Lime Down
Solar Park

Environmental Statement

Volume 3, Appendix 11-4: Flood Risk Assessment and Drainage Strategy – Lime Down C1 (Tracked)

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Appendix 11-4: Flood Risk Assessment and Drainage Strategy – Lime Down C1

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Site: Lime Down Solar Park

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Contents

Figures

Annexes

1. Site Details

1.1.1 The aim of this section of the report is to outline key environmental information associated with the baseline environment of Lime Down C1.

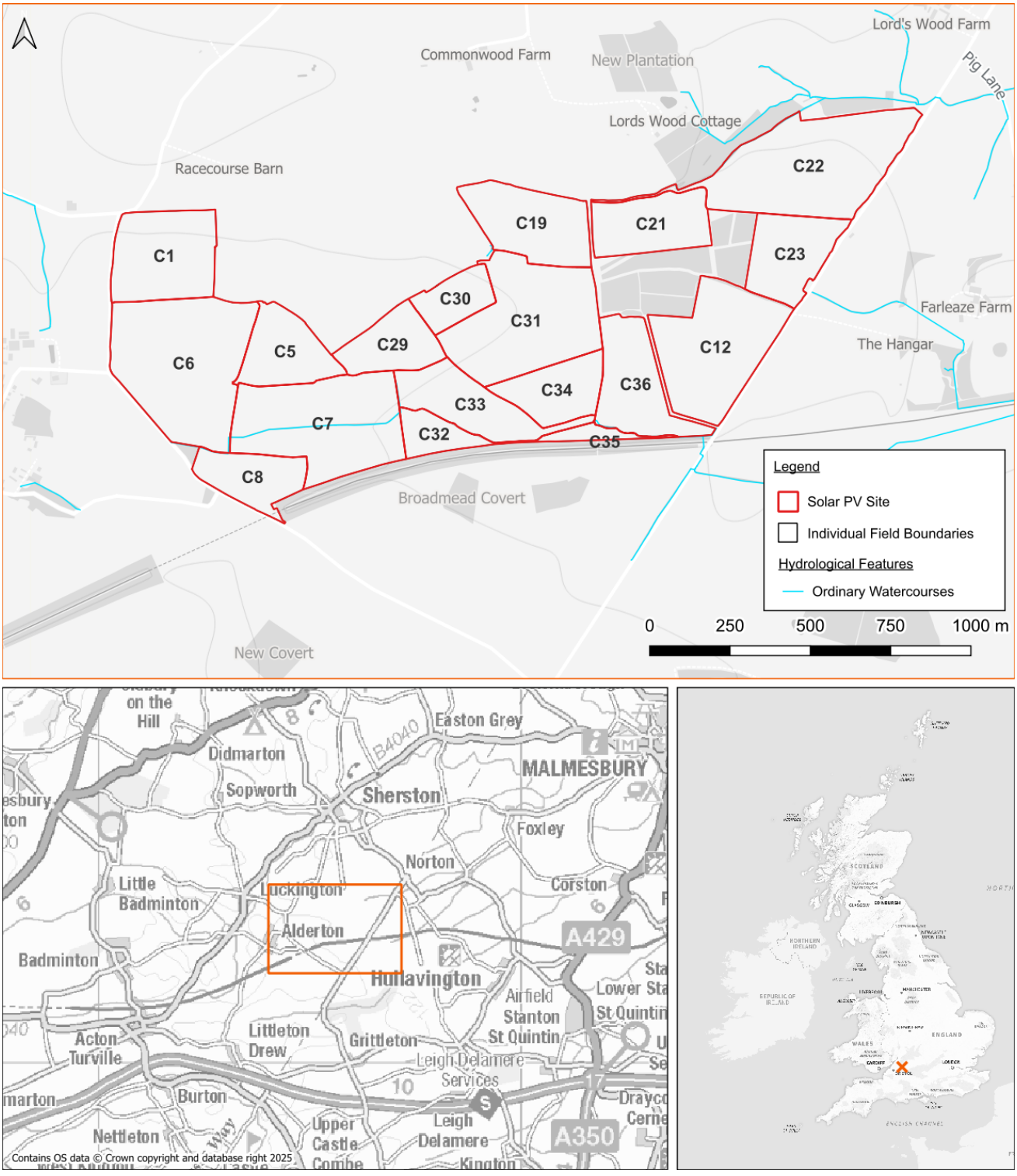


Figure 1: Site Location

1.2 Site Location

1.2.1 Lime Down C1 is located approximately 450m east of Alderton, a village in Wiltshire, and is also situated about 3.5km north of the M4 motorway. The Site is centred at National Grid Reference 384400N, 183100E.

1.3 Existing Site Conditions

1.3.1 Online mapping (including Google Maps / Google Streetview imagery[i] (accessed May 2025) shows that Lime Down C1 comprises agricultural / arable fields. Additionally, it is noted that Lime Down C1 is subdivided into 18 smaller fields.

1.4 Topography

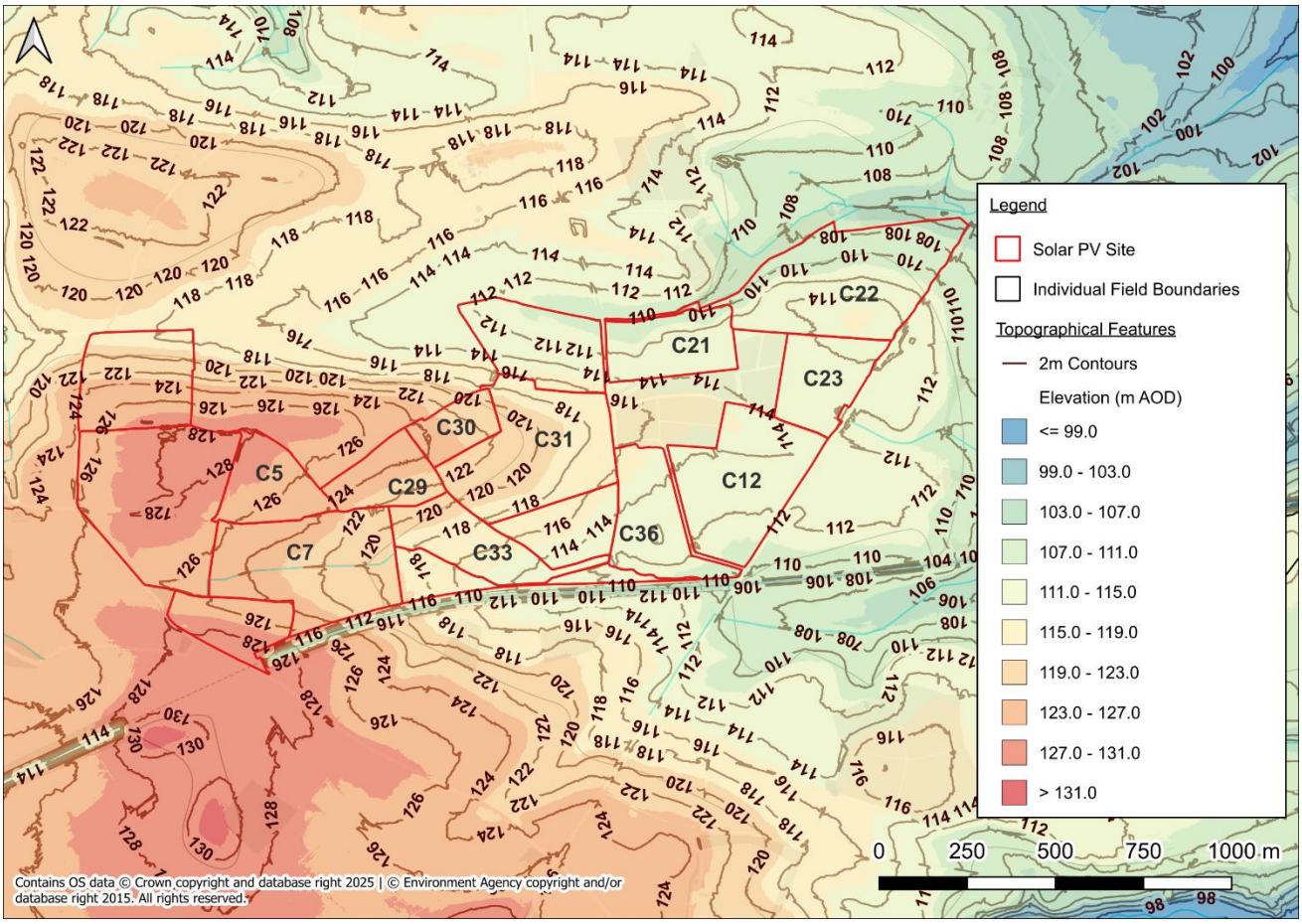


Figure 2: LiDAR Plan

1.4.1 Topographic levels to metres Above Ordnance Datum (m AOD) have been derived from a 1m resolution Environment Agency (EA) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). A review of LiDAR ground elevation data shows that Lime Down C1 slopes from approximately 128m AOD in the west to approximately 102m AOD in the east (Figure 2).

1.5 Hydrology

1.5.1 The nearest watercourses are various unnamed land drainage ditches located within the Lime Down C1

boundary and within a 200m distance of the Site. The land drainage ditches generally flow in a north-easterly direction that follows the local topography.

1.5.2 All land drainage ditches are under the jurisdiction of the Wiltshire Council Lead Local Flood Authority.

1.6 Water Framework Directive Status

1.6.1 Lime Down C1 is located within the Avon Bristol Rural Catchment, within the Luckington Brook Water Body Catchment and the Tributary – Source to Sherston Avon Water Body catchment within the Shertson Avon Water Body Catchment.

1.6.2 The Luckington Brook Water Body catchment has a Cycle 3 Ecological status of Good in 2019 and 2022 and a Fail chemical status in 2019 (no data in 2022).

1.6.3 The Tributary – Source to Sherston Avon Water Body catchment has a Cycle 3 Ecological status of Good in 2019 and 2022 and a Fail chemical status in 2019 (no data in 2022).

1.6.4 Shertson Avon Water Body catchment has a Cycle 3 Ecological status of Poor in 2019 and 2022 and a Fail chemical status in 2019 (no data in 2022).

1.6.5 A summary of the Water Body Classifications for the catchments are included as Annex A.

1.7 Geology

1.7.1 Reference to the British Geological Survey online mapping[ii] (1:50,000 scale) indicates that Lime Down C1 is not underlain by any superficial deposits (see Figure 3).

1.7.2 Lime Down C1 is identified as being underlain by the Forest Marble Formations bedrock deposits (Figure 4).

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

1.7.4 There are no legible British Geological Survey boreholes located at Lime Down C1.

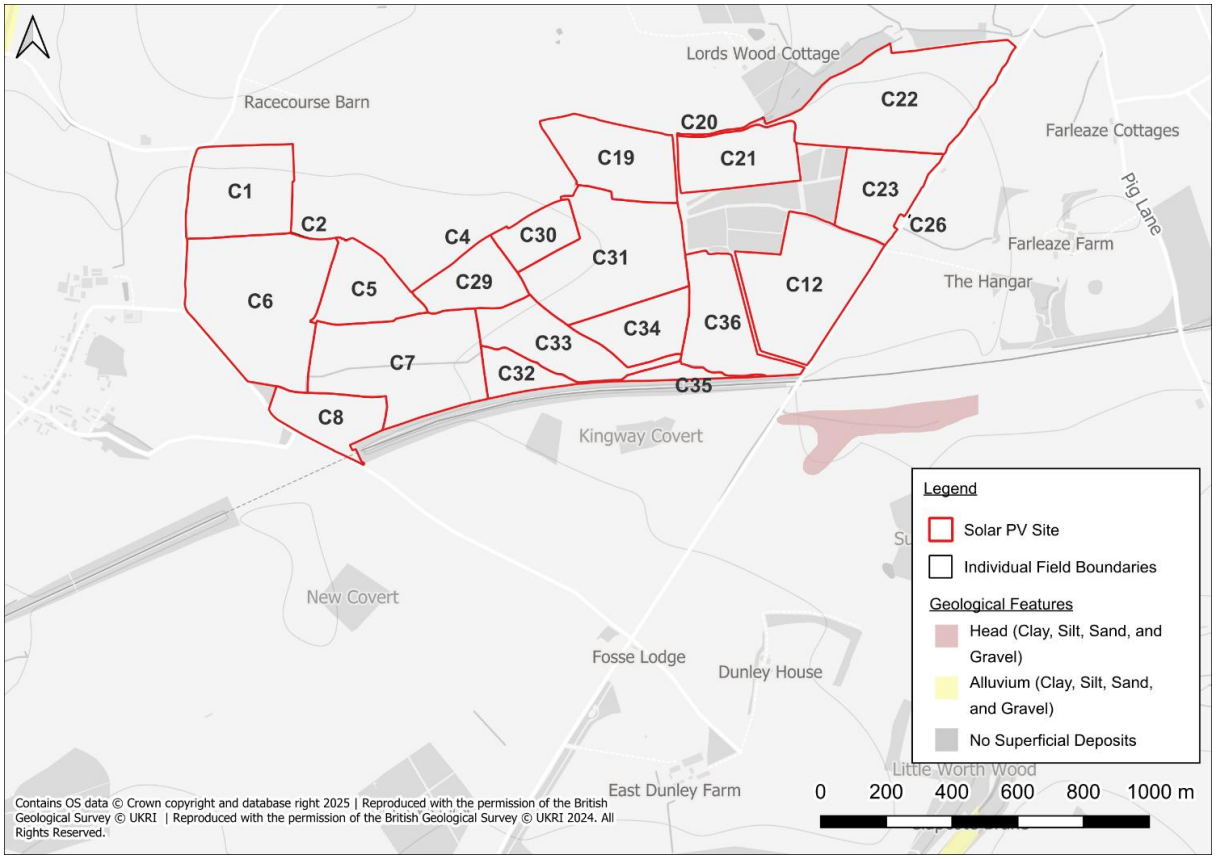


Figure 3: Superficial Deposits

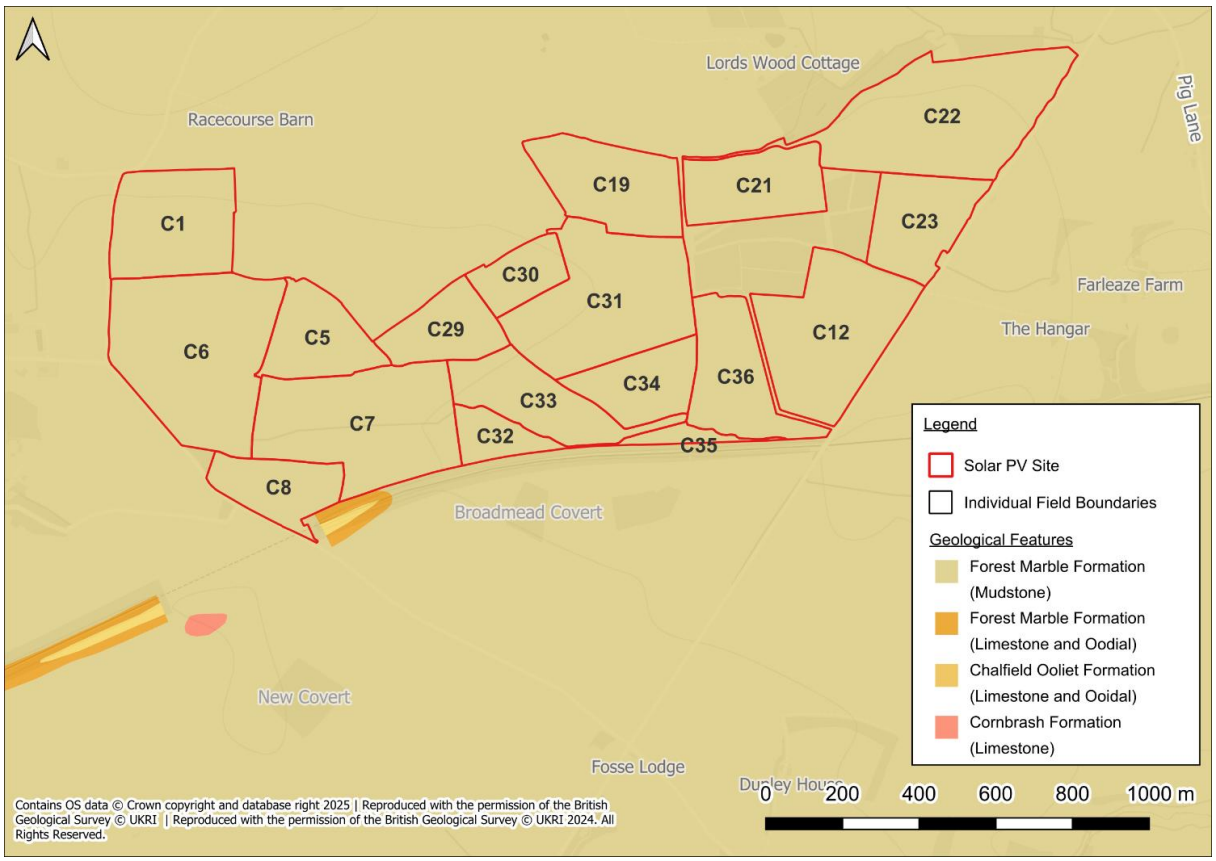


Figure 4: Bedrock Deposits

1.8 Hydrogeology

1.8.1 According to the EA's Aquifer Designation data, obtained from MAGIC Map's online mapping [accessed 02/06/25] the underlying bedrock of Forest Marble Formation is described as a Secondary A Aquifer.

