

Mallard Pass Solar Farm

Environmental Statement Volume 2 Appendix 11.3: Water Resources and Ground Conditions - Consultation Summary

November 2022

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Appendix 11.3 Consultation Record and Responses Relevant to Water Resources and Ground Conditions

- 1.1.1. This Appendix presents a summary of all consultation undertaken in relation to water resources and ground conditions to date with stakeholders for the Proposed Development.
- 1.1.2. Matters raised during consultation in relation to Water Resources and Ground Conditions, as well as how and where matters have been addressed within the EIA and ES is outlined in Table 1.



Table 1 Matters Raised during Consultation in Relation to Water Resources and Ground Conditions

Consultee	Date of Consultation	Main Matter Raised	How/Where has this Matter been Addressed
Rutland County Council (RCC) Flood Risk Officer RCC (LLFA) Robyn Green (RG)	21/10/2021	Request to confirm if any modelled flood data is held by RCC.	Automatic response received stating RG is on maternity leave.
RCC Highways Team	21/10/2021	To confirm appropriate point of contact and agree methodology of Flood Risk Assessment (FRA).	No response received.
RCC Highways Team	06/01/2022	Follow up email following no response to agree methodology on FRA and SuDS.	No response received.
Lincolnshire County Council, Ian Field.	06/01/2022	Meeting with LLFA to discuss FRA and SuDS requirements. Agreed that SuDS measures should focus on the substation and surface water management for the PV Arrays could be implemented through RSuDS techniques.	Agreement on principles for SuDS and FRA proposed by Arcus. Set out in <i>Appendix 12.5: Flood Risk Assessment</i> [EN010127/APP/6.2]
Environment Agency (EA)	06/01/2022	Request to EA enquiries unit for meeting with Sustainable Places Team to discuss the FRA methodology.	Follow up email to EA Sustainable Places (12/01/2022).



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EA Sustainable Places, Keri Monger	12/01/2022	To outline and agree on FRA methodology with EA.	Arcus requested if further discussion was required, a follow up meeting will be arranged.
Lincolnshire County Council, Ian Field	18/01/2022	To discuss any requirements for watercourse buffers.	LLFA indicate on 24/01/22 that IDBs control extended areas and to contact them.
Black Sluice IDB, lan Warsap	24/01/2022	To discuss any requirements for watercourse buffers	IDB respond (28/02/2022) via Andrew Scott and Guy Hird to confirm no issues with buffers and no consents required unless there are works within a watercourse.
EA	16/02/2022	Request for records of nearby abstractions.	Email response (10/03/2022) from EA providing list of licenced abstractions.
Anglian Water	16/02/2022	Request for records of nearby abstractions.	Request resent on 07/04/2022.
RCC, Environmental Health Office	16/02/2022	Record request of Private Water Supplies (PWS) within 2 km of Project site.	Response received on 17/02/2022. Data used to inform the assessment.
South Kesteven District Council	16/02/2022	Record request of PWS within 2 km of Project site.	Response received on 14/03/2022. Data used to inform the assessment.



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(SKDC), Customer Services, Christian Polzin			
RCC, Lisa Borley.	17/02/2022	Response from RCC providing registered PWS.	Letters issued to residents on 02/04/2022.
EA Sustainable Places, Keri Monger	24/02/2022	Email to confirm EA meeting on 16/03/2022. Also outlined the methodology for climate change allowances and how flood levels have been extrapolated.	Response received (01/03/2022) with meeting invite. Information provided passed onto Rachel Storey of Partnerships and Strategic Overview team to review prior to meeting.
Lincolnshire County Council, Ian Field.	02/03/2022	Email to LLFA to invite them to meeting between Arcus and EA.	N/A
Black Sluice IDB, Andrew Scott. Witham IDB, Guy Hird.	02/03/2022	Email to IDBs to confirm the 6 m buffer. Also to invite them to meeting between Arcus and EA.	N/A
Rutland County Council, Robyn Green RCC Highways Team	02/03/2022	Email to RCC to invite them to meeting between Arcus and EA.	N/A



