

WEST BURTON SOLAR – DEADLINE 3 –JANUARY 9<sup>TH</sup> 2024

ExQ1 – 15 DECEMBER 2023

Questions 1.15.9 to 1.15.17

## West Burton Solar Project

### Environmental Statement Chapter 10: Hydrology, Flood Risk and Drainage

Prepared by: Delta-Simons  
March 2023

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APFP Regulation 5(2)(a)

**1.3 Sources of Information 1.3.1** The following sources of information have been reviewed and assessed for the purpose of this FRA:

- EA Online Flood Maps<sup>1</sup> ;
- British Geological Society (BGS) Interactive Map<sup>2</sup> ;
- MAGIC Interactive Map<sup>3</sup> ;
- West Lindsey District Council Strategic Flood Risk Assessment (2009 SFRA);
- Lincolnshire County Council Preliminary Flood Risk Assessment (2011 PFRA);
- Nottinghamshire County Council Preliminary Flood Risk Assessment (2011 PFRA);
- The Planning Inspectorate. Advice Note eighteen: The Water Framework Directive (2017 TPI18); and
- Bassetlaw District Council Strategic Flood Risk Assessment (2019 SFRA).

The hotter and drier summers and warmer, wetter winters are resulting in increased rainfall with ensuing flooding. Those of us who have been and are affected by several recent flooding events and as shown in the January 2024 flooding images included in Attachment A to this submission, deem it reckless to place 7,000,000 solar panels and associated hardware on agricultural land from the cumulative and industrial scale solar projects of West Burton Solar, Cottam Solar, Gate Burton Solar and Tillbridge Solar.

#### *10 Hydrology, Flood Risk and Drainage*

*Environmental Statement Chapter 10: Hydrology, Flood Risk and Drainage March 2023*

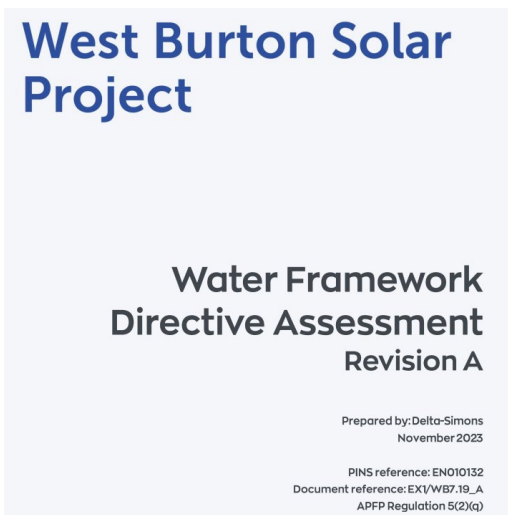
Produced in March 2023 the words ‘The affect will be **‘Negligible’** is overly used by the Applicant throughout the above report and many areas of their project documentation submitted to the Examining Authority. **‘Negligible’** is a serious understatement and Hydrology, Flood Risk and Drainage should be revisited as there have been 7 (seven) severe storms since September 2023 in the UK necessitating the issue of flood warnings and flood alerts. This flooding has caused havoc, destruction and misery across the UK and involved flooding within the proposed West Burton and Cottam Solar site areas from Storm Babet in October 2023 and Storm Henk in the past few days with severe and widespread flooding predominantly Gloucestershire, Nottinghamshire and Lincolnshire including, again, the agricultural / farmland of the West Burton 2 site looking from Viewpoint 20.

Notwithstanding historic flooding of the West Burton Solar and Cottam Solar sites well before the River Trent burst its banks in the year 2000, flooding again followed after storms in 2019. Photographic evidence has previously been submitted to the Planning Inspectorate Examining Authority including that for Storm Babet in October 2023.

This week Storm Henk led to extensive flooding in the first week of January 2024 (*further images attached*) when the tidal River Trent burst its banks across agricultural / farmland / roads and other areas in Nottinghamshire and Lincolnshire flooding homes and premises and culminating in many road closures:- the arterial A156 Marton to Gainsborough closed at Marton village where the arterial A1500 joins the A156, the A156 across the Trent Bridge Gainsborough to Beckingham leading to the A1M closed at Beckingham/Retford roundabout, the arterial A57 at Dunholme Bridge on the outskirts of Saxilby (West Burton 2 and 3), the flooding of Torksey Lock near Brampton (West Burton 2) and extensive flooding of Lincoln City Centre (Brayford Wharf) for the second time in four months with many other roads in the area also closed through flooding. The disruption and mental stress of affected parties is incalculable. The road closures and diversions added 40 extra miles to my journey at the

weekend. These closures were taking place while I was driving as the flood water was rapidly moving across the above routes and side roads.