1.8.2 The EA's 'Source Protection Zones' data, obtained from MAGIC Map's online mapping [accessed 02/06/25], indicates that Lime Down C1 is located within a Groundwater Source Protection Zone.

1.9 Proposed Site Conditions

1.9.1 Lime Down C1 comprises ground-mounted Solar PV Panels, a proposed substation, and associated electrical infrastructure and access. See **ES Volume 1, Chapter 3: The Scheme [EN010168/APP/6.1].**

1.9.2 An **Outline Landscape and Ecological Mitigation Plan (LEMP) [EN010168/APP/7.18]** has been developed to support the DCO application. The plan confirms that the vast majority of the site will be used for Solar PV Panels, supporting infrastructure, and internal access, with peripheral areas comprising landscaped buffers, in line with the embedded mitigation described throughout the ES.

1.9.3 Where a 132 kV or 400 kV substation is proposed within this area, the detailed design will include a controlled drainage strategy for the substation compound. This will include sealed drainage or sealed drainage components where required, together with suitable treatment, interception, containment and isolation measures to prevent spills, leaks or firewater from affecting ground or controlled waters. The drainage principles for substations are set out in the **Firewater Containment and Drainage Strategy – Lime Down Substation [EN010168/EXAM/9.9],** which is the governing reference for containment and release matters.

2. Assessment of Flood Risk

2.1.1 The aim of this Section of the report is to assess and summarise the existing flood risk at Lime Down C1.

2.2 Tidal Flood Risk

2.2.1 Lime Down C1 is situated at a minimum of approximately 102m AOD and is significantly above sea level. Therefore, there is **Negligible** risk from tidal flooding.

2.3 Fluvial Flood Risk

2.3.1 According to the EA's Flood Map for Planning (updated in March 2025)[iii], Lime Down C1 is situated wholly in Flood Zone 1 (meaning it is an area considered to have <0.1% annual probability of flooding from rivers or the sea), with the exception of Field C22 of which the north-easternmost extent is within Flood Zone 2/3. Flood maps are included as Figure 5 below and **ES Volume 2, Figure 11-3: Lime Down C1: Fluvial and Surface Water Risk Map [EN010168/EXAM/6.2] (Rev 2)** produced at Deadline 3 of Examination.

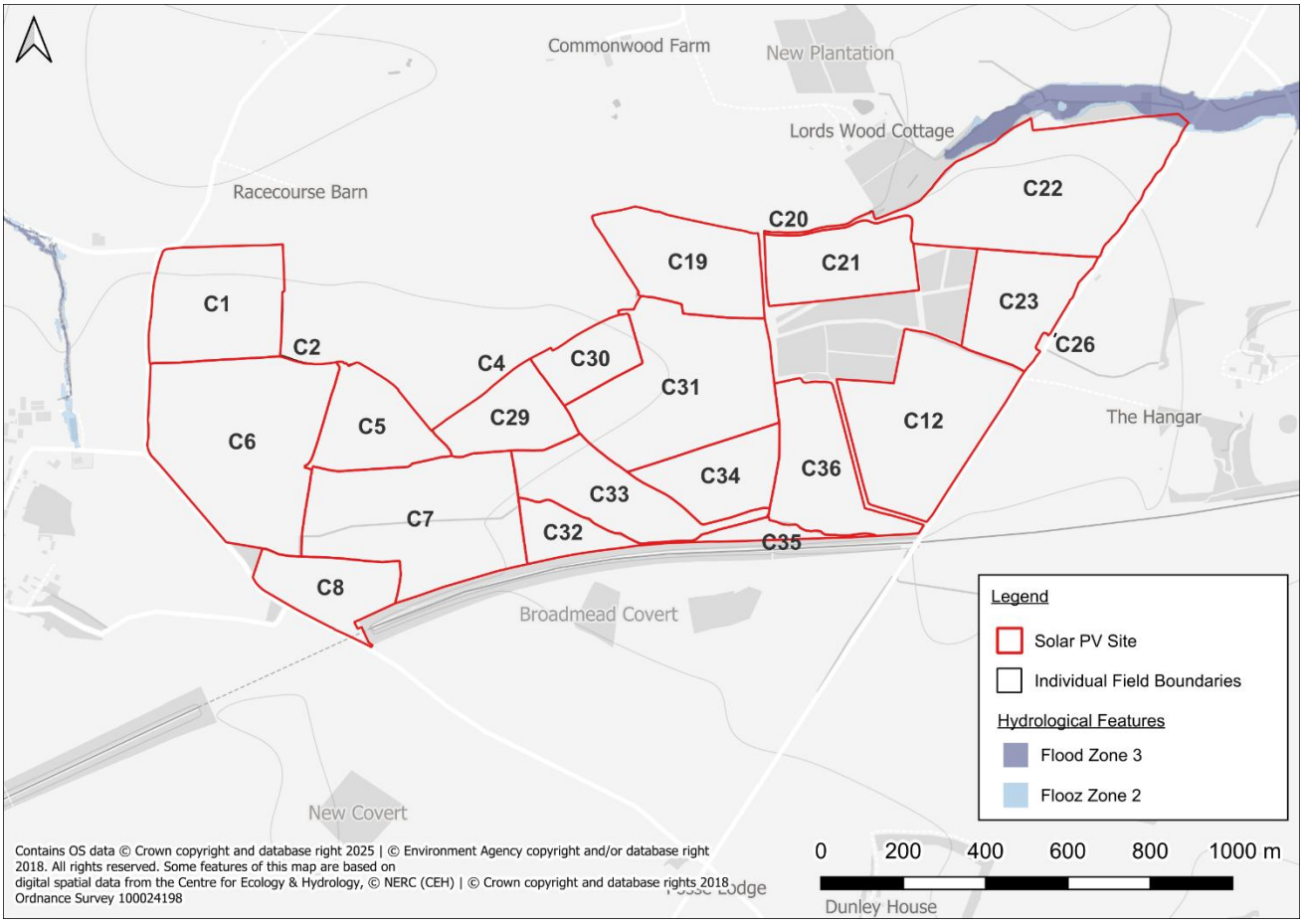


Figure 5: EA's Flood Map for Planning

2.3.2 The EA's 'Historical Flood Map' shows no recorded incidents of historical flooding at Lime Down C1;

however, this does not confirm that the Site has never flooded—only that no documented records exist.

2.3.3 The Flood Zone 3 extent adjacent to Field C22 is associated with an unnamed land drainage ditch. There is a wider network of land drainage ditches both on-Site and within 200m of the Site; however, these are not shown on the EA's fluvial flood extent mapping. This is due to the rural nature of the area and the fact that these land drainage ditches are classified as ordinary watercourses and have not been modelled to determine their fluvial flood extents. However, fluvial flooding could occur if the land drainage ditches overtop their banks during or following an extreme rainfall event.

2.3.4 There is no Site-specific information in third-party reports regarding fluvial flood risk at Lime Down C1 or in the immediate vicinity.

2.3.5 In the absence of specific fluvial flood data, a combination of methods has been used to assess potential fluvial flood risk. Flow paths identified on the EA's Long Term Flood Risk Map (Surface Water)[iv] identify the potential flood extent of the land drainage ditch that flows through Lime Down C1 and the neighbouring land drainage ditches. These maps (updated in January 2025) are considered to effectively illustrate the potential extent of fluvial flooding, as indicated in Figure 6.

2.3.6 To estimate flood levels for a 1% Annual Exceedance Probability (AEP) event with a 71% climate change allowance[v], Manning's open channel flow formula was applied. A detailed explanation of the calculation, including sources of data and the chosen coefficients, is provided in Annex B. This method was selected as it provides a practical estimate of flow characteristics based on channel shape, roughness, and gradient, particularly where detailed hydraulic modelling has not been undertaken. Cross-sectional data from EA LiDAR, captured in Q1 2020 and detailed in Annex B, informed the calculations. The estimated flood levels suggest limited extents, expected to be smaller than those shown on the EA's 0.1% surface water mapping. This mapping is referenced for context only and was not used as an input to the calculation. The estimated flood extents derived from the Manning's assessment are anticipated to be more limited in extent than those indicated by the EA's 0.1% AEP surface water mapping. The EA mapping has therefore been used as a precautionary indication of potential exceedance flow routes and extents only, with the 1% AEP plus climate change Manning's assessment adopted as the basis for the design event assessment.

2.3.7 It is noted that the Manning's calculation was completed prior to the release of updated NaFRA2 mapping in January 2025. The revised mapping shows a reduction in surface water flood extents across the Site. This supports the view that the current Manning's calculation remains conservative, and there is no requirement to update it.

2.3.8 Based on the analysis, the surface water flood maps offer a suitable and conservative basis for assessing fluvial flood risk at Lime Down C1. A more detailed exploration of surface water flood risks can be found in Section 2.4.

2.3.9 Lime Down C1 is not located within a Flood Warning Area.

Consultation

2.3.10 The EA were consulted in October 2024 for any Site-specific flood data and modelling, a response was

received on the 13/11/24 and is included as Annex C. Product 4 data received for the area has been produced using the EA's National Generalised Model- JFLOW. This modelling is fit for the purpose of the Flood Zones, however, it is not based on a specific channel survey. The basic JFLOW water depths for the 1% Annual Exceedance Probability event and the 0.1% Annual Exceedance Probability Event are also included in Annex C. The JFLOW mapping finds that at Lime Down C1, flood depths in the area identified as Flood Zone 3 are below 0.5m in depths during both the 1% Annual Exceedance Probability scenario and the 0.1% Annual Exceedance Probability Scenario, with the remainder of Lime Down C1 shown to not expect any flood depths.

2.3.11 Consultation has been undertaken throughout the EIA process with the EA and Wiltshire Council. Comments and recommendations received have been noted and applied throughout this Flood Risk Assessment and Drainage Strategy. A record of consultation and The Applicant's responses are included in ES Chapter 11: Hydrology, Flood Risk and Drainage.

2.3.12 Lime Down C1 is not located within an Internal Drainage Board (IDB).

Summary

2.3.13 Lime Down C1 is therefore considered to be at **Low** risk of fluvial flooding.

2.4 Surface Water Flood Risk

2.4.1 The EA's National Flood Risk Assessment Mapping (NaFRA), known as the 'Long Term Flood Risk Map' (Surface Water), was updated in January 2025. The NaFRA mapping provides an updated view of surface water flooding across the Site, however it should be noted that at the time of writing, the NaFRA mapping only delivers climate change insight up to the year 2060.

2.4.2 According to the EA's Long Term Flood Risk Map (Surface Water) the majority of Lime Down C1 is at Very Low risk of surface water flooding, meaning it has a <0.1% annual probability of flooding. However, there are areas of Low to High risk (0.1 - >3.3% annual chance of flooding), particularly at Fields C6 – C7, across the northern boundaries of Fields C19, C21, and C23 and across Fields C32 – C36.

2.4.3 As described in the Fluvial Flooding Section above, the surface water flooding extents largely match the courses of the unnamed land drainage ditches which flow throughout and bordering Lime Down C1; However, there are some areas of ponding that are no associated with the various land drainage ditches on-Site.

2.4.4 With reference to the depth mapping provided by the NaFRA data, flood depths are anticipated to be low, with depths remaining largely below 300mm which is considered passable to people and vehicles. Some depths between 300mm and 600mm are anticipated in some of the Fields referenced above, however these are largely isolated areas and can be associated with the existing land drainage ditches. Depths are not shown to exceed 600m anywhere within Lime Down C1.

2.4.5 There is no indication within relevant third-party reports (listed in 'Sources of Information' in **ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy – Covering Report [EN010168/APP/6.3]** to suggest that Lime Down C1 has historically experienced surface water flooding.

2.4.6 Based on the above and considering the embedded mitigation as part of the design of the solar panels, the overall risk of surface water flooding is considered to be Low. The proposed solar panels will be raised above surrounding ground levels and will be appropriately waterproofed, thereby reducing the potential to be impacted in the event of surface water flooding.

2.4.7 Associated electrical infrastructure, such as inverters, transformers, cabling and substations, will be located outside mapped flood extents where feasible, or otherwise elevated above the design flood level with appropriate freeboard, in line with the embedded mitigation strategy outlined in **Appendix 11.1: Flood Risk Assessment and Drainage Strategy – Covering Report [EN010168/APP/6.3].**

2.4.8 Smaller electrical components such as conversion units, where present, are minor in scale and will be protected through elevation or localised resilience measures, consistent with the approach set out in the Covering Report. The potential for the development to exacerbate surface water flood risk off-site is also addressed through the use of appropriate SuDS features, as described in the Covering Report.

