conditions.

## Mitigations for January–February 2025 Working

January and February remain peak winter months; however, based on the surveys to date risk of disturbance remains **low**, provided the watching brief continues with the imposed thresholds.

To further mitigate the risk of disturbance during these peaks months the below precautionary mitigation could be implemented:

- No heavy machinery movement within the marine environment when the tide levels exceed 7m AOD.

This tide level has been selected as on very high tides, the birds are more likely to move further inland (closer to the works area) and approach threshold values.

It is noted that water management (over pumping) will continue at all times at the site.

# Environmental Risks for Demobilisation in Late December and Returning in May 2025

By May, overwintering flocks have largely departed. Sensitivity shifts to breeding birds and potential ground-nesting species. The breeding bird season runs between March- August.

## Key Risks

- Breeding birds**:** skylark, meadow pipit, and potentially lapwing, and curlew in the grassland. There will almost certainly be Cetti's warbler nesting in the dense scrub and will utilise the common reed on site. This species has been seen and/or heard on site on most days throughout the development. The scrub and reedbed on site are considered suitable habitat for breeding Cetti's warbler. Due to the small footprint of the site and works area, the result of a Cetti's warbler nest on or adjacent to site, and a subsequent 40m buffer around a nest, would impose significant restrictions to the works on site. This could, mean that works must halt until the end of the breeding season (August).
- Increased sensitivity to noise near active nests.
- **Possible secondary sensitivities:** reptiles, invertebrates and fish breeding.

## Mitigations for May

- A **pre-works breeding bird survey**, carried out no more than 48 hours before re-mobilisation.
- ECoW presence during any required vegetation clearance or ground disturbance.
- Establish **exclusion zones** (typically 8-40m) around any active nests, depending on the species.

# Recommendation

Based on the results to date, which have shown no disturbance attributable to construction activities and have demonstrated that the current monitoring and threshold protocol is functioning effectively, it is my professional opinion that works should continue until February, rather than demobilising and remobilising in spring. Halting works until May would introduce significantly greater ecological risk due to the onset of the breeding bird season, including the high likelihood of Schedule 1 species such as Cetti's warbler nesting within or adjacent to the working area, which could necessitate a 40 m exclusion zone and potentially delay works until late August or beyond, with further implications for autumn passage birds as well as increased sensitivities for reptiles, invertebrates, and fish during the Spring. Continuing works now, with the proven watching-brief system the agreed threshold controls, presents the lowest ecological risk and ensures ongoing compliance with the protection requirements of the Severn Estuary / Bristol Channel SPA and Ramsar site.

To further mitigate the risk of disturbance during January and February the below precautionary mitigation could be implemented:

- No heavy machinery movement within the marine environment when the tide levels exceeds 7m AOD.