TOWER 4ZC030T

PENRHYNDEUDRAETH

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1.0 Introduction

1.1 TEP was commissioned in December 2016 by National Grid to carry out a habitat survey at the replacement Tower 4ZC030T located within the Pen Llyn a'r Sarnau Special Area of Conservation (SAC) on the Dwyryd Estuary, Penrhyndeudraeth, North Wales. This work is required to provide further information in relation to a request from the Department for Business, Energy & Industrial Strategy regarding the Habitats Regulations Assessment submitted in June 2015 and the status of the saltmarsh habitat within the cofferdam which surrounds tower 4ZC030T. This report has the following objectives:

- To record the extent of vegetation re-establishment, ground conditions, substrate and scour within the cofferdam; and
- To provide an assessment of the recovery of the saltmarsh habitat and whether it constitutes permanent or temporary habitat loss with respect to the Habitat Regulations Assessment.

2.0 Methods

2.1 The walkover survey was undertaken by on the 16th January 2017. General species composition and abundance information was noted and a photographic record was taken.

Limitations

2.2 The optimum time for habitat surveys is between mid-April and mid-October, with saltmarsh habitats benefiting from surveys undertaken later in the season since many species are late flowering.

2.3 The current survey was undertaken in January which is outside of the optimum survey period, and plants are not in growth. For this reason a detailed National Vegetation Classification (NVC) survey was not undertaken as it would not have provided data that would be comparable with previous surveys of the site undertaken in 2012 and 2014.

3.0 Results

3.1 A description of the habitats recorded during the walkover along with supporting figures is provided below.

3.2 The majority of habitats within and immediately adjacent to the cofferdam comprise bare sand interspersed with small hummocks of vegetation comprising common saltmarsh grass *Puccinellia maritima*, red fescue *Festuca rubra* and occasionally sea rush *Juncus maritimus* (Figures 1 - 3).

Figure 1. Habitats within cofferdam of 4ZC030T looking southeast

Figure 2. View looking southwest of east side of cofferdam showing habitats present

Figure 3. North and east legs of 4ZC030T and associated habitats

3.3 Within the cofferdam there is an area of intact saltmarsh (Figure 4) with species including common saltmarsh grass, red fescue and sea rush as well as buck's horn plantain *Plantago coronopus*, sea plantain *P. maritima*, common scurvy grass *Cochlearia officinalis*, sea arrow grass *Triglochin maritima* and saltmarsh rush *J. geradii*. This area is slightly raised above the surrounding ground level.

Figure 4. Scour and saltmarsh habitat within cofferdam, looking west

3.4 The areas around the south and west legs of the tower show signs of scour (Figures 4 and 5). Pools several inches deep are present around and between these two legs where sediment has been washed away during high tides. During the site visit, water was also observed draining from the cofferdam through drainage ducts in the outer wall (Figure 6) which may also be accelerating washout of sediment from within the cofferdam.

Figure 5. Scour around south leg of 4ZC030T looking southeast

3.5 The remains of rush rhizomes, most likely sea rush, were also observed within the sandy sediment of the southern part of the cofferdam (Figure 5). It is likely that these are dead and will not regrow in the spring since sea rush plants are normally visible throughout the year.

Figure 6. View of water draining from the cofferdam (see arrow)

4.0 Discussion

4.1 In summary, the majority of the habitats within the cofferdam comprise bare sand with scattered vegetation clumps, a small area of intact saltmarsh, scour pools which have developed around the south and west tower legs and evidence of the former presence of a patch of sea rush.

4.2 The current survey information indicates that recovery of the saltmarsh habitat within the cofferdam is limited at present. It is likely that the area of intact saltmarsh was not disturbed during cofferdam installation hence its current condition. The majority of the remaining area was disturbed and it is apparent that some recolonisation by saltmarsh plants has taken place. The damage to the rushes occurred during cofferdam installation rather than after this work. This is evidenced by photographs immediately following cofferdam installation works (see Appendix A), but this does also indicate that recovery of saltmarsh habitat in this area is slow. It should be remembered however, that the survey was undertaken outside of the optimum survey period, when plant growth is at a minimum and annual species are not present and therefore does not provide the most accurate assessment of plant recolonisation and habitat recovery within the cofferdam.

4.3 In addition, it should be noted that only two growing seasons have elapsed since the cofferdam was installed in October 2014. This is a relatively short time within which to expect saltmarsh habitat to recover following the ground disturbance which occurred during cofferdam installation.

4.4 Previous studies discussed within the Environmental Statement (National Grid, June 2015) have shown that this area of saltmarsh is currently undergoing a period of erosion, after reaching its maximum extent in 1977. Recent shoreline monitoring data indicates that this saltmarsh is continuing to erode with losses of between 5m and 15m since October 2014. It is likely that the habitats within the southwestern half of the cofferdam would have been lost by now if the cofferdam had not been installed. There is therefore the potential that the cofferdam is enabling the retention of a small area of saltmarsh habitat.

4.5 Given that erosion is taking place on this area of saltmarsh it is likely that saltmarsh accretion will be occurring elsewhere in the estuary as part of the natural estuarine process. This would ensure that the overall area of saltmarsh within the system remains relatively constant.

4.6 In order to gain a more accurate understanding of the status of saltmarsh recovery within the cofferdam it is recommended that a full NVC survey is undertaken in June/ July 2017 in order to provide comparable results with previous surveys.

References

National Grid (June, 2015). Environmental Statement: Emergency Erection of a Replacement Tower and Ancillary Works near Penrhyndeudraeth, Gwynedd.

APPENDIX A: Installation of Cofferdam (October 2014) Photographic Evidence

Figure 7. Saltmarsh and Tower 4ZC030T prior to commencement of cofferdam installation

Figure 8. During coffer dam installation

Figure 9. Tower 4ZC030T and cofferdam, immediately following installation

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