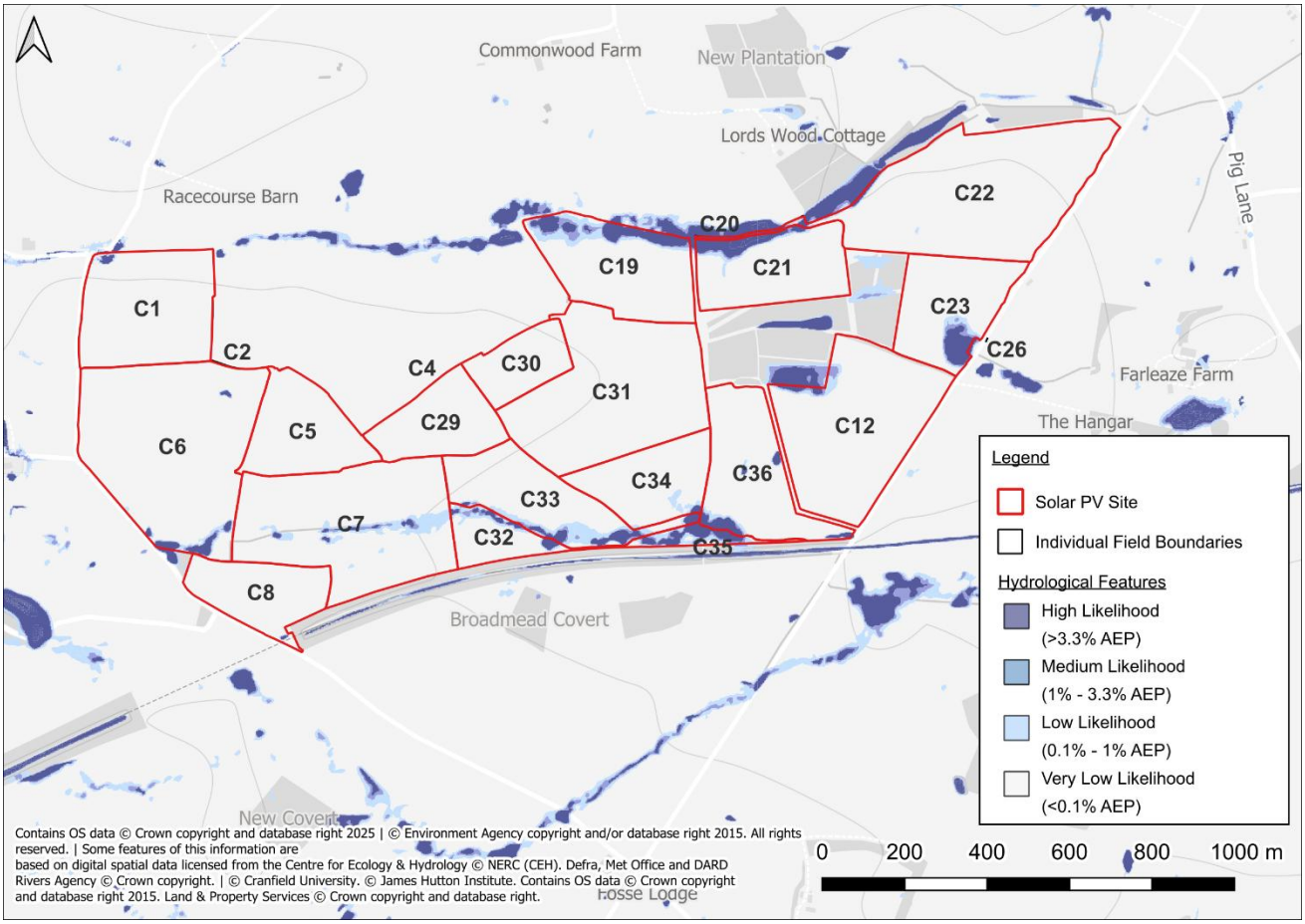


Figure 6: EA's Long-Term Flood Risk Map (Flood Risk from Surface Water)

Proposed Substation in Field C33

2.4.9 A substation is proposed within Field C33. The location has been selected to achieve technical requirements for electrical efficiency, providing a centralised connection to the generation areas and effective integration with the internal cable corridors across Lime Down C1.

2.4.10 According to the Environment Agency's Long Term Flood Risk Map (NaFRA, updated January 2025), Field C33 contains a narrow corridor of elevated surface water flood risk (**see Figure 7**). Areas along the south-western boundary and through the southern part of the field are classified as High Risk (greater than 3.3% annual probability of flooding), associated with an existing land drainage ditch that runs broadly parallel to the adjacent railway line. The remainder of Field C33 is identified as being at Very Low to Low risk.

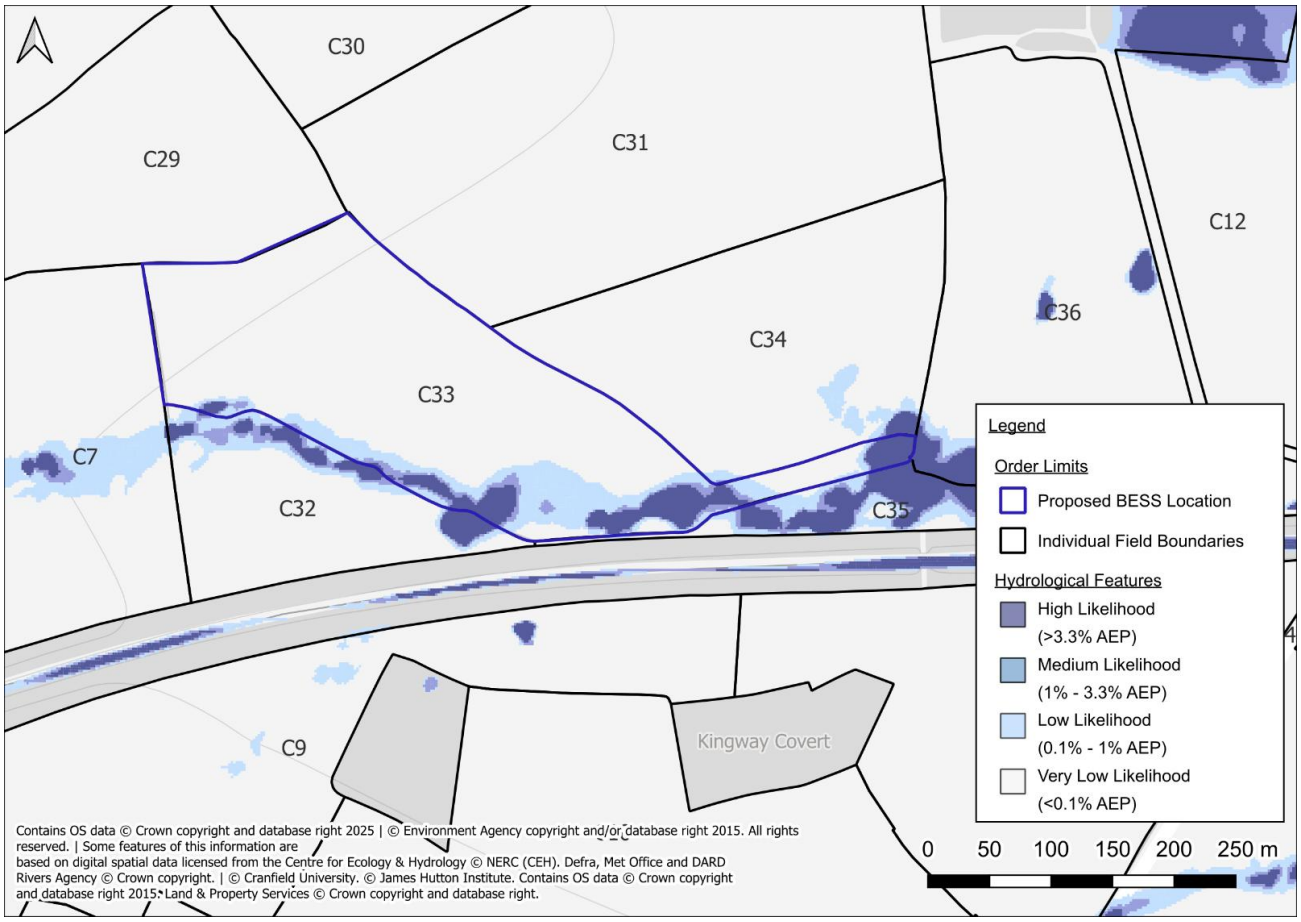


Figure 7: EA's Long-Term Flood Risk Map (Flood Risk from Surface Water)

2.4.11 NaFRA flood depth mapping indicates that depths along the flow route are predominantly shallow, generally remaining below 300mm and not exceeding 600mm. These depths can be managed through standard design interventions and are not expected to constrain development of essential infrastructure, subject to appropriate mitigation.

2.4.12 Flood extents have been compared against EA LiDAR to estimate likely flood depths in more detail, adopting the 0.1% AEP event to provide a factor of safety. As illustrated in **Figure 8**, the northern extent of the proposed substation area remains free of flooding, while the southern extent is predicted to experience flood depths up to 200mm. Such depths are considered passable for pedestrians and vehicles, ensuring that access and functionality would be retained under the assessed conditions.

2.4.13 At detailed design stage, should any substation infrastructure be required within areas affected by mapped surface water flow paths, further site specific assessment will be undertaken to confirm that

flood risk is not increased elsewhere and that any necessary mitigation measures, including compensatory storage where required, are incorporated into the detailed design. These measures will be secured through Requirement 5, with drainage measures secured through Requirement 11.

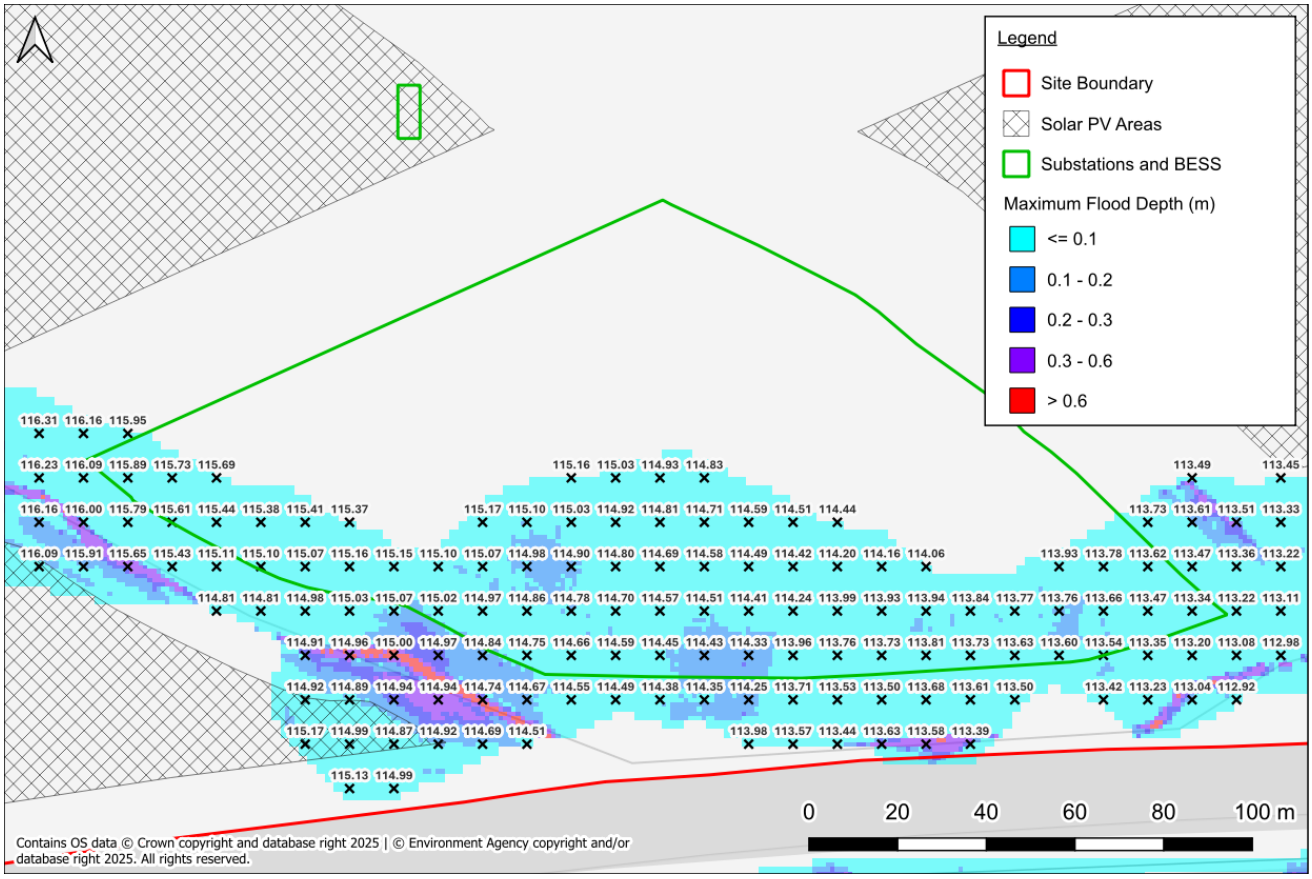


Figure 8: Water Level and Depths Map

~~2.4.13~~2.4.14 At this stage of design, the final platform location, elevation, and layout have not been finalised, which is appropriate given the stage of the DCO application. The final design will be confirmed post-consent and guided by the following embedded mitigation commitments:

- The substation infrastructure will be ~~sequentially~~ located ~~within Field C33 to avoid obstructing~~preferentially outside the mapped surface water flow route where ~~feasible~~practicable, with preference given to higher ground within Field C33 where flood risk is negligible.
- The platform will be raised above surrounding ground levels, incorporating sufficient freeboard above predicted flood depths to ensure continued operation during extreme events.
- Where necessary, localised surface water management measures will be included, such as permeable drainage, minor regrading, or intercept ditches to direct overland flows away from critical infrastructure.
- All sensitive equipment will be constructed to be water resilient, with transformers, switchgear, and control systems elevated or sealed in accordance with best practice and relevant guidance.
- The final platform levels, drainage measures, and ~~detailed~~any required flood mitigation measures will be confirmed through the detailed design process and secured ~~via the DCO Design Principles and Flood Risk Schedule~~through Requirement 5, with drainage measures secured through

Requirement 11.

~~2.4.14~~2.4.15 On the basis of the mapped flood risk, predicted depths, and the ability to avoid or mitigate risks through embedded design, the flood risk to the proposed substation is considered low and manageable. This approach aligns with the requirements of NPS EN-1, the NPPF (2024), and the CIRIA SuDS Manual (C753) for essential infrastructure.

~~2.4.15~~2.4.16 The wider Lime Down C1 development, including the Solar PV Panels and associated infrastructure, incorporates embedded mitigation by raising equipment above ground level and applying appropriate Sustainable Drainage Systems (SuDS) measures to ensure there is no increase in flood risk on- or off-site. Further details of the surface water management strategy are provided in **ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy – Covering Report [EN010168/APP/6.3]**.

2.5 Groundwater Flood Risk

2.5.1 The geology is identified above in Section 1.0. There were no legible boreholes in the near vicinity.

2.5.2 The Wiltshire SFRA map (listed under 'Sources of Information' **in ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy – Covering Report [EN010168/APP/6.3]**) indicates that there is no risk of surface water flooding on Site, owing to the characteristics of the local geological deposits.

2.5.3 No buildings and no basement levels are identified on plans which may otherwise be at increased risk from groundwater seepage.

2.5.4 It can be concluded that the risk of groundwater flooding is **Low** and no specific mitigation measures are required.

2.6 Sewer Flooding

2.6.1 No Site-specific incidents of sewer flooding have been identified from relevant third-party reports.

2.6.2 On the basis of Lime Down C1's rural setting, the presence of sewerage infrastructure is unlikely. Utility records have been checked and there are no public sewers identified within Lime Down C1.

2.6.3 It can therefore be concluded that the risk of sewer flooding is **Negligible.**

2.7 Reservoir and Canal Flooding

2.7.1 There are no canals within the vicinity of Lime Down C1 and, therefore, there is **Negligible** associated risk.

2.7.2 The EA 'Flood Risk from Reservoirs' map shows that Lime Down C1 is not at risk of flooding from reservoirs.

2.7.3 It can therefore be concluded that there is **Negligible** risk of flooding from artificial sources, therefore, no Site-specific mitigation measures are required.

2.8 Residual Flood Risks

2.8.1 A residual risk is an exceedance event, such as the 1 in 1000 year (0.1% AEP) flood event that would overtop the land drainage ditches and potentially impact Lime Down C1. As the probability of a 1 in 1000 year flood event occurring is 0.1% in any given year, the probability is low and, therefore, no additional mitigation beyond the embedded mitigation measures of the Scheme is required.

2.8.2 In the event of the defences failing or an exceedance event occurring, the residual risk to people working or present in the vicinity, as construction workers, residents, or public right of way (PRoW) users, within Lime Down C1 can be managed through the implementation of an appropriate Site management plan. This plan will recognise the residual risks and outline the actions to be taken by staff in the event of a flood to ensure that occupants are placed in a place of safety.

2.9 Summary of Flood Risk

2.9.1 It can be concluded that the risk to Lime Down C1 from all sources of flooding is **Negligible** to **Low**, however, it would be prudent to include the below mitigation measures.

2.10 Embedded Mitigation

2.10.1 Embedded Mitigation is detailed in **ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy – Covering Report [EN010168/APP/6.3]**.

2.10.2 During the construction phase, temporary works and construction activities will be managed to maintain existing floodplain storage, floodplain capacity and overland flood flow routes. Temporary compounds, plant and material storage will be located outside areas identified as potentially susceptible to flooding where reasonably practicable, and construction activities will be undertaken in accordance with the **Outline CEMP [REP2-019]** to ensure flood risk is not increased elsewhere.

