

TECHNICAL NOTE

TO	Natural England
FROM	Environmental Resources Management Limited (ERM)
DATE	01 August 2025
REFERENCE	0747884
SUBJECT	Yorkshire Water Solar Array: Wombwell Wastewater Treatment Works

Dear Ellie Feary:

Environmental Resources Management Limited (ERM) was commissioned by Downing Energy Development Company Limited (the Applicant) to complete an Ecological Impact Assessment (EcIA) in connection with a proposed ground mounted solar photovoltaic (PV) system (the Proposed Development) within the lands of the Yorkshire Water Wombwell Wastewater Treatment Works (WWTW), Ings Road, Wombwell, near Barnsley England (the Site). The EcIA report¹ was provided in support of an application to Barnsley Council to obtain a Certificate of Lawful Development (CoLD) for the Proposed Development (Planning Ref. 2023/0952).

In a consultation response to Development Control at Barnsley Council on 02 July 2025, Natural England Sustainable Development Officer Ellie Feary requested *further information in order to determine the significance of impacts on Dearne Valley Wetlands SSSI. Please provide further information regarding water quality impacts during operation, for example in relation to washing solar panels.*

This request for further information was also noted in a separate consultation response to Development Control at Barnsley Council on 07 July 2025, provided by the Barnsley Council Planning Ecologist Katie Lawrence. This included a recommendation that *the application decision is deferred until the further information is provided.*

EXISTING INFORMATION

A summary of the Proposed Development, as it is described in the Wombwell CoLD Application Supporting Statement², is presented in Section 1.2 of the EcIA report. Whilst the extent of all planned or potential maintenance activities have not been explicitly detailed for the Proposed Development, the assessment considered potential effects of any routine maintenance that is typically expected during the operational phase. The assessment focused on potential disturbance to ornithology features of the SSSI from vegetation removal as the sole source of activities that could present significant effects; and it was concluded that no lasting effects

¹ ERM. (2025) *Yorkshire Water Solar Array: Wombwell WWTW Ecological Impact Assessment*. Commissioned report to Downing Energy Development Company Limited from Environmental Resources Management Limited (Version 1-0, Issued 13 June 2025).

² Arcus. (2023) *Wombwell CoLD App_Supporting Statement_20231004* [online]. Cover letter to Barnsley Metropolitan Borough Council from Arcus (an ERM Group Company). Issued 10 October 2023.

would arise as vehicle movements and human presence would be temporary in nature and limited to the Site and operational areas at Wombwell WWTW.

OPERATIONAL IMPACT ASSESSMENT

Baseline Environment

The Site crosses Bulling Dike and the underlying aquifer is classified as moderately productive³ with high vulnerability⁴. The groundwater body water quality is classified as poor under the Water Framework Directive (WFD)⁵. The Dearne Valley SSSI is located immediately to the east of the Site. Further details on the baseline environment can be found in the EcIA.

Impact Assessment

Whilst the Site crosses the Bulling Dike, cleaning activities will be limited to the PV system within proposed compound fence for the Site⁶, which is approximately 30 m from the top of the bankside to the Bulling Dike. Operational maintenance activities including associated vehicle movements and washing of the Proposed Development's PV panels could result in potential impacts to Bulling Dike, the underlying aquifer, and downstream habitats associated with the Dearne Valley SSSI.

Specific requirements for (and frequency of) cleaning the solar photovoltaic (PV) system will be informed by visual inspections undertaken by the Applicant's operational staff as part of the wider routine maintenance programme for the Site; and completed in accordance with the manufacturer's instructions. It is anticipated that:

- Light cleaning to remove dust particles would be undertaken using either a jet hose or soft brush attached to a water-fed pole. The supply of water would be taken via a vehicle-mounted system that would be removed from the Site at the end of each working day;
- The use of pressure-washers would be discouraged to avoid damage through water ingress into the seals and wiring of the PV system;
- When detergent is necessary to eliminate stubborn dirt or debris, biodegradable and phosphate-free soap will be utilised;
- As required, excess water would be removed using a squeegee or alternative non-abrasive to avoid streaking; and,
- As far as practicable, no cleaning would be carried out on hot and sunny days; as water would evaporate quickly off hot panels, leaving streaks and residue that could affect panel efficiency. In addition, cleaning would not be undertaken on windy days to avoid potential spray drift, particularly where a jet hose is proposed or required.

Without the implementation of good practice measures and mitigation techniques to control surface water runoff, potential operational impacts may include:

- Disturbance resulting from vehicle movements associated with maintenance activities that could impact flora and fauna utilizing the Site and the adjacent Dearne Valley SSSI; and,

³ [GeoIndex - British Geological Survey](#)

⁴ [Groundwater vulnerability data - British Geological Survey](#)

⁵ [Don & Rother Millstone grit & Coal Measures | Catchment Data Explorer | Catchment Data Explorer](#)

⁶ 5208-REP-101 Fig02 Site Layout (Wombwell)

- Surface water run off from the washing of the Proposed Development's PV panels impacting water quality of the underlying aquifer, Bulling Dike, and downstream habitats associated with the Dearne Valley SSSI.