Consultee	Date of Consultation	Main Matter Raised	How/Where has this Matter been Addressed
RCC, Nick Hodgett	03/03/2022	Email to planning officer to obtain details of flood risk teams.	N/A
EA (Sustainable Places Team), Nicola Farr	09/03/2022	Email from EA SPT to confirm the flood risk officer is satisfied with the modelling approach and meeting between Arcus and the EA is not required.	No meeting is required, and the development has been designed in accordance with EA advice.
EA, Nigel Cooper	10/03/2022	ES response providing details of licensed abstractions.	Information provided.
SKDC, Claire Watson	14/03/2022	Response from SKDC providing registered PWS.	Letters issued to residents on 07/04/2022.
PINS (Scoping Opinion)	18/03/2022	ID. Ref: 3.5 The Inspectorate agrees that the presence of chemicals and soil disturbance during operation, including maintenance procedures is unlikely to give rise to significant effects. The Inspectorate expects that the ES will explain why the operational development will not give rise to routine emissions of chemicals or sediment and how emergency releases would be managed within an Operation Environment Management Plan and/or Soil Management Plan and Battery	Soils and chemical pollution during operation phase to be scoped out of ES chapter. The battery storage elements of the Proposed Development have been removed from the Proposed Development.



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		Safety Management Plan. Therefore, the Inspectorate is content to scope this matter out.	
PINS (Scoping Opinion)	18/03/2022	ID Ref: 3.5.2the site is at risk of flooding and that the elements of the project lie within groundwater Source Protection Zones 1 and 2 and the River Welland catchment Surface Water Safeguard Zone. This aspect chapter should consider the cumulative effects of these steel poles being driven into the ground across the entirety of the developable area in addition to any impacts from changes in surface run off from the panel and impermeable ground coverings on the drainage patterns within the site and the study area.	Due to the overlying superficial geology across the Order Limits and absence of groundwater encountered within the trial pits for infiltration testing, groundwater is unlikely to be present at depths at which the PV Array racking system will be driven into the ground. As such, there is limited potential for effects, including cumulative effects, on groundwater resources and receptors which rely on the resource.
PINS (Scoping Opinion)	18/03/2022	ID Ref: 3.5.3 - The ES should consider if there is potential for piling for the solar panels to interrupt any drainage/irrigation systems that may be present below ground and any field drains present.	The potential for damage to private agricultural subsurface drainage and irrigation is considered within Section 11.4 of <i>Chapter 11: Water Resources and Ground Conditions</i> of the ES and concludes that the drainage network could still function even in the event of disruption / damage



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			by PV Array racking system. Damage will be mitigated through an as-built inspection and remediation of any damage, as outlined in the outline Water Management Plan (oWMP) [EN010127/APP/7.13].
Anglian Water (Scoping Opinion)	18/03/2022	We (Anglian Water) would consider that Anglian Water should be included on the list of consultees to be drawn up by the applicant to follow their proposed approach to assessment and consultation in Chapter.	Anglian Water have been consulted regarding the Proposed Development and Anglian Water's proposed alterations to the West Glen River.
Anglian Water (Scoping Opinion)	18/03/2022	There are existing Anglian Water assets including water mains within the site and water and wastewater infrastructure including rising mains near the site or within roads which serve the site and the surrounding villages and Stamford. These are principally located in and near the communities of Carlby, Essendine, Ryhall and Great Casterton. Anglian Water works with	Anglian Water infrastructure has been avoided in the design of the Proposed Development.



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		developers including those constructing projects under the 2008 Planning Act to ensure requests	
		for alteration of sewers, wastewater and water supply infrastructure is planned to be	
		undertaken with the minimum of disruption to the project and customers. We welcome the	
		intention to draw up a Water and Construction Management Plan.	
Anglian Water (Scoping Opinion)	18/03/2022	At page 25, paragraph 2.9.3 the report (scoping) refers to groundwater and the Source Protection Zones	Due to the overlying superficial geology across the Order Limits and absence of groundwater encountered within the trial pits for infiltration
		within the site. Section 7.7 of the report considers Water Resources. Paragraph 7.7.12 advises	testing, groundwater is unlikely to be present at depths at which the PV Array racking system will
		that public and private water supplies will be considered in the ES. Anglian Water notes the	be driven into the ground. As such, there is limited potential for effects, on groundwater resources and receptors which rely on the resource.
		reference to the River Welland and requests that the ES set out any potential impacts on Anglian	reseptors willouriety of the resource.
		Waters abstraction locations on the river and the related water treatment and supply network.	