2.11 Impact on Off-Site Flood Risk

2.11.1 The Solar PV Panels and associated electrical infrastructure, including inverters, transformers, cabling, and substations, will, where possible, be located outside areas at elevated flood risk. Where this is not feasible, these components will be installed on raised concrete pads or steel frames with appropriate freeboard above predicted flood levels, allowing floodwater to pass freely beneath. This ensures there is no loss of floodplain volume and no increase in flood risk elsewhere.

2.11.2 The proposed substation within Field C33 will be located sequentially within the field to avoid the identified surface water flow path and will be raised above ground level in line with the design approach for flood-resilient infrastructure. Further detail is provided in Section 2.4 of this report.

2.11.3 Where panels or other infrastructure are located in Flood Zones 2 or 3, the approach has been informed by floodplain compensation calculations – see **ES Volume 3, Appendix 11-6** and **Appendix 11-8 [EN010168/APP/6.3]**. These components are minor in scale, with dimensions detailed in Chapter 3: Scheme Description.

2.11.4 In addition, any infrastructure incorporating impermeable surfacing will include appropriate

Sustainable Drainage Systems to manage runoff. Together, these measures ensure the Scheme does not result in increased flood risk on- or off-site.

2.11.5 Surface water management has been addressed in **ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy – Covering Report [EN010168/APP/6.3],** which confirms that runoff will be controlled and discharged at greenfield rates or better.

3. Conclusions and Recommendations

3.1 Conclusions

3.1.1 Lime Down C1 is for a ground mounted Solar PV Panels and associated development and access roads.

Flood Risk

3.1.2 Lime Down C1 is predominantly located within Flood Zone 1 (an area with less than 0.1% annual probability of flooding from rivers or the sea), with the exception of the north-easternmost part of Field C22, which lies within Flood Zones 2 and 3.

3.1.3 The majority of Lime Down C1 is at Very Low risk of surface water flooding. Localised areas of Low to High risk (0.1% to greater than 3.3% annual probability) are present in Fields C6–C7, along the northern boundaries of Fields C19 and C21, and in Fields C32–C36. These areas are associated with existing land drainage ditches / ordinary watercourses, with predicted depths largely remaining below 300mm.

3.1.4 The risk of flooding from all sources has been assessed and is considered to be **negligible to low**. As such, no strategic site-wide mitigation is required; however, infrastructure in areas of elevated flood risk will be designed with embedded flood resilience measures.

3.1.5 The Solar PV Panels will be mounted on raised frames above existing ground levels, allowing floodwater to flow freely underneath. This avoids obstruction of overland flow routes and prevents any loss of floodplain volume.

3.1.6 The proposed substation in Field C33 will be located sequentially within the field to avoid mapped surface water flow paths and will be raised above predicted flood levels. Further detail on substation design considerations is provided in Section 2.4.

3.2 Recommendations

3.2.1 Embedded Mitigation is detailed in **ES Volume 3, Appendix 11-1: Flood Risk Assessment and Drainage Strategy – Covering Report [EN010168/APP/6.3]**, in which the FRA has informed.

Annexes

Annex A- Water Body Catchment Classifications Summaries

Luckington Brook Water Body Catchment Classification Summary

Classification Item	2019 Classification		2022 Classification	Cycle 3 Objectives		
	Cycle 2	Cycle 3	Cycle 3	Status	Year	Reasons
Ecological	Good	Good	Good	Good	2027 - Low Confidence	Disproportionately expensive: Disproportionate burdens
Biological Quality Elements	Good	Good	Good	Good	2027 - Low Confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	High	High	High	Good	2015	
Macrophytes and Phytobenthos Combined	Good	Good	Good	Good	2027 - Low Confidence	Disproportionately expensive: Disproportionate burdens
Macrophytes sub element	Good	Good	Good			
Physio-Chemical Quality Elements	Good	Good	Good	Good	2027 - Low Confidence	Disproportionately expensive: Disproportionate burdens
Ammonia (Phys-Chem)	High	High	High	Good	2015	
Dissolved Oxygen	Moderate	Good	Good	Good	2015	
Phosphate	Moderate	Good	Good	Good	2027	Disproportionately expensive: Disproportionate burdens
Temperature	High	High	High	Good	2015	
pH	High	High	High	Good	2015	
Hydromorphological Supporting Elements	Supports Good	Supports Good	Supports Good	Supports Good	2015	
Chemical	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Priority Hazardous Substances	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	Good	Good	N/A	Good	2015	
Dioxins and dioxin-like compounds	Good	Good	N/A	Good	2015	
Heptachlor and cis-Heptachlor Epoxide	Good	Good	N/A	Good	2015	
Hexabromocyclododecane	Good	Good	N/A	Good	2015	
Hexachlorobenzene	Good	Good	N/A	Good	2015	
Hexachlorobutadiene	Good	Good	N/A	Good	2015	
Mercury and Its Compounds	Fail	Fail	N/A	Good	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	Fail	Fail	N/A	Good	2015	
Polybrominated diphenyl ethers (PBDE)	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Priority substances	Good	Good	N/A	Good	2015	
Cypermethrin (Priority)	N/A	N/A	N/A	Good	2015	
Fluoranthene	Good	Good	N/A	Good	2015	
Other Pollutants	N/A	N/A	N/A	N/A	2015	Did not require assessment

Tributary (source to Sherston Avon) Catchment Classification Summary

Classification Item	2019 Classification		2022 Classification	Cycle 3 Objectives		
	Cycle 2	Cycle 3	Cycle 3	Status	Year	Reasons
Ecological	Good	Good	Good	Good	2015	
Biological Quality Elements	Good	Good	Good	Good	2015	
Invertebrates	Good	Good	Good	Good	2015	
Macrophytes and Phytobenthos Combined	Good	Good	Good	Good	2015	
Physio-Chemical Quality Elements	Good	Good	Good	Good	2015	
Acid Neutralising Capacity	N/A	N/A	N/A	Good	2015	
Ammonia (Phys-Chem)	Good	Good	Good	Good	2015	
Dissolved Oxygen	High	High	High	Good	2015	
Phosphate	Good	Good	Good	Good	2015	
Temperature	High	High	High	Good	2015	
pH	High	High	High	Good	2015	
Hydromorphological Supporting Elements	Supports Good	Supports Good	Supports Good	Supports Good	2015	
Supporting Elements (surface Water)	N/A	N/A	N/A	N/A	N/A	
Mitigation Measures Assessment	N/A	N/A	N/A	N/A	N/A	
Specific Pollutants	N/A	N/A	N/A	N/A	N/A	
Iron	N/A	N/A	N/A	N/A	N/A	
Maganese	N/A	N/A	N/A	N/A	N/A	
Chemical	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Priority Hazardous Substances	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	Good	Good	N/A	Good	2015	
Dioxins and dioxin-like compounds	N/A	Good	N/A	Good	2015	
Heptachlor and cis-Heptachlor Epoxide	Good	Good	N/A	Good	2015	
Hexabromocyclododecane	Good	Good	N/A	Good	2015	
Hexachlorobenzene	Good	Good	N/A	Good	2015	
Hexachlorobutadiene	Good	Good	N/A	Good	2015	
Mercury and Its Compounds	Fail	Fail	N/A	Good	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	Good	Good	N/A	Good	2015	
Polybrominated diphenyl ethers (PBDE)	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Priority substances	Good	Good	N/A	Good	2015	
Cypermethrin (Priority)	Good	Good	N/A	Good	2015	
Fluoranthene	Good	Good	N/A	Good	2015	
Other Pollutants	N/A	N/A	N/A	N/A	2015	Did not require assessment

Sherston Avon Water Body Catchment Classification Summary

Classification Item	2019 Classification		2022 Classification	Cycle 3 Objectives		
	Cycle 2	Cycle 3	Cycle 3	Status	Year	Reasons
Ecological	Poor	Poor	Poor	Good	2027 - Low Confidence	Disproportionately expensive: Disproportionate burdens
Biological Quality Elements	Poor	Poor	Poor	Good	2027 - Low Confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	High	High	High	Good	2027 - Low Confidence	
Macrophytes and Phytobenthos Combined	Poor	Poor	Poor	Good	2027 - Low Confidence	Disproportionately expensive: Disproportionate burdens
Physio-Chemical Quality Elements	Moderate	Moderate	Good	Good	2027 - Low Confidence	Disproportionately expensive: Disproportionate burdens
Acid Neutralising Capacity	N/A	N/a	N/A	Good	2015	
Ammonia (Phys-Chem)	High	High	High	Good	2015	
Dissolved Oxygen	Moderate	Moderate	N/A	Good	2015	
Phosphate	Good	Good	Good	Good	2027	Disproportionately expensive: Disproportionate burdens
Temperature	High	High	High	Good	2015	
pH	High	High	High	Good	2015	
Hydromorphological Supporting Elements	Supports Good	Supports Good	Supports Good	Supports Good	2015	
Supporting Elements (surface Water)	N/A	N/A	N/A	N/A	N/A	
Mitigation Measures Assessment	N/A	N/A	N/A	N/A	N/A	
Specific Pollutants	N/A	N/A	N/A	N/A	N/A	
Iron	N/A	N/A	N/A	N/A	N/A	
Maganese	N/A	N/A	N/A	N/A	N/A	
Chemical	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Priority Hazardous Substances	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	Good	Good	N/A	Good	2015	
Dioxins and dioxin-like compounds	N/A	Good	N/A	Good	2015	
Heptachlor and cis-Heptachlor Epoxide	Good	Good	N/A	Good	2015	
Hexabromocyclododecane	Good	Good	N/A	Good	2015	
Hexachlorobenzene	Good	Good	N/A	Good	2015	
Hexachlorobutadiene	Good	Good	N/A	Good	2015	
Mercury and Its Compounds	Fail	Fail	N/A	Good	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	Good	Good	N/A	Good	2015	
Polybrominated diphenyl ethers (PBDE)	Fail	Fail	N/A	Good	2063	Natural conditions: Chemical status recovery time
Priority substances	Good	N/A	N/A	Good	2015	
Cypermethrin (Priority)	Good	Good	N/A	Good	2015	
Fluoranthene	Good	Good	N/A	Good	2015	
Other Pollutants	N/A	N/A	N/A	N/A	2015	Did not require assessment

Annex B – Manning's Open Channel Flow Mapping

317212 Lime Down Solar C1

Manning's Open Channel Flow Calculation

Methodology

Cross-sections through the floodplain were extracted from Environment Agency (EA) LiDAR DTM data (flown March 2020) at the locations shown in Figure 1. These cross-sections can be considered representative of the channel and general floodplain adjacent to the site and at the location of the proposed development. The cross-sections were imported into Flood Modeller and the "tabulate cross section properties" tool was utilised to establish the level-flow relationship for the channel and wider floodplain. This tool utilises the Manning's open channel flow equation. Manning's 'n' roughness was set to 0.03s/$m^{1/3}$ for the channel and 0.04s/$m^{1/3}$ for the floodplain. These values were chosen based on Chow (1959)* and aerial imagery. The channel slope was set for each cross-section based on underlying LiDAR.

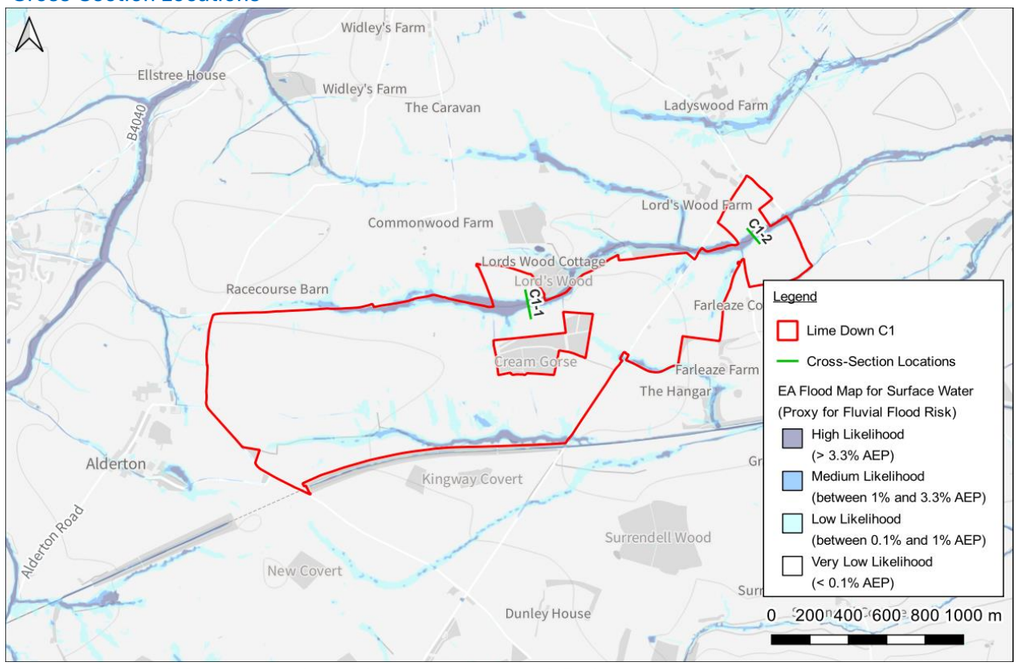
In the absence of detailed flood extent data covering the site, the extents of the EA surface water flood map (0.1% AEP event, present day) have been compared to underlying LiDAR data to provide an estimate of water levels. The surface water flood map has been used as a proxy for fluvial flooding given the similarity to the EA Flood Zone 2 extent and the additional detail it affords.

Within this excel workbook, the xlookup function has been used along with the Flood Modeller level-flow relationship for the cross-sections to determine the equivalent flow for each estimated water level, rounding up where a direct match is not found. The appropriate climate change uplifts have then been applied to these flows and a second xlookup used to determine the equivalent level for the increased flow.

Cross-sections have been located at suitable locations throughtout the proposed development. Whilst it is acknowledged that the Manning's open channel flow equation used to determine the level-flow relationship does not constitute detailed hydraulic modelling, the calculation can still be considered suitable to demonstrate the scale of the changes in water level that can be expected when considering a +71% uplift in flows (Avon Bristol and North Somerset Streams Management Catchment, 2080's higher allowance).