Potential operational effects from these activities would be temporary in nature, reversible and occur infrequently. Given the duration and frequency, combined with the small scale of the Proposed Development the magnitude of any operational effects without mitigation is expected to be negligible on receptors of high sensitivity, resulting in an overall **not significant** effect.

Good Practice Measures

The following good practice measures will be implemented to further mitigate any potential effects that may occur due the Proposed Development's maintenance during operations:

- Upon arrival at the Site, vehicle parking and movements associated with cleaning activities would be restricted to the Proposed Access Road, and other accessible grassland areas within the compound fence for the Site. No access within or immediately adjoining the Bulling Dike would be required;
- The Site will employ surface water management techniques to control runoff based on Rural Sustainable Drainage Systems⁷ (RSuDS). Vegetation between and surrounding the solar panel arrays will attenuate surface water runoff associated with the washing of the PV panels, limiting possible surface water runoff that could migrate into the Bulling Dike and associated downstream habitats from solar panel arrays⁸. This vegetation would also minimise any infiltration of surface water runoff into the underlying aquifer;
- Sustainable drainage measures will also include the use of permeable materials such as Type 2 aggregate for access tracks, alongside swales with vegetated channels will be preferred. These features are designed to intercept, filter, convey, and promote infiltration of surface water runoff. Combined with the vegetation between and surrounding the solar panel arrays, these RSuDS components will reduce sediment and pollutant loads before water re-enters the natural drainage system;
- Clean, sediment free water would be used and in minimal quantities;
- A distance of at least 10 m will be maintained between Bulling Dike and any washing activities at all times; and,
- Where detergent is required, detergents used during maintenance activities will be biodegradable and phosphate-free.

Despite the high groundwater vulnerability and sensitivity of surface water receptors and their downstream habitats, the temporary nature of the panel washing and implementation of surface water management techniques, combined with the use of biodegradable and phosphate-free cleaning agents, significantly reduces the likelihood of any contaminants reaching the groundwater and surface water receptors.

Biodiversity Enhancement Measures

In the interests of securing positive net gains for biodiversity, the Applicant will integrate biodiversity enhancement measures into the landscape maintenance schedule. Where practicable, grassland habitats that are retained, reinstated and/or created as part of the

⁷ [Environment Agency: Rural sustainable drainage systems.](#)

⁸ Wombwell WWTW Solar Array: Outline Construction Environmental Management Plan.

Development should be enhanced to help improve the biodiversity value of habitats within the Site. For example, sowing native wildflower seeds of local provenance could increase diversity of fauna and flora in the immediate locality, particularly where this is supplemented with a targeted programme of annual rotational cutting to maintain functional habitats for nectaring species (e.g. basking, egg-laying and roosting habitats):

- In relation to any proposed reinstatement of soils at the Site, the use of soil inversion techniques (subsoil over topsoil) can help reduce soil fertility and promote the establishment of wildflowers (as well as limit the potential colonisation of coarse grasses and non-desirable broadleaved flowering plants);
- Avoid all unnecessary cutting of vegetation at the Site during the first year after construction works to allow vegetation to recover/restore;
- In Year 2 (and annually thereafter) cut 25 % of open habitats to ground level to maintain low vegetation height of less than 150 mm (including exposed areas of bare ground), with arisings removed from the Site;
- In Year 2 (and every two-years thereafter) cut 50 % of flowering swards to maintain a topographically diverse and species-rich sward;
- Review management interventions at the end of each five-year period; and,
- consider undertaking a programme of butterfly monitoring surveys as a proxy to measuring the quality of wildflower habitats and success of biodiversity enhancements.

The viability of biodiversity enhancements at the Site will be informed by routine maintenance requirements; as advised by a suitably qualified landscaping contractor appointed by the Applicant and any Yorkshire Water's existing biodiversity strategies and standard operating procedures for Wombwell WWTW. Where viable, the Project Ecologist (or appointed ECoW) will provide advice and support to the Applicant to help identify appropriate management and monitoring prescriptions.

CONCLUSIONS

With the implementation of the good practice and biodiversity enhancement measures outlined in this document, periodic cleaning of the PV system and vehicle movements associated with these maintenance activities presents a low risk of pollution to the water environment and/or downstream habitats within the Dearne Valley Wetlands SSSI; and any effects would be temporary, reversible of negligible magnitude and **not significant**.



Andrew Bell
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Partner