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Anglian Water (Scoping Opinion)	18/03/2022	We (Anglian Water) note thatthe FRA will calculate the size of SuDS to manage surface water runoff. No reference is made to the need for connection to the public sewer network. At paragraph 7.7.31 reference is made to run off from hardstandings. Anglian Water requests confirmation that no connection is required to the public sewer network for construction including site compounds and welfare facilities or operational buildings (paragraph 3.1.22) or activities.	No connection to the surface or foul network is proposed. The Order Limits will drain and discharge to the West Glen River. As outlined in <i>Appendix 11.6 Outline Surface Water Drainage Strategy</i> the Proposed Development will not require a connection to Anglian Water assets and will drain to the nearest watercourse via SuDS.
Environment Agency (Scoping Opinion)	18/03/2022	Solar farms are classified as 'essential infrastructure' in relation to flood risk vulnerability. As the site is largely Flood Zone 1, the proposal raises little concern in relation to fluvial flood risk. However, the River West Glen, a main river, does run through the site, with a narrow corridor of associated Flood Zones 2 and 3. We would therefore expect a full flood risk assessment to be carried out, as confirmed in sections 7.7.17 and	The FRA in <i>Appendix 12.5: Flood Risk Assessment</i> considers all sources of flooding. A sequential approach to site design has been adopted, with only minor areas of PV array located in Flood Zone 3. Buffer distances have been maintained and will reduce the potential for sediment transfer during the construction phase.



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		7.7.28-30. This must cover all sources of flood risk and management of surface water runoff; however, the Environment Agency's role is to advise on fluvial risk only. We recommend that the developer avoids siting solar panels within Flood Zone 3 throughout the site, to protect the floodplain and the development itself. We agree with the proposed buffer strip between the river and proposed solar panel development, as set out in section 3.2.2 of the report. Any works within 8m of the river will require a flood risk activity permit (please see below).	Regarding the WFD status of the West Glen River, there is potential for improvement in the status through ecological enhancements, complimenting river restoration works we have been made aware of via an external party. SuDS and foul drainage is addressed in <i>Appendix 11.6 Outline Surface Water Drainage Strategy</i>
Environment Agency (Scoping Opinion)	18/03/2022	Notwithstanding the outcome of the Water Framework Directive screening assessment proposed in section 7.7.32, we would like the EIA to investigate how the development could improve the WFD status of the West Glen, not just avoid deterioration. A suitable strategy will be required for disposal of foul flows from staff amenity facilities	The WFD status of the West Glen River is likely to be improved by proposed ecological enhancement along the central corridor of the Order Limits. Furthermore, we are aware of proposals by a Third Party to improve the canalised section of the West Glen River in the central section of the Order Limits which is likely to compliment the ecological enhancements from a hydrological perspective.



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		during the construction phase – and during operation if the site will be staffed.	
Greatford PC (Scoping Opinion)	18/03/2022	It is the very strong opinion of Greatford Parish Council that Mallard Pass should consider the impacts outside of the site – specifically Greatford and draw upon local information from residents who can provide evidence of both pluvial and fluvial flooding. Mallard Pass has acknowledged some flood issues on site and the need to elevate panels, we would challenge this baseline information as not being representative and inclusive and the report fails to consider in any detail potential effects upon downstream receptors such as the village of Greatford and The Greatford Cut which is the primary flood defence for the village.	Appendix 12.5: Flood Risk Assessment considers all sources of flooding. focusses on potential impacts to the Proposed Development and incorporates measures, such as SuDS to limit the potential for surface water to be transferred to the wider hydrological network at rates above greenfield (i.e. current surface water run-off rates) i.e. the offsite flooding situation would remain the same as the baseline. Regarding welfare facilities, foul water will be either treated onsite or contained and disposed of offsite via a licensed contractor.



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Greatford PC (Scoping Opinion)	18/03/2022	"An initial baseline study shows that elements of the Proposed Development north of Essendine village and south of Wood Farm lie within groundwater Source Protection Zones (SPZ) 1 and 2 and outside of the River Welland catchment Surface Water Safeguard Zone". Given this information it will be critical to avoid any water contamination from damaged solar panels and/or on site battery storage faults (Fires) and mitigation needs to be clearly identified.	Battery storage elements have been removed from the Proposed Development. Embedded design measures and good practice outlined in the <i>oWMP</i> will limit the potential for pollution events to occur. As outlined in Section 11.4 of <i>Chapter 11: Water Resources and Ground Conditions</i> of the ES, damaged solar panels are unlikely to leak chemicals.
Greatford PC (Scoping Opinion)	18/03/2022	Depending on when the site walkover is done will significantly impact the conclusions reached. 2021/22 has been very dry. To supplement the desk and walkover studies, every Parish Council and Flood Warden where applicable should also be contacted to build the knowledge base; in particular, the Greatford Flood Warden has a wealth of knowledge in this Parish.	Site walkovers were undertaken in a variety of weather conditions allowing for an understanding of the hydrological regime to be obtained. Consultation with members of Greatford PC and the Flood Warden were undertaken via virtual meeting and the information used to inform the assessment.