**Chow, V.T. (1959). Open-Channel Hydraulics. New York, NY: McGraw-Hill.*

Cross-Section Locations



Calculated Flows and Levels

Cross-Section	Level Description	Estimated Flood Level (m AOD)	Estimated Equivalent Flow (m^3/s)	Flow +71% CC Uplift (m^3/s)	Equivalent Flood Level (m AOD)
C1-1	0.1% AEP EA FMfSW water level	110.90	40.7	69.6	111.17 (+271mm)
C1-2	0.1% AEP EA FMfSW water level	103.60	154.2	263.7	103.94 (+336mm)

Tabulated Cross-Section Properties // C1-1

(Calculated by Flood Modeller)

Node	Flow (m^3/s)	Stage (m AOD)	Depth (m)	Velocity (m/s)	Froude no.	Area (m^2)	Conveyance (m^3/s)	Width (m)	W Perim. (m)	Slope
C1-1	0.000	109.501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0024
C1-1	0.001	109.544	0.043	0.093	0.205	0.012	0.023	0.583	0.597	0.0024
C1-1	0.007	109.586	0.085	0.148	0.230	0.050	0.149	1.167	1.194	0.0024
C1-1	0.024	109.634	0.133	0.212	0.250	0.116	0.495	1.588	1.632	0.0024
C1-1	0.053	109.682	0.181	0.262	0.264	0.202	1.071	2.010	2.070	0.0024
C1-1	0.094	109.730	0.229	0.306	0.274	0.309	1.909	2.432	2.509	0.0024
C1-1	0.156	109.782	0.281	0.350	0.283	0.446	3.163	2.860	2.955	0.0024
C1-1	0.237	109.834	0.333	0.391	0.291	0.606	4.798	3.288	3.402	0.0024
C1-1	0.338	109.886	0.385	0.429	0.298	0.788	6.847	3.717	3.849	0.0024
C1-1	0.461	109.941	0.440	0.458	0.303	1.007	9.325	4.320	4.470	0.0024
C1-1	0.613	109.995	0.494	0.487	0.307	1.259	12.402	4.923	5.091	0.0024
C1-1	0.780	110.042	0.541	0.519	0.312	1.503	15.770	5.343	5.527	0.0024
C1-1	0.970	110.090	0.589	0.549	0.317	1.767	19.628	5.762	5.963	0.0024
C1-1	0.996	110.096	0.595	0.553	0.331	1.803	20.153	6.355	6.559	0.0024
C1-1	1.032	110.104	0.603	0.554	0.374	1.862	20.877	8.320	8.526	0.0024
C1-1	1.090	110.116	0.615	0.555	0.376	1.965	22.052	8.851	9.062	0.0024
C1-1	1.184	110.133	0.632	0.557	0.387	2.126	23.957	10.073	10.287	0.0024
C1-1	1.214	110.138	0.637	0.558	0.394	2.177	24.555	10.679	10.893	0.0024
C1-1	1.293	110.149	0.648	0.559	0.437	2.313	26.159	13.878	14.094	0.0024
C1-1	1.308	110.151	0.650	0.559	0.441	2.341	26.467	14.311	14.527	0.0024
C1-1	1.308	110.151	0.650	0.559	0.441	2.341	26.467	14.311	14.527	0.0024
C1-1	1.339	110.155	0.654	0.558	0.446	2.399	27.079	15.064	15.282	0.0024
C1-1	1.380	110.160	0.659	0.557	0.462	2.479	27.908	16.731	16.949	0.0024
C1-1	1.414	110.164	0.663	0.555	0.462	2.547	28.606	17.305	17.523	0.0024
C1-1	1.555	110.179	0.678	0.550	0.465	2.825	31.450	19.815	20.035	0.0024
C1-1	1.586	110.182	0.681	0.550	0.465	2.885	32.076	20.256	20.477	0.0024
C1-1	1.743	110.196	0.695	0.549	0.453	3.176	35.249	21.191	21.414	0.0024
C1-1	1.787	110.200	0.699	0.548	0.458	3.263	36.141	22.418	22.641	0.0024
C1-1	1.824	110.203	0.702	0.548	0.456	3.331	36.890	22.680	22.903	0.0024
C1-1	2.061	110.221	0.720	0.549	0.448	3.755	41.691	24.522	24.747	0.0024
C1-1	2.147	110.227	0.726	0.549	0.462	3.910	43.429	27.184	27.410	0.0024
C1-1	2.147	110.227	0.726	0.549	0.462	3.910	43.429	27.184	27.410	0.0024
C1-1	2.148	110.228	0.727	0.546	0.460	3.938	43.452	27.442	27.667	0.0024
C1-1	2.221	110.233	0.732	0.545	0.461	4.078	44.918	28.709	28.935	0.0024
C1-1	2.370	110.242	0.741	0.546	0.452	4.338	47.949	29.143	29.370	0.0024
C1-1	2.689	110.260	0.759	0.552	0.440	4.874	54.401	30.335	30.562	0.0024
C1-1	2.922	110.272	0.771	0.557	0.433	5.242	59.111	31.086	31.314	0.0024
C1-1	3.130	110.283	0.782	0.560	0.430	5.592	63.317	32.424	32.652	0.0024
C1-1	3.411	110.296	0.795	0.567	0.427	6.020	68.990	33.534	33.762	0.0024

Node	Flow (m^3/s)	Stage (m AOD)	Depth (m)	Velocity (m/s)	Froude no.	Area (m^2)	Conveyance (m^3/s)	Width (m)	W Perim. (m)	Slope
C1-1	3.524	110.301	0.800	0.569	0.426	6.189	71.274	33.974	34.202	0.0024
C1-1	4.237	110.329	0.828	0.592	0.421	7.162	85.711	35.511	35.740	0.0024
C1-1	4.657	110.344	0.843	0.605	0.419	7.700	94.209	36.263	36.493	0.0024
C1-1	5.381	110.368	0.867	0.627	0.418	8.585	108.845	37.453	37.683	0.0024
C1-1	6.038	110.388	0.887	0.646	0.418	9.343	122.135	38.329	38.560	0.0024
C1-1	7.008	110.416	0.915	0.671	0.419	10.438	141.757	39.927	40.159	0.0024
C1-1	7.077	110.418	0.917	0.673	0.419	10.518	143.146	40.096	40.329	0.0024
C1-1	7.366	110.427	0.926	0.677	0.420	10.884	148.992	41.216	41.448	0.0024
C1-1	7.531	110.432	0.931	0.679	0.427	11.095	152.337	42.967	43.200	0.0024
C1-1	7.568	110.435	0.934	0.674	0.422	11.224	153.078	43.210	43.443	0.0024
C1-1	9.329	110.476	0.975	0.716	0.425	13.032	188.699	44.981	45.216	0.0024
C1-1	9.555	110.481	0.980	0.721	0.425	13.257	193.272	45.228	45.463	0.0024
C1-1	11.130	110.514	1.013	0.753	0.428	14.775	225.135	46.756	46.992	0.0024
C1-1	12.156	110.534	1.033	0.773	0.430	15.718	245.897	47.597	47.835	0.0024
C1-1	13.509	110.559	1.058	0.798	0.432	16.921	273.262	48.632	48.871	0.0024
C1-1	15.235	110.589	1.088	0.828	0.435	18.398	308.165	49.845	50.085	0.0024
C1-1	16.259	110.606	1.105	0.845	0.437	19.252	328.880	50.545	50.786	0.0024
C1-1	18.534	110.642	1.141	0.878	0.441	21.099	374.897	52.080	52.322	0.0024
C1-1	19.028	110.650	1.149	0.884	0.441	21.518	384.900	52.582	52.825	0.0024
C1-1	20.178	110.668	1.167	0.898	0.443	22.474	408.152	53.668	53.911	0.0024
C1-1	22.383	110.699	1.198	0.927	0.446	24.157	452.750	54.939	55.184	0.0024
C1-1	23.865	110.719	1.218	0.945	0.448	25.265	482.745	55.777	56.023	0.0024
C1-1	25.965	110.746	1.245	0.969	0.451	26.785	525.215	56.835	57.082	0.0024
C1-1	28.593	110.778	1.277	0.999	0.454	28.622	578.365	57.997	58.247	0.0024
C1-1	30.498	110.800	1.299	1.020	0.456	29.906	616.914	58.716	58.966	0.0024
C1-1	35.358	110.853	1.352	1.069	0.461	33.062	715.207	60.376	60.630	0.0024
C1-1	35.827	110.858	1.357	1.074	0.462	33.364	724.704	60.554	60.808	0.0024
C1-1	38.251	110.885	1.384	1.092	0.464	35.020	773.736	62.064	62.320	0.0024
C1-1	40.695	110.910	1.409	1.112	0.466	36.585	823.181	63.110	63.367	0.0024
C1-1	42.504	110.928	1.427	1.127	0.468	37.727	859.760	63.868	64.126	0.0024
C1-1	46.573	110.966	1.465	1.159	0.471	40.179	942.071	65.145	65.405	0.0024
C1-1	49.851	110.995	1.494	1.185	0.474	42.080	1008.378	66.020	66.282	0.0024
C1-1	54.550	111.035	1.534	1.219	0.477	44.746	1103.428	67.235	67.500	0.0024
C1-1	57.610	111.061	1.560	1.239	0.479	46.506	1165.329	68.231	68.497	0.0024
C1-1	59.765	111.080	1.579	1.250	0.480	47.813	1208.909	69.273	69.539	0.0024
C1-1	61.352	111.093	1.592	1.259	0.481	48.717	1241.013	69.835	70.103	0.0024
C1-1	66.935	111.136	1.635	1.293	0.485	51.752	1353.954	71.343	71.613	0.0024
C1-1	71.739	111.171	1.670	1.322	0.488	54.268	1451.132	72.427	72.699	0.0024
C1-1	73.926	111.188	1.687	1.332	0.489	55.507	1495.358	73.275	73.548	0.0024
C1-1	76.117	111.205	1.704	1.341	0.490	56.760	1539.676	74.192	74.466	0.0024
C1-1	79.822	111.231	1.730	1.360	0.491	58.702	1614.620	75.193	75.468	0.0024
C1-1	86.449	111.275	1.774	1.393	0.494	62.043	1748.675	76.642	76.920	0.0024
C1-1	88.310	111.287	1.786	1.403	0.495	62.965	1786.311	77.031	77.309	0.0024
C1-1	94.481	111.327	1.826	1.430	0.498	66.078	1911.148	78.617	78.898	0.0024
C1-1	97.884	111.348	1.847	1.445	0.499	67.736	1979.984	79.342	79.625	0.0024
C1-1	102.603	111.377	1.876	1.465	0.501	70.053	2075.439	80.450	80.733	0.0024
C1-1	107.677	111.406	1.905	1.487	0.503	72.397	2178.076	81.220	81.506	0.0024
C1-1	119.201	111.469	1.968	1.537	0.507	77.564	2411.176	82.806	83.098	0.0024
C1-1	123.319	111.492	1.991	1.552	0.508	79.478	2494.472	83.631	83.924	0.0024
C1-1	125.774	111.507	2.006	1.558	0.509	80.739	2544.144	84.501	84.795	0.0024
C1-1	128.890	111.525	2.024	1.567	0.510	82.269	2607.167	85.422	85.716	0.0024
C1-1	134.925	111.558	2.057	1.585	0.511	85.111	2729.239	86.890	87.186	0.0024
C1-1	136.594	111.567	2.066	1.590	0.512	85.896	2762.999	87.298	87.595	0.0024
C1-1	140.728	111.591	2.090	1.599	0.513	88.009	2846.624	88.825	89.123	0.0024
C1-1	143.831	111.607	2.106	1.608	0.514	89.436	2909.384	89.517	89.815	0.0024
C1-1	149.863	111.637	2.136	1.626	0.515	92.139	3031.410	90.715	91.015	0.0024
C1-1	155.612	111.665	2.164	1.643	0.517	94.695	3147.699	91.847	92.148	0.0024
C1-1	159.170	111.682	2.181	1.654	0.518	96.262	3219.666	92.529	92.831	0.0024
C1-1	168.487	111.724	2.223	1.682	0.520	100.177	3408.125	93.874	94.179	0.0024
C1-1	174.939	111.752	2.251	1.701	0.521	102.817	3538.633	94.700	95.006	0.0024
C1-1	179.624	111.775	2.274	1.711	0.522	105.011	3633.396	96.066	96.373	0.0024
C1-1	183.778	111.793	2.292	1.722	0.523	106.746	3717.430	96.734	97.043	0.0024
C1-1	190.224	111.821	2.320	1.738	0.525	109.470	3847.813	97.870	98.180	0.0024
C1-1	196.661	111.849	2.348	1.752	0.526	112.228	3978.021	99.138	99.449	0.0024
C1-1	198.994	111.859	2.358	1.758	0.526	113.222	4025.209	99.591	99.903	0.0024
C1-1	209.913	111.904	2.403	1.783	0.528	117.745	4246.081	101.440	101.754	0.0024
C1-1	210.163	111.905	2.404	1.783	0.528	117.846	4251.146	101.477	101.791	0.0024
C1-1	221.055	111.949	2.448	1.807	0.530	122.353	4471.464	103.352	103.668	0.0024
C1-1	223.123	111.957	2.456	1.811	0.531	123.181	4513.296	103.659	103.975	0.0024
C1-1	234.193	112.000	2.499	1.834	0.532	127.678	4737.207	105.500	105.819	0.0024
C1-1	234.891	112.003	2.502	1.835	0.532	127.994	4751.342	105.697	106.015	0.0024
C1-1	239.097	112.022	2.521	1.839	0.533	130.017	4836.415	107.123	107.442	0.0024
C1-1	243.277	112.039	2.538	1.845	0.533	131.846	4920.975	108.119	108.439	0.0024
C1-1	247.797	112.056	2.555	1.854	0.534	133.691	5012.397	108.932	109.253	0.0024
C1-1	259.250	112.097	2.596	1.876	0.536	138.192	5244.063	110.633	110.956	0.0024
C1-1	259.808	112.099	2.598	1.877	0.536	138.413	5255.359	110.721	111.044	0.0024
C1-1	268.193	112.130	2.629	1.890	0.537	141.871	5424.960	112.369	112.693	0.0024
C1-1	273.345	112.148	2.647	1.900	0.538	143.901	5529.175	113.181	113.505	0.0024
C1-1	279.893	112.171	2.670	1.910	0.539	146.517	5661.635	114.291	114.616	0.0024
C1-1	285.460	112.192	2.691	1.917	0.539	148.932	5774.233	115.677	116.003	0.0024
C1-1	286.307	112.195	2.694	1.918	0.539	149.279	5791.369	115.849	116.175	0.0024
C1-1	307.500	112.260	2.759	1.960	0.542	156.874	6220.063	117.826	118.156	0.0024
C1-1	308.211	112.262	2.761	1.962	0.543	157.110	6234.436	118.265	118.596	0.0024
C1-1	308.962	112.265	2.764	1.962	0.545	157.465	6249.629	119.100	119.430	0.0024
C1-1	311.750	112.276	2.775	1.963	0.546	158.783	6306.026	120.375	120.706	0.0024
C1-1	316.283	112.289	2.788	1.972	0.548	160.353	6397.715	121.214	121.545	0.0024
C1-1	321.203	112.303	2.802	1.982	0.550	162.059	6497.251	122.543	122.875	0.0024
C1-1	328.307	112.323	2.822	1.996	0.552	164.521	6640.943	123.662	123.995	0.0024
C1-1	331.050	112.333	2.832	1.997	0.553	165.763	6696.417	124.687	125.020	0.0024
C1-1	332.434	112.338	2.837	1.998	0.553	166.388	6724.427	125.193	125.526	0.0024
C1-1	342.333	112.364	2.863	2.018	0.556	169.658	6924.664	126.395	126.729	0.0024
C1-1	347.718	112.378	2.877	2.028	0.559	171.436	7033.582	127.604	127.939	0.0024
C1-1	362.573	112.416	2.915	2.056	0.562	176.313	7334.060	129.077	129.414	0.0024
C1-1	363.348	112.418	2.917	2.058	0.562	176.572	7349.734	129.162	129.499	0.0024
C1-1	374.288	112.446	2.945	2.077	0.565	180.209	7571.032	130.665	131.004	0.0024
C1-1	386.217	112.476	2.975	2.097	0.566	184.145	7812.326	131.758	132.098	0.0024
C1-1	395.665	112.499	2.998	2.114	0.568	187.185	8003.438	132.512	132.854	0.0024
C1-1	402.275	112.515	3.014	2.125	0.570	189.315	8137.156	133.753	134.095	0.0024
C1-1	417.423	112.551	3.050	2.150	0.573	194.157	8443.559	135.264	135.608	0.0024

Node	Flow (m^3/s)	Stage (m AOD)	Depth (m)	Velocity (m/s)	Froude no.	Area (m^2)	Conveyance (m^3/s)	Width (m)	W Perim. (m)	Slope
C1-1	417.848	112.552	3.051	2.151	0.573	194.293	8452.151	135.307	135.651	0.0024
C1-1	431.409	112.585	3.084	2.170	0.575	198.786	8726.469	137.022	137.367	0.0024
C1-1	437.242	112.599	3.098	2.178	0.576	200.709	8844.462	137.715	138.061	0.0024
C1-1	447.229	112.622	3.121	2.194	0.578	203.888	9046.479	138.715	139.062	0.0024
C1-1	463.547	112.659	3.158	2.217	0.580	209.050	9376.548	140.323	140.672	0.0024
C1-1	465.772	112.664	3.163	2.221	0.580	209.753	9421.559	140.616	140.965	0.0024
C1-1	473.689	112.683	3.182	2.230	0.582	212.437	9581.706	141.982	142.332	0.0024
C1-1	480.432	112.699	3.198	2.238	0.583	214.717	9718.102	143.106	143.456	0.0024
C1-1	484.496	112.708	3.207	2.243	0.584	216.008	9800.311	143.634	143.985	0.0024
C1-1	504.253	112.751	3.250	2.269	0.586	222.223	10199.943	145.419	145.772	0.0024
C1-1	507.042	112.757	3.256	2.273	0.586	223.097	10256.360	145.706	146.059	0.0024
C1-1	520.273	112.785	3.284	2.290	0.588	227.194	10524.002	146.998	147.353	0.0024
C1-1	537.569	112.821	3.320	2.312	0.590	232.515	10873.850	148.600	148.956	0.0024
C1-1	537.569	112.821	3.320	2.312	0.590	232.515	10873.850	148.600	148.956	0.0024
C1-1	551.256	112.847	3.346	2.332	0.592	236.392	11150.710	149.625	149.981	0.0024