At today's date it still has not been possible to re-open the Trent Bridge at Gainsborough. These are major routes and are causing huge disruption to motorists. See flood images attached in ATTACHMENT A following Storm Henk January 2023.



The following are extracts from Delta-Simons report contained in the above document from page 24 although I could raise other matters in respect of the report I question the choice of site by the Applicant bearing in mind all of the following including any inaccuracies of the geological mapping.

#### Quote

**Page 2 - Scheme, Location and Description** - *The proposed Cable Route crosses several watercourses and land drains. Over its length the cable route passes under a total of 30 watercourses including 28 Ordinary Watercourses as well as the River Trent and the River Till.*

**Page 3 - Hydrology** - *Given the scale of the scheme there are numerous watercourses that flow within and adjacent to it.*

**Page 3 - Geology** - *The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a Site-specific basis.*

**Page 4 - Groundwater Levels and Flow Direction** - *The available BGS borehole information indicated the presence of shallow water (<2.00 m bgl) adjacent to the River Trent and to the north west. Groundwater is likely to be deeper across the southern area of the Site between West Burton 1 and 3.*

*However, drainage ditches are present across the area, as such, perched groundwater may be present.*

*Groundwater is expected to flow locally towards drainage channels and regionally towards the River Trent or River Till.*

#### Unquote

Drainage ditches in the 30 affected communities, as we have seen again in recent months, have been unable to cope with excessive volumes of water leading again to flooding of the agricultural /farmland of the proposed West Burton and Cottam Solar projects as the River Till has burst its banks. Local roads in the affected communities were also flooded and impassable. See illustration below:-

The comments also contained on page 24 of the Water Framework Report **Operational Phase** Increase in Permanent Permeable Area produced by Delta Simons for the Applicant are from a report that appears to be 10 years old, published on 1 May 2013 by Cook and McCuen. A model of a solar farm was used to simulate the pre- and post-panel conditions. The Cook and McCuen report stated if the ground cover under the panels is gravel or bare ground, owing to design decisions or through lack of maintenance, the peak discharge may increase significantly with storm-water management needed. In addition, the kinetic energy of the flow that drains from the panels was found to be greater than that of the rainfall, which could cause erosion at the base of the panels. Climate conditions have changed considerably since the Report in 2013 and therefore the frequency of storms / excessive rainfall on the ground could detrimentally change the ability of any mitigating ground flora to survive and any compaction of the land further creates ideal flooding conditions.

We see the green shoots of growing crops on farmland locally perishing through being submerged under floodwater and the subsequent waterlogging of the ground and the death of their roots.

Impacts on surface hydrology of large scale solar parks have *not* been comprehensively addressed in literature, but there has been some study and modelling exercises undertaken for example in the case of Cook and McCuen above and Springer Link report of 9 August 2023. As a result of some study and modelling exercises there is growing concern over the impact of land use changes on storm water runoff from the construction of large-scale solar power plants and the potential increment of flow peak and volume discharge and the impact on the environment.

An American study and modelling exercise, by a different company in America, Springer Link, of storm water run-off over the longer term from 3 different sizes of photovoltaic installations on 3 different soil types determined that when the surface roughness of the solar park ground is decreased through compaction rainwater run-off peak flow increases in the order of 6 – 35% as compared to the pre-installation scenario.

Q. **How does the Applicant propose to prevent compaction of the soil on a solar site of such magnitude throughout the duration of the scheme, particularly when service vehicles will be entering the site for maintenance and panel inspection and to prevent the site from flooding under excessive storm-water condition ? ie those that we have been suffering from in recent times and since the seven storms from October 2023 as presently we see the land is saturated from these storms.**

q. **Should compaction occur for whatever reason what action does the Applicant intend to adopt to remedy this?**

Q. **What action does the Applicant intend to adopt to remedy failing flora in excessively wet conditions ?**

Q. **A further concern from the impact of solar panels on the environment is the potential for rainwater run-off from such panels to cause pollution. The run-off can contain chemicals and other pollutants that can harm the environment<sup>2</sup>. (Springer Link 9 August 2023).**

**REFER TO FLOOD IMAGES IN ATTACHMENT A TO THIS SUBMISSION**

P A Mitchell

January 2024