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Greatford PC (Scoping Opinion)	18/03/2022	7.7.13. P164. "Infiltration testing will be conducted at the Site in early 2022. The infiltration testing will comprise of test pits which will be utilised for testing to Building Research Establishment (BRE) 365 (2016) standard in order to confirm the permeability of the underlying soils and suitability for infiltration drainage." Is this the right testing approach? The infiltration rates at the soil surface are of great concern from a flooding point of view, while test pits are useful to determine field capacity surface infiltration will be key to understanding how large volumes of water draining from panels at their lower edge will interact with the soil post construction, there is a	BRE 365 is the most appropriate testing standard to inform infiltration rate at the Proposed Development and is industry standard to determine infiltration rates. Run-off rates have been determined using the Interim Code of Practice for SuDS (ICP SuDS) method in MicroDrainage.
		very real danger that large volumes of water will running downhill will erode channels leading to erosion, rapid water runoff, increased flood risk	
		and siltation issues down stream. This does not	



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		appear to be considered in the scoping report and should be investigated.	
Greatford PC (Scoping Opinion)	18/03/2022	7.7.19. P166. "Draft NPS EN-3 (BEIS, 2021) outlines the requirements for an FRA and the promotion of the use of sustainable drainage systems (SuDS)."	SuDS measures to maintain greenfield rates are presented in <i>Appendix 11.6 Outline Surface Water Drainage Strategy.</i>
		Mallard Pass has not detailed the use of SuDs so far, just acknowledged there are flood risk areas and will raise the height of solar panels. This does not take into account the impact of water run-off outside of the site, and in particular the impact upon flood defences such as the Greatford Cut.	
Greatford PC (Scoping Opinion)	18/03/2022	7.7.21. P168. "The baseline data will be used to assess the potential effects of the Proposed Development on	The Wider Study Area has been agreed with statutory consultees and has been used to inform the assessment in <i>Chapter 11: Water Resources</i>
		hydrological and hydrogeological resources within a 5km study area. This study area is based on the	and Ground Conditions of the ES.
		hydrological and hydrogeological connectivity of water bodies located downstream of the Proposed	



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		Development."	
		MPs need to show flood maps taking into account the 5km study area, currently Greatford is just off their	
		map. Please note that the Water Resources Sensitivity table in Appendix 7.6 – this applies to Greatford Cut (a	
		flood defence) and is highly sensitive.	
Greatford PC (Scoping Opinion)	18/03/2022	7.7.29. P169. "The FRA will be produced and will focus on the following elements:	Battery elements have been removed from the Development.
		Assessment of the introduction of new hard- standing areas on the greenfield run-off rates, using Micro	Existing access routes will be used rather than new access tracks and the run-off from the PV arrays will be managed through vegetation and planting
		Drainage software."	measures to slow the flow of run-off.
		This needs to take into account all the new access tracks and hard-standing bases for all the battery storage on the solar PV site, and runoff from the panels themselves.	



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Greatford PC	18/03/2022	 7.7.31 P170 "Construction effects" – there is no mention of impact of compaction of the soil, temporary access tracks etc on water run-off. "Operational Effects • Increase in surface water run-off from areas of hard-standing;" - there is no mention of the impact of run-off from the solar panels themselves. Normally rain is dispersed evenly across the ground, when it falls on solar panels up to 3.5m high, there will be a huge concentration of water run-off at the bottom of the panels, leading to water channels being created, and speeding up the flow of water if the ground is unable to absorb it. These effects need to be taken account of. 	Compaction of soil is discussed in Section 11.4 of Chapter 11: Water Resources and Ground Conditions of the ES. Management of surface water is outlined in Appendix 11.6 Outline Surface Water Drainage Strategy, including the use of regular drip lines in the PV array tables to ensure there is no single concentration of rainfall at the leading edge.
Greatford PC (Scoping Opinion)	18/03/2022	7.7.39. P172. Issues to be scoped out. "Potential transfer of chemicals to surface water resources during	Battery storage elements are no longer part of the Proposed Development. Damage to panels is unlikely and the release of chemicals is highly