Tabulated Cross-Section Properties // C1-2

(Calculated by Flood Modeller)

Node	Flow (m^3/s)	Stage (m AOD)	Depth (m)	Velocity (m/s)	Froude no.	Area (m^2)	Conveyance (m^3/s)	Width (m)	W Perim. (m)	Slope
C1-2	0.000	102.303	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0126
C1-2	0.000	102.310	0.007	0.065	0.349	0.005	0.003	1.342	1.343	0.0126
C1-2	0.012	102.337	0.034	0.245	0.486	0.049	0.107	1.896	1.901	0.0126
C1-2	0.038	102.365	0.062	0.350	0.532	0.108	0.338	2.450	2.459	0.0126
C1-2	0.079	102.392	0.089	0.433	0.560	0.183	0.706	3.005	3.017	0.0126
C1-2	0.166	102.428	0.125	0.557	0.596	0.298	1.477	3.348	3.368	0.0126
C1-2	0.281	102.464	0.161	0.661	0.622	0.425	2.503	3.691	3.719	0.0126
C1-2	0.425	102.501	0.198	0.752	0.642	0.565	3.785	4.035	4.070	0.0126
C1-2	0.598	102.537	0.234	0.834	0.658	0.717	5.330	4.378	4.421	0.0126
C1-2	0.802	102.573	0.270	0.910	0.673	0.881	7.147	4.721	4.772	0.0126
C1-2	1.038	102.609	0.306	0.981	0.685	1.058	9.247	5.065	5.123	0.0126
C1-2	1.155	102.624	0.321	1.012	0.739	1.141	10.291	5.962	6.022	0.0126
C1-2	1.188	102.628	0.325	1.018	0.781	1.167	10.582	6.738	6.798	0.0126
C1-2	1.230	102.633	0.330	1.022	0.860	1.204	10.961	8.382	8.443	0.0126
C1-2	1.304	102.641	0.338	1.017	0.948	1.281	11.616	10.910	10.972	0.0126
C1-2	1.304	102.641	0.338	1.017	0.948	1.281	11.616	10.910	10.972	0.0126
C1-2	1.333	102.644	0.341	1.012	1.008	1.317	11.878	12.807	12.870	0.0126
C1-2	1.368	102.647	0.344	1.008	1.011	1.356	12.185	13.378	13.441	0.0126
C1-2	1.507	102.658	0.355	0.993	1.024	1.517	13.424	15.802	15.866	0.0126
C1-2	1.549	102.661	0.358	0.988	1.075	1.568	13.798	18.215	18.278	0.0126
C1-2	1.563	102.662	0.359	0.985	1.089	1.587	13.927	19.018	19.082	0.0126
C1-2	1.593	102.664	0.361	0.980	1.111	1.626	14.195	20.509	20.572	0.0126
C1-2	1.593	102.664	0.361	0.980	1.111	1.626	14.195	20.509	20.572	0.0126
C1-2	1.636	102.667	0.364	0.969	1.095	1.689	14.578	21.163	21.227	0.0126
C1-2	2.482	102.706	0.403	0.976	0.930	2.543	22.116	22.674	22.741	0.0126
C1-2	3.308	102.734	0.431	1.033	0.895	3.202	29.469	23.584	23.653	0.0126
C1-2	4.289	102.763	0.460	1.103	0.884	3.888	38.210	24.494	24.565	0.0126
C1-2	5.067	102.783	0.480	1.156	0.884	4.384	45.137	25.132	25.205	0.0126
C1-2	6.281	102.811	0.508	1.226	0.912	5.125	55.958	27.810	27.885	0.0126
C1-2	6.507	102.817	0.514	1.229	0.919	5.296	57.969	29.046	29.122	0.0126
C1-2	6.547	102.818	0.515	1.229	0.921	5.325	58.322	29.321	29.398	0.0126
C1-2	6.628	102.820	0.517	1.231	0.931	5.384	59.043	30.188	30.265	0.0126
C1-2	6.539	102.821	0.518	1.207	0.936	5.415	58.253	31.911	31.987	0.0126
C1-2	6.539	102.821	0.518	1.207	0.936	5.415	58.253	31.911	31.987	0.0126
C1-2	6.567	102.822	0.519	1.205	0.958	5.448	58.504	33.744	33.821	0.0126
C1-2	6.692	102.828	0.525	1.183	0.955	5.658	59.615	36.161	36.238	0.0126
C1-2	6.737	102.830	0.527	1.176	0.949	5.731	60.018	36.646	36.723	0.0126
C1-2	7.722	102.847	0.544	1.212	0.953	6.371	68.794	38.674	38.753	0.0126
C1-2	8.994	102.867	0.564	1.256	0.954	7.164	80.124	40.597	40.677	0.0126
C1-2	10.422	102.888	0.585	1.299	0.943	8.026	92.846	41.502	41.583	0.0126
C1-2	12.212	102.911	0.608	1.358	0.942	8.991	108.793	42.431	42.513	0.0126
C1-2	14.004	102.933	0.630	1.408	0.948	9.944	124.754	44.180	44.263	0.0126
C1-2	15.913	102.954	0.651	1.462	0.950	10.881	141.763	45.090	45.174	0.0126
C1-2	16.416	102.962	0.659	1.459	0.948	11.248	146.243	46.588	46.672	0.0126
C1-2	19.201	102.989	0.686	1.534	0.955	12.519	171.058	47.567	47.653	0.0126
C1-2	21.786	103.012	0.709	1.596	0.961	13.648	194.085	48.525	48.612	0.0126
C1-2	24.534	103.036	0.733	1.658	0.968	14.800	218.563	49.484	49.572	0.0126
C1-2	27.988	103.064	0.761	1.727	0.976	16.203	249.337	50.786	50.876	0.0126
C1-2	29.314	103.075	0.772	1.748	0.979	16.766	261.151	51.546	51.636	0.0126
C1-2	32.726	103.101	0.798	1.806	0.984	18.122	291.543	52.764	52.856	0.0126
C1-2	35.824	103.123	0.820	1.857	0.989	19.293	319.141	53.671	53.764	0.0126
C1-2	39.065	103.145	0.842	1.907	0.994	20.483	348.020	54.578	54.672	0.0126
C1-2	42.648	103.167	0.864	1.964	1.000	21.719	379.938	55.256	55.352	0.0126
C1-2	46.381	103.190	0.887	2.019	1.006	22.970	413.195	55.934	56.031	0.0126
C1-2	50.355	103.215	0.912	2.065	1.013	24.389	448.601	57.573	57.672	0.0126
C1-2	50.847	103.218	0.915	2.070	1.014	24.562	452.980	57.770	57.869	0.0126
C1-2	56.906	103.252	0.949	2.146	1.022	26.518	506.961	59.017	59.118	0.0126
C1-2	63.302	103.285	0.982	2.220	1.030	28.516	563.940	60.264	60.366	0.0126
C1-2	64.086	103.289	0.986	2.228	1.031	28.758	570.926	60.415	60.517	0.0126
C1-2	69.321	103.316	1.013	2.282	1.038	30.374	617.559	61.583	61.686	0.0126
C1-2	74.769	103.342	1.039	2.335	1.044	32.022	666.094	62.750	62.855	0.0126
C1-2	77.099	103.353	1.050	2.357	1.046	32.714	686.852	63.224	63.329	0.0126
C1-2	81.975	103.375	1.072	2.403	1.051	34.114	730.290	64.052	64.159	0.0126
C1-2	87.001	103.397	1.094	2.448	1.056	35.533	775.064	64.880	64.988	0.0126
C1-2	92.751	103.422	1.118	2.498	1.062	37.134	826.288	65.837	65.946	0.0126
C1-2	98.689	103.446	1.143	2.546	1.067	38.759	879.191	66.793	66.903	0.0126
C1-2	99.182	103.448	1.145	2.550	1.078	38.893	883.582	68.213	68.324	0.0126
C1-2	99.443	103.449	1.146	2.552	1.079	38.962	885.909	68.254	68.365	0.0126
C1-2	107.054	103.477	1.174	2.620	1.087	40.861	953.712	69.058	69.171	0.0126
C1-2	114.929	103.504	1.201	2.686	1.096	42.783	1023.869	69.862	69.977	0.0126
C1-2	123.062	103.532	1.229	2.751	1.104	44.727	1096.325	70.666	70.783	0.0126
C1-2	126.669	103.544	1.241	2.779	1.108	45.577	1128.461	71.086	71.203	0.0126
C1-2	134.415	103.569	1.266	2.838	1.116	47.365	1197.467	71.883	72.002	0.0126

Annex C - EA Product Data

[i] https://www.google.co.uk/maps
[ii] https://www.bgs.ac.uk/map-viewers/geoindex-onshore/
[iii] https://flood-map-for-planning.service.gov.uk/
[iv] https://check-long-term-flood-risk.service.gov.uk/postcode
[v] https://environment.data.gov.uk/hydrology/climate-change-allowances/river-flow

From: Wessex Enquiries <WessexEnquiries@environment-agency.gov.uk>
Sent: 04 November 2024 07:50
To: [redacted]@mabbett.eu>
Subject: 381197 WX 241016/SM07 FW: 317212 Lime Down Data Request

Dear [redacted]

Thank you for your enquiry below.

RE: Request for information under the Freedom of Information Act 2000 (FOIA) / Environmental Information Regulations 2004 (EIR)

We do not have any records or modelling of groundwater flooding in any of these areas but some of the groundwater monitoring bores (all located in the valleys) do go artesian.

Water level data for the nearby monitoring boreholes is attached.

- Hullavington 1
- Hullavington 2
- Foxley 1
- Foxley 2
- Sherston STW Prod NGR:
- Luckington 3 NGR: ST8336083140

There are no licensed groundwater abstractions in the areas given but there are licences down gradient as listed in the attached spreadsheet.

We do not have records of known contaminated sites but a list of closed pollution incidents is attached.

There are no licensed or historic landfills, or waste management licences in the areas given.

There are several Source Protection Zones in the areas given. Note the 'c' suffix denotes a confined SPZ for deep subsurface activity such as fracking or deep bores, so not applicable to surface activities.

- Lime Down A: SPZ2c and SPZ3
- Lime Down B: SPZ1c and SPZ2c and SPZ3
- Lime Down C1: SPZ2c and SPZ3

- Lime Down C2: SPZ2c and SPZ3
- Lime Down D: SPZ1c and SPZ2c and SPZ3
- Lime Down E1: SPZ1c and SPZ2c
- Lime Down E2: SPZ1c and SPZ2c

The aquifer designations in the areas given are,

- Alluvium – Secondary A Aquifer with Medium to High Vulnerability
- Forest Marble limestone member - Principal Aquifer with High Vulnerability
- Forest Marble mudstone member - Secondary A Aquifer with High Vulnerability
- Cornbrash - Secondary A Aquifer with High Vulnerability
- Kellaways Clay – Unproductive Strata

Provision of FRA Product 4

Thank you for your recent request to use Environment Agency flood data. The information is attached.

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for Flood Risk Assessments and our attached advisory text.
https://www.gov.uk/planning-applications-assessing-flood-risk
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Further details about the Environment Agency information supplied and the permitted use of this information can be found on the GOV.UK website:
https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather
http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3

We respond to requests under the Freedom of Information Act 2000 (FOIA) and Environmental Information Regulations 2004 (EIR).

If you are not satisfied with our response to your request for information you can contact us within 2 calendar months to ask for our decision to be reviewed.

We really value your thoughts on how we are doing and will always make changes where we can to improve our service. Please click on the link below and fill in our survey.
http://www.smartsurvey.co.uk/s/EnvironmentAgencyCustomerSurvey/?a=DC *Thank you.*

Kind regards

[redacted]

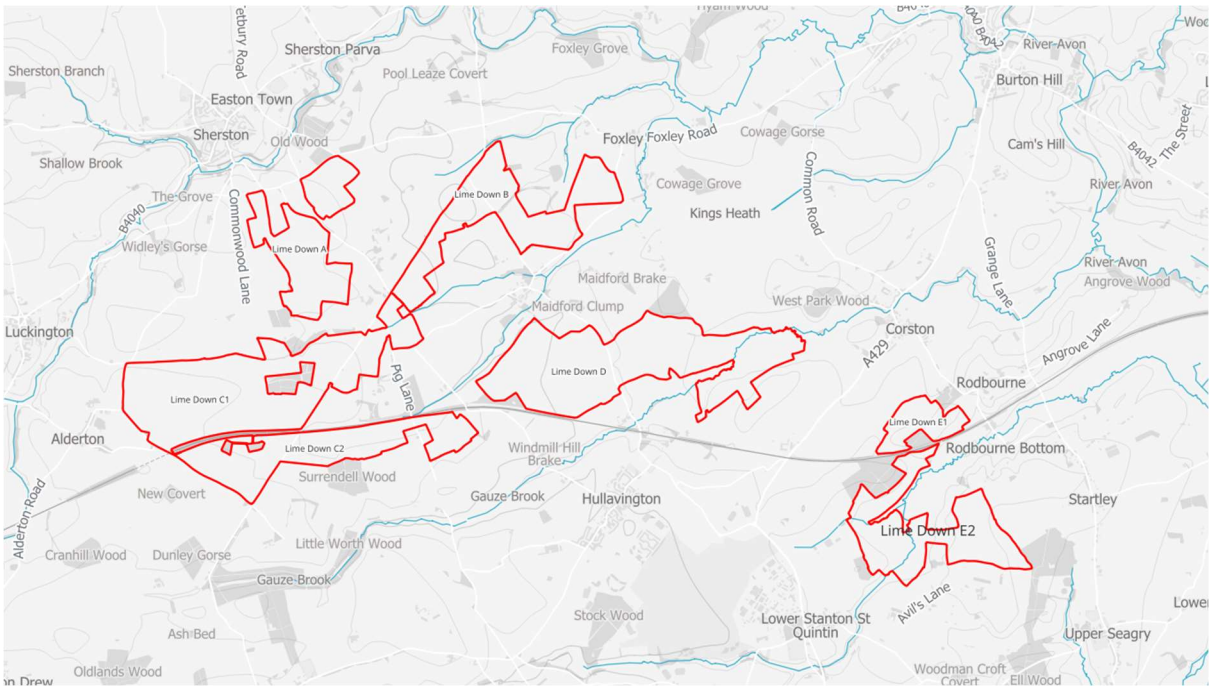
Environment Agency, Wessex Enquiries, Customer & Engagement Team

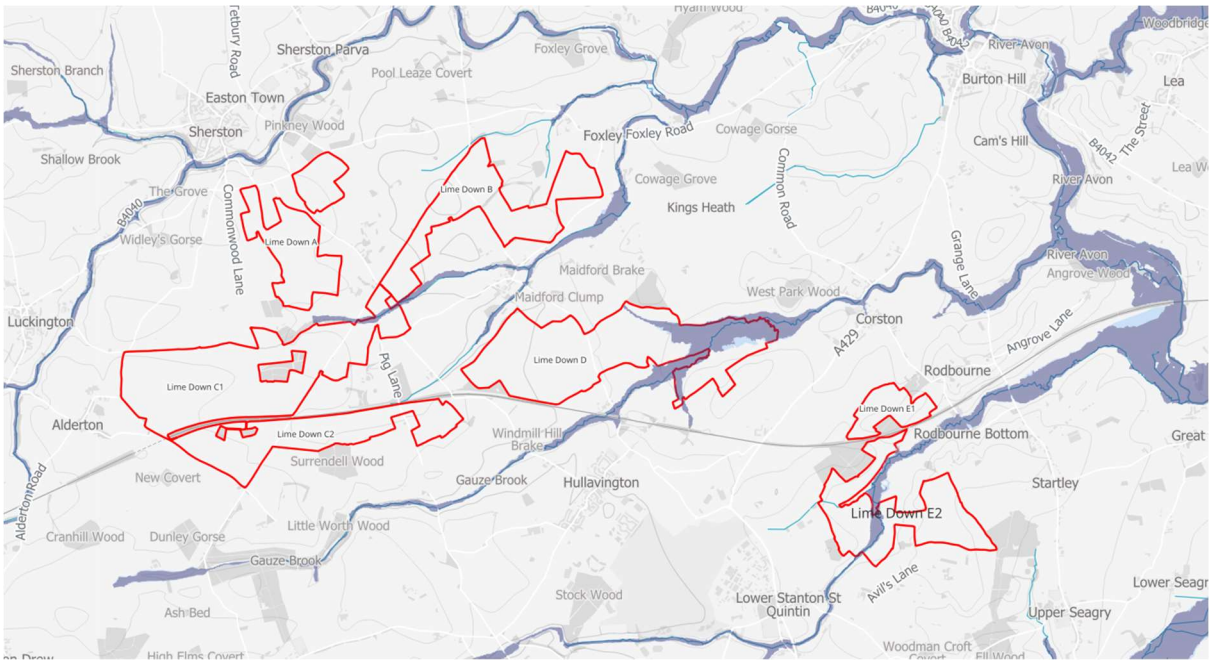
[redacted].- Wessex Enquiries

From: [redacted]@mabbett.eu>
Sent: 15 October 2024 14:01
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: 317212 Lime Down Data Request

To whom it may concern,

Mabbett & Associates Ltd have been instructed to undertake a Flood Risk Assessment and Drainage Strategy in support of a proposed solar site in Wiltshire, known as the site hereon. I attach a site location plan and the site details below. The site has been split into parcels which can be seen below (Lime Down A, B, C1, C2, D, E1 and E2).





According to the EA online Flood M Planning, the Site is shown to be located within Flood Zones 1, 2 and 3, however we would be grateful if you could provide **any nearby modelled flood level data** in order to inform our assessment of the Site.

It would therefore be useful if you are able to confirm/provide the followiap forng where available:

Site Details

Site Name	Lime Down SOlar
Address	Lime Down A: SN16 0PU (NGR: 385982, 184814) Lime Down B: SN16 0JS (NGR: 388179, 185419) Lime Down C1: SN14 6NL (NGR: 385300, 183486) Lime Down C2: SN16 0JZ (NGR: 386684, 182717) Lime Down D: SN14 6EU (NGR: 389526, 183654) Lime Down E1: SN16 0EX (NGR: 392655, 183066) Lime Down E2: SN14 6DA (NGR: 393123, 181766)

Data Request

Please provide any of the following information to enable us to complete our assessment:

Historical Flooding Information

· Any records, photographs, flood extents from known historic events in the area

Technical Data

· Any hydraulic models covering the site

· Raw and processed results for the model(s) above

- Hydraulic modelling report for the model(s) above
- Modelled floodplain levels and flows for node points within and in the immediate vicinity of the Site taking into account the most recent climate change allowances (where these have been modelled);

· Hydrology report and/or flood estimation calculation records for the model(s) above

· Survey data used to build the model or inform nearby studies

Supporting Data

- Flood/coastal defence survey data
- Operational procedures for hydraulic structures
- Section 19 flood investigation reports
- The date and type of modelling that flood levels have been derived from;
- The technical report summarising the modelling methodology;
- Confirmation that the data is appropriate/relevant to inform flood risk within the Site;
- Details of any flood defences within the vicinity of the Site (i.e type, crest levels, Standard of Protection, condition, etc) and any associated breach and/or overtopping flood extents and depths;
- Hazard mapping detailing the depth, velocity and associated hazard rating for the Site;
- Any information in relation to surface water flooding including confirmation is located within or outside of a Critical Drainage Area;
- Any information in relation to on-Site drainage;
- Any information in relation to groundwater flooding in the area. Where possible, please provide borehole locations and ground water levels;
- Details of sensitive aquifers and known contamination issues;
- Any information/mapping of historical flooding events on Site from all sources of flooding (i.e fluvial, tidal, surface water, groundwater, sewer, reservoir, canal, etc).

Where available please can you provide flood levels, estimated return periods, photographs and other such data that may be relevant to our assessment;

We trust this request is acceptable but please do not hesitate to contact us if you require any further information to assist with your response or wish to discuss the Site in further detail.

We look forward to hearing from you.

Thanks,

[redacted]

Consultant | Water Environment Team

Mobile: [redacted]

[redacted]@mabbett.eu www.mabbett.eu

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creating a better place

Environment Agency

[redacted]
Mabbett
[redacted]@mabbett.eu

Our ref: 381197-WX
Date: 4th November 2024

Dear [redacted]

Thank you for your enquiry which was received on 15th October 2024. We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

Abstract

Name	Product 4
Description	Flood Risk Information for land at **Lime Down** NGR: ST9009082825
Licence	Open Government Licence
Information Warnings	*The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply.*
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2023 Ordnance Survey *AC0000807064*.

Open Data

The following Environment Agency published datasets are now available on the weblink below as part of the Government's 'Open Data' project and are available for you to download free of charge.

Environment Agency published datasets: https://data.gov.uk/data/search?publisher=environment-agency&unpublished=false

You will need to search and select the name of the following datasets to take you directly to the weblink to enable you to download the data:

- Flood Map for Planning (Rivers and the Sea) – Flood Zones 2 and 3
- Flood Map for Planning (Rivers and Sea) – Areas Benefiting from Defences
- Flood Map for Planning (Rivers and Sea) Spatial Flood Defences
- Flood Map for Planning (Rivers and Sea) Flood Storage Areas
- Recorded Flood Outlines
- Historic Flood Map
- Risk of Flooding from Surface Water Extent for:
  - → 3 percent annual chance
  - → 1 percent annual chance
  - → 0.5 percent annual chance

You can also access the Flood Map for Planning here: https://flood-map-for-planning.service.gov.uk/

You can also access the Risk of Flooding from Surface Water maps and Risk of Flooding from Reservoirs information here: https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

Recorded Historic Flood Events

We no longer produce pdf copies of the Historic Flood Map. This information is available to search, select, and download free of charge as part of the Government's 'open data' as

- Recorded Flood Outlines
- the Historic Flood Map

Our historic records indicate that there was flooding in the area in **1925** (fluvial), **1932** (fluvial), **1954** (fluvial), **1979** (fluvial), **1999** (fluvial/unconfirmed source), **2007** (fluvial), **2009** (fluvial), **2012** (fluvial/unconfirmed source) and **2013** (fluvial).

Additionally, our historic records show a record of possible flooding pre 2012 for the area, however we are currently unable to confirm the date and source of this.

Please note - we cannot guarantee that this is an exhaustive list of all past flood events in this location. All reasonable care has been taken to ensure that the historical flood event data is as accurate as possible. The Environment Agency will update its records if new evidence emerges.

Modelled Fluvial Water Levels

We have not carried out any detailed fluvial flood risk modelling in this location.

The fluvial Flood Map in this area has been produced using our National Generalised Model (JFLOW). This modelling is fit for the purpose of the Flood Zones. However, it is not based on a specific channel survey. Neither water depths nor water levels were outputs specified when we commissioned this generalised modelling for the Flood Zones. Whilst the modelling process does provide some information on depth of water, it would have been possible to produce the flood extents without storing the water depth values, since water depth is only a 'by-product' of the calculation process. As this type of modelling was developed, tested and reviewed for production of the Flood Zone extents only, we have no information on the accuracy of the water depth data. Water depth or level outputs from this model are only suitable to be used for decision making at a broad catchment scale and is not fit for the purpose of a site-specific flood risk assessment.

For your information we have supplied maps showing the water depths derived from JFLOW for the 1% AEP (100yr) and 0.1% AEP (1000yr) fluvial modelled flood scenarios.

Please note - The Environment Agency is currently carrying out a project to update the National Generalised model (JFLOW). The New National Model outputs are expected in Spring 2025. Our published flood risk information for this area will be updated using outputs from the New National Model and this is expected to take place in late 2025 (current programme which may change). This will be carried out as part of the National project to update our National flood risk mapping and modelling information across England and will incorporate outputs from detailed local models together with updated National modelling.
New National Model Details.

The New National Modelling (NNM) is a set of models for rivers, surface water and the sea covering the whole of England. The NNM has been created to fill in gaps where we don't have local

hydraulic models, our local models require updating or we need additional model scenarios such as climate change runs.

Please also note - we are currently carrying out a National project to update our flood risk information for the whole of England. We will be updating our flood risk information in 2025 as part of the new National Flood Risk Assessment (NaFRA2). This will include the data displayed on the Check Your Long-Term Flood Risk service and the data displayed in the Flood Map for Planning (Rivers and Sea).

This should result in improvements to our mapping products, especially where we do not currently have any detailed local modelling. This means there will be some changes to our flood risk information in many areas when the new data is published.

You can find further information on the NaFRA2 project here: https://www.gov.uk/guidance/updates-to-national-flood-and-coastal-erosion-risk-information

For more information on climate change allowances please see the guidance on the Gov.UK website here: Flood risk assessments: climate change allowances - GOV.UK. **Please be aware that this information is subject to change, please check the guidance regularly.**

Environmental Permit for Flood Risk Activities

In addition to any other permission(s) that you may have already obtained e.g. planning permission, you may need an environmental permit for flood risk activities (formerly known as Flood Defence Consent prior to 06 April 2016) if you want to do work:

- in, under, over or near a main river (including where the river is in a culvert)
- on or near a flood defence on a main river
- in the flood plain of a main river
- on or near a sea defence

For further information and to check whether a permit is required please visit: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits.

For any further advice, please email Blandford.frap@environment-agency.gov.uk.

Ordinary Watercourse

Some of the watercourses adjoining this site are classed as an “Ordinary Watercourse” not a “Main River” under our control. Works to ordinary watercourses may require consent from either the Lead Local Flood Authorities or the Local Drainage Board.

Flood Asset Information

Please find enclosed details of Flood Assets within the area. This information has been taken from our Asset Information Management System database (AIMS).

Please note that flood defences can increase water levels elsewhere eg through channels being restricted by defences, or because defences prevent flood water flowing back into the river channel.

Planning

If you have questions regarding the planning nature of your enquiry, or require advice on floor levels, please contact our Sustainable Places team on wx.sp@environment-agency.gov.uk. Please be aware that we now charge for planning advice when consulted on pre-application enquiries. This new approach provides advice to developers in two ways. Firstly, there is the provision of ‘free’

advice available to everyone where we give a preliminary opinion on a proposed development. This sets out the environmental constraints together with any issues this raises for us. Should you wish us to review in detail any of these issues then we can do this through a chargeable scheme aimed at recovering our costs.

Strategic Flood Risk Assessment (SFRA)

When preparing a FRA to support a development proposal in this location you should refer to Wiltshire Council's SFRA Reports Level 1 which is available to download via the following link: https://www.wiltshire.gov.uk/media/5691/Strategic-Flood-Risk-Assessment-Level-1/pdf/Wiltshire_Council_Level_1_SFRA_v5.0.pdf?m=637459765054370000

The Wiltshire Council Local Plan is available via this link: https://www.wiltshire.gov.uk/planning-policy-local-plan-review-consultation

Further Information

We advise that you also contact the drainage engineer/ flood risk management team at Wiltshire Council by email: drainage@wiltshire.gov.uk, or by phone: 0300 456 0105, based at: Bythesea Road, Trowbridge, Wiltshire, BA14 8JN, as they may be able to provide further advice with respect to localised flooding and drainage issues.

Further details about the Environment Agency information supplied can be found on our website: https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

We hope you find this information helpful. It is provided subject to the attached notice 'Use of Environment Agency Information for Flood Risk Assessments', which we strongly recommend you read.

Yours sincerely

[redacted]

Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk

Enc: Use of Environment Agency Information for Flood Risk Assessments (below)
381197-WX 100yr JFLOW Depth Map (1%AEP)
381197-WX 1000yr JFLOW Depth Map (0.1%AEP)
381197-WX Defence Map
381197-WX Defence Data

Use of Environment Agency Information for Flood Risk Assessments (FRAs)

Important
Use of Environment Agency data: you should note that

1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk Assessment (FRA) where one is required, but the use of Environment Agency information does not constitute such an assessment on its own.

2. As part of your data request, we have provided all of the modelled data we hold for your location. Please note that some of our modelled information may have been produced for purposes other than for flood zone generation. This may mean that some of the modelled data you have been provided with has a lower confidence level, and has not been used in producing our flood map, nor definitively reflects the predicted flood water level at the property/development site scale. To check the suitability of the use of this information in your FRA please contact your local Partnership & Strategic Overview (PSO) team.

3. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or surface water runoff. The information produced by the Local Planning Authority and the Lead Local Flood Authority (LLFA) may assist in assessing other sources of flood risk.

4. Where a planning application requires a FRA and this is not submitted or deficient, the Environment Agency may well raise an objection.

5. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with your Local Planning Authority.

Pre-Planning Advice from the Environment Agency
If you have requested this information to help inform a development proposal, then we recommend that you undertake a formal pre-application enquiry using the form available from our website:

Pre-application Preliminary Opinion:
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Pre-application Charged Service:
https://www.gov.uk/government/publications/planning-advice-environment-agency-standard-terms-and-conditions

Depending on the enquiry we may also provide advice on other issues related to our responsibilities, including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

Flood Risk Assessment (FRA) Guidance
You should refer to the Planning Practice Guidance of the National Planning Policy Framework (NPPF) and the Environment Agency's Flood Risk Standing Advice for information about Flood Risk Assessment (FRA) for new development in the different Flood Zones. These documents can be accessed via:

National Planning Policy Framework Planning Practice Guidance:
http://planningguidance.planningportal.gov.uk/

Environment Agency advice on FRAs:

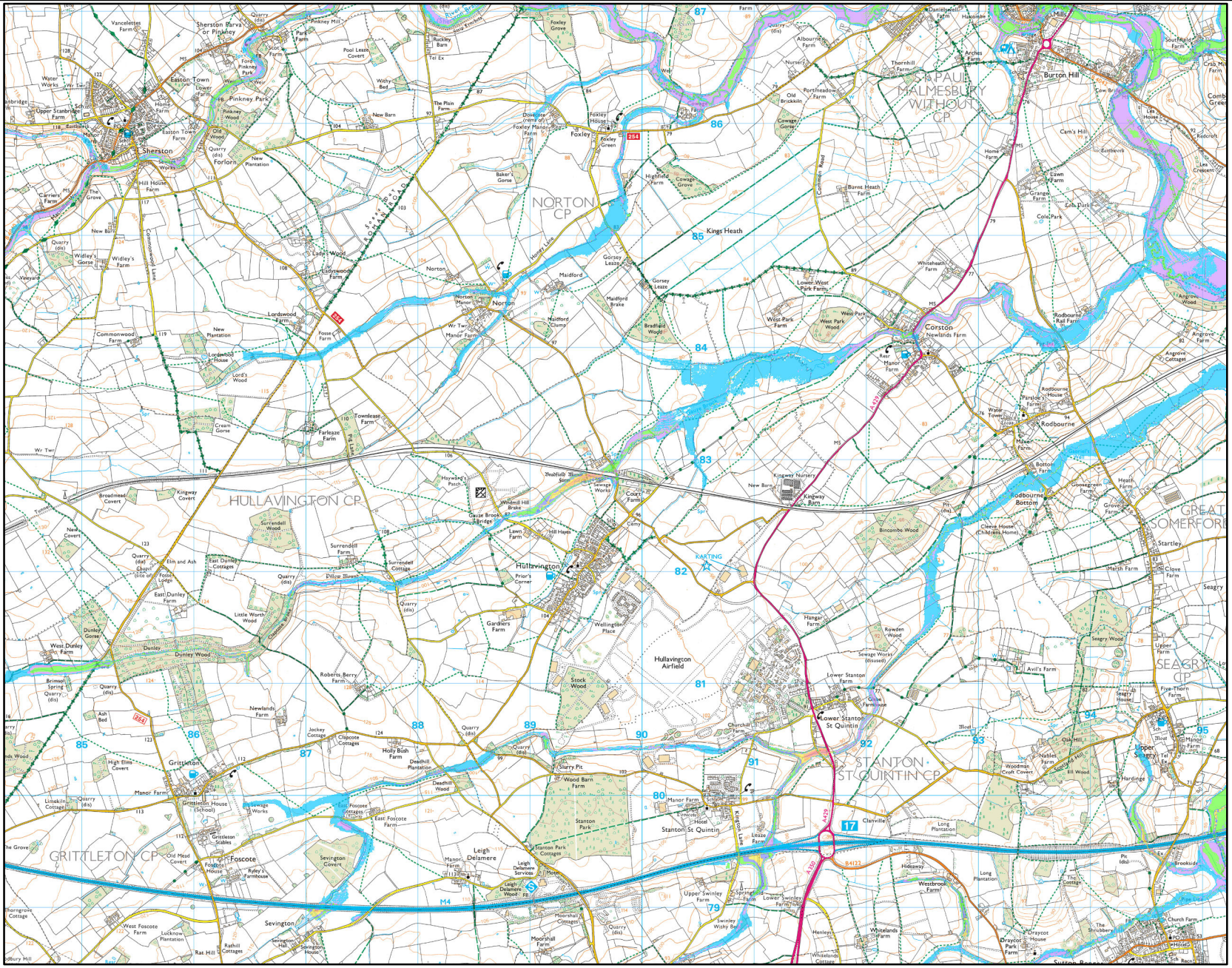
Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

https://www.gov.uk/flood-risk-assessment-for-planning-applications#when-to-follow-standing-advice

https://www.gov.uk/government/publications/planning-applications-assessing-flood-risk

Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

381197-WX - JFLOW Fluvial Water depths (m) Without Flood Defences. 100 year (1% AEP) centred on land at Lime Down [390090,182825].
Created 01.11.2024



Environment Agency

Scale 1:50,000

N W E S

Legend

100yr JFLOW Depth

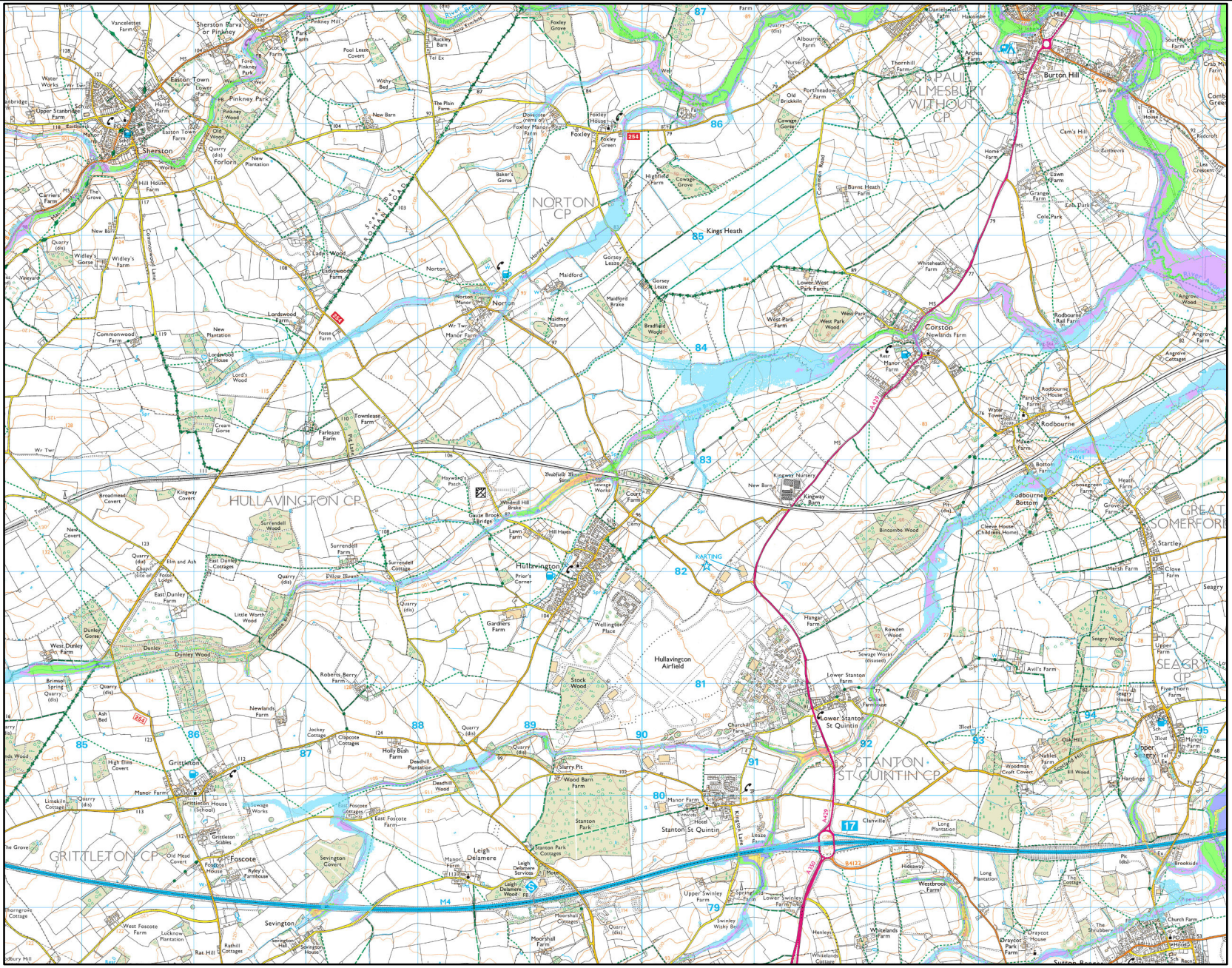
Metres

- 0 - 0.5
- 0.500000000 - 1
- 1.000000001 - 2
- 2.000000001 - 3
- 3.000000001 - 4
- 4.000000001 - 5
- 5.000000001 - 10
- 10.00000001 - 100

Information Warning
We do not recommend the use of water depths/levels derived from JFLOW for site specific investigations such as Flood Risk Assessments.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

381197-WX - JFLOW Fluvial Water depths (m) Without Flood Defences. 1000 year (0.1% AEP) centred on land at Lime Down [390090,182825].
Created 01.11.2024



Environment Agency

Scale 1:50,000

N
W E
S

Legend

1000yr JFLOW Depth

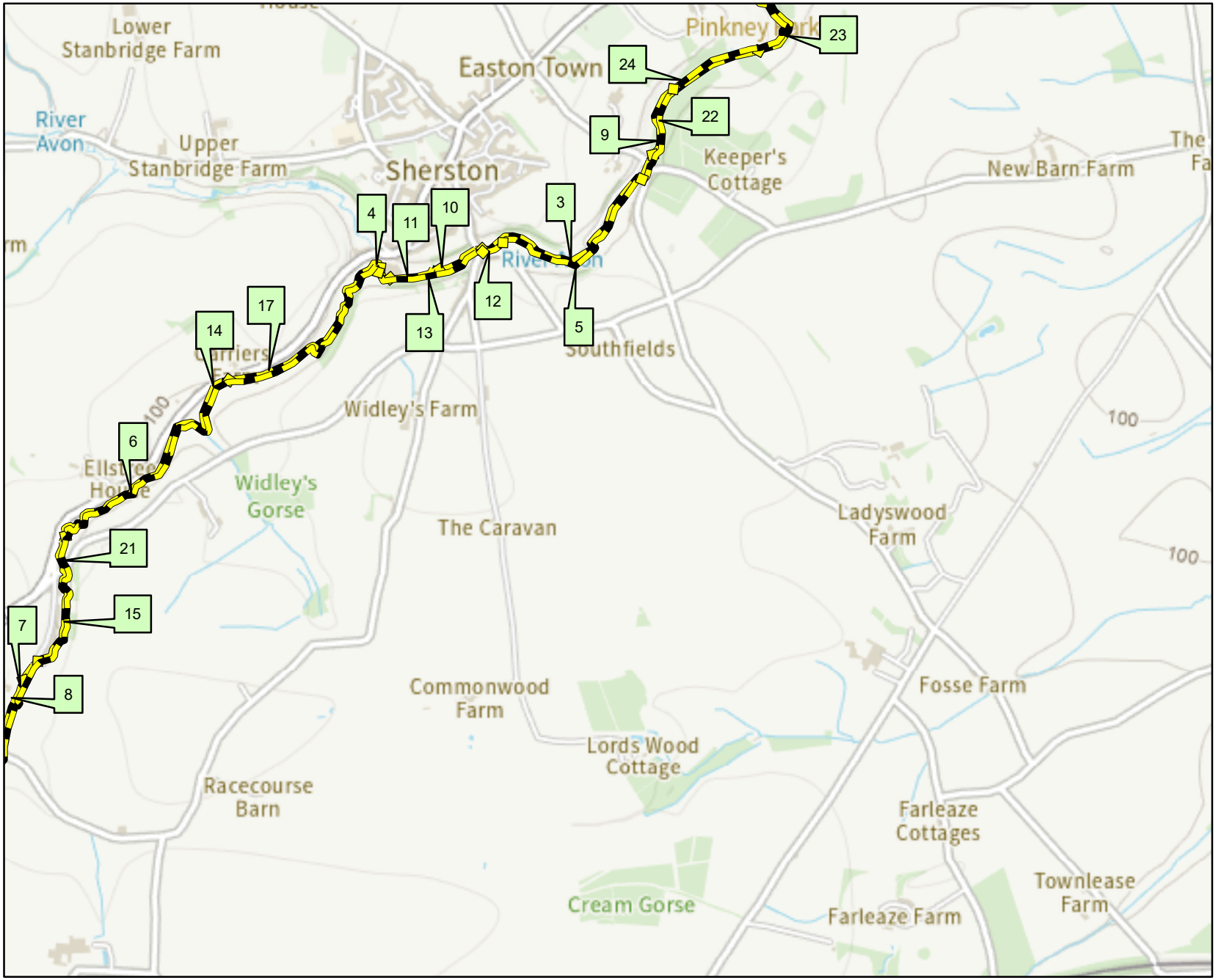
Metres

- 0 - 0.5
- 0.500000000 - 1
- 1.000000001 - 2
- 2.000000001 - 3
- 3.000000001 - 4
- 4.000000001 - 5
- 5.000000001 - 10
- 10.00000001 - 100

Information Warning
We do not recommend the use of water depths/levels derived from JFLOW for site specific investigations such as Flood Risk Assessments.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Current Flood Defences centered on NGR ST 85982 84814 Created 22/10/2024 Ref: 381197-WX



Environment Agency

Scale: 1:20,000

N W E S

Legend

Defences

- Barrier Beach
- Beach
- Bridge Abutment
- Cliff
- Demountable Defence
- Dunes
- Embankment
- Engineered High Ground
- Flood Gate
- Natural High Ground
- Promenade
- Quay
- Spillway
- Wall

This data has been extracted from the Asset Information Management System (AIMS OM) which was created to draw various data sources into one database and has been populated with information of varying quality.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Product 4 - AIMS Information **381197-WX** **Date:** **22/10/2024**

Map Ref	Asset ID	Asset Type	Right or left bank	Asset Description	Approx length (m)	Actual fluvial downstream crest level (mAOD)	Actual fluvial downstream crest level accuracy	Actual fluvial upstream crest level (mAOD)	Actual fluvial upstream crest level accuracy	Actual fluvial coastal crest level (mAOD)	Actual fluvial coastal crest level accuracy	NGR	Most recent inspection	Overall condition
3	40115	Natural High Ground	Left	Natural Bank	878.51	DNR	DNR	DNR	DNR	DNR	DNR	ST8592785717	07/04/2009	2 - Good
4	40116	Natural High Ground	Left	Stone wall	63.60	DNR	DNR	DNR	DNR	DNR	DNR	ST85158562	07/04/2009	2 - Good
5	40419	Natural High Ground	Right	Natural Bank	714.43	DNR	DNR	DNR	DNR	DNR	DNR	ST85898565	07/04/2009	2 - Good
6	40420	Natural High Ground	Left	Natural Bank	959.72	DNR	DNR	DNR	DNR	DNR	DNR	ST84218478	19/12/2007	3 - Fair
7	4605	Natural High Ground	Left	Natural channel with masonry retaining wall	89.38	DNR	DNR	DNR	DNR	DNR	DNR	ST8389484163	23/10/1996	3 - Fair
8	4606	Natural High Ground	Left	Natural Bank	1229.01	DNR	DNR	DNR	DNR	DNR	DNR	ST83618359	19/12/2007	3 - Fair
9	4730	Natural High Ground	Left	Natural Bank	275.81	DNR	DNR	DNR	DNR	DNR	DNR	ST8615986133	07/04/2009	3 - Fair
10	4731	Natural High Ground	Left	Natural channel with stone retaining wall	181.67	DNR	DNR	DNR	DNR	DNR	DNR	ST85438562	07/04/2009	2 - Good
11	4849	Natural High Ground	Left	Natural Bank	189.57	DNR	DNR	DNR	DNR	DNR	DNR	ST8525585581	07/04/2009	2 - Good
12	4851	Natural High Ground	Right	Stone Wall	83.61	DNR	DNR	DNR	DNR	DNR	DNR	ST85568567	07/04/2009	2 - Good
13	4852	Natural High Ground	Right	Natural Bank	425.87	DNR	DNR	DNR	DNR	DNR	DNR	ST85348558	07/04/2009	2 - Good
14	4853	Natural High Ground	Left	Natural channel with gabion retaining wall	35.34	DNR	DNR	DNR	DNR	DNR	DNR	ST8458185202	23/10/1996	2 - Good
15	4854	Natural High Ground	Left	Masonry Wall	537.87	DNR	DNR	DNR	DNR	DNR	DNR	ST84028445	23/10/1996	3 - Fair
17	88456	Natural High Ground	Left	Natural Bank	825.00	DNR	DNR	DNR	DNR	DNR	DNR	ST8491285333	19/12/2007	3 - Fair
21	89868	Natural High Ground	Right	Natural Bank	3685.06	DNR	DNR	DNR	DNR	DNR	DNR	ST8404084431	19/12/2007	3 - Fair
22	98384	Natural High Ground	Right	Natural Bank	708.60	DNR	DNR	DNR	DNR	DNR	DNR	ST8619186219	07/04/2009	3 - Fair
23	98385	Natural High Ground	Right	Natural channel with stone retaining wall	561.70	DNR	DNR	DNR	DNR	DNR	DNR	ST86538659	07/04/2009	3 - Fair
24	98386	Natural High Ground	Left	Natural channel with masonry retaining wall	1001.16	DNR	DNR	DNR	DNR	DNR	DNR	ST8650586598	07/04/2009	2 - Good

Notes

* Overall Condition has been taken from the most recent inspection
* Inspections are of a purely visual nature and do not necessarily reflect the true condition of the asset
* Condition: 1 = very good, Condtion 2 = good, Condition 3 = fair, Condition 4 = poor, Condition 5 = very poor
* Crest level accuracy: 1 = ± 0.01 to 0.05m, 2 = ± 0.05 to 0.15m, 3 = ± 0.15 to 0.75m, 4 = ± 0.75 or greater
* DNR = data not recorded