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		operation". Given the possibility of contamination from damaged panels or chemical leak from battery fire on the solar PV site, this should in our opinion be scoped in.	unlikely to occur due to the structural nature of the PV Arrays.
Lincolnshire County Council (LCC)	18/03/2022	The Council is also agreeable to the general approach and methodology detailed within the Scoping Report. • It is requested that the Flood Risk Assessment includes, or is accompanied by, a Drainage Strategy that details proposals required as necessary mitigation for the impact of the development on the surface water regime. Any mitigation proposals would need to follow the SuDS hierarchy in CIRIA guidelines. Paragraph 3.2.2 sets out the minimum stand-off distance for ditches however these may need to be increased where ditches are owned/maintained by Internal Drainage Boards (IDB). Typically such ditches require a minimum 9m buffer on each side of the ditch in order to allow access for maintenance. The advice of any	Noted and SuDS details are included within the Appendix 12.5: Flood Risk Assessment. Drainage ditches within the Order limits are not adopted by the IDB and therefore the 9m buffer is not applicable.



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		IDB should therefore be sought and appropriate buffers designed into the final site layout.	
Rutland County Council (RCC)	18/03/2022	The RCC's LLFA are not concerned about the main areas for the panels, as the installations will not affect the overall area of drainage which will remain permeable, however full details of surface water drainage of all buildings and hard surfaced access roads will be required for further review. The LLFA will expect to see nil discharge from the application site, given the size of the site. It is suggested that roof rainwater harvesting could be considered to assist with the cleaning maintenance of the panels, but soakaways or other sustainable drainage techniques are used. There is no information about how or what the internal access roads will be constructed from, but these could potentially be permeable systems to mirror the existing natural form of surface water drainage.	Appendix 11.6 Outline Surface Water Drainage Strategy proposes SuDS measures to limit the Onsite Substation areas to discharge surface water at greenfield rates.



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Anglian Water	07/04/2022	Request for records of nearby abstractions.	Response received 11/04/2022 and abstractions considered in Section 11.4 of <i>Chapter 11: Water Resources and Ground Conditions</i> of the ES
Anglian Water, Darl Sweetland	11/04/2022	Request for records of nearby abstractions.	Stated views on ES provided to PINS. Follow up on 13/04/2022.
RCC Registered PWS: Hales Lodge; North Lodge; Tickencote Hall; and Tickencote Warren Farm.	02/04/2022	Issued first batch of letters to residents with potential PWS.	Follow up where resident responses received. Issued second letter on 14/07/2022.
SKDC Registered PWS: Banthorpe Lodge; The Stables; Kettles Barn; Glen Lodge; Bowthorpe Park Farm; Spa	07/04/2022	Issued first batch of letters to residents with potential PWS.	Follow up where resident responses received. Issued second letter on 14/07/2022.



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House; Spa Cottage; Spa Lodge Farm.			
Kettles Barn, Michelle Feasey.	20/04/2022	Information regarding PWS.	Information received from resident.
The Stables, Tom Burgoyne.	28/04/2022	Information regarding PWS.	Information received from resident.
Bowthorpe Park Farm, Mr Blanchard.	04/05/2022	Arcus missed call regarding information of possible PWS.	Follow up call with resident on 05/05/2022.
Bowthorpe Park Farm, Mr Blanchard.	05/05/2022	Information on PWS. Unavailable at time of call.	Follow up call with resident on 17/05/2022.
Bowthorpe Park Farm, Mr Blanchard.	17/05/2022	Information on PWS. Resident did not wish to provide details of supply.	Invoice received from resident on 21/07/2022.
Chris Granville White, Flood Warden at Greatford Parish Council	23/06/2022	Views of parish council and flood warden on flood risk associated with the Proposed Development.	The FRA has been updated to provide further detail on surface water flooding.



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Public at Greatford public consultation event	30/06/2022	Concerns relating to flood risk raised.	Appendix 12.5: Flood Risk Assessment has been updated to provide further detail on surface water flooding.
Anglian Water, Darl Sweetland.	04/07/2022	Request for GIS information on abstraction locations.	Noted that Chris Dilley now Anglian Water contact.
Anglian Water, Chris Dilley.	05/07/2022	Contact to provide coordinates and abstraction rates.	Follow up email sent 06/07/2022.
The Stables, Tom Burgoyne.	12/07/2022	Access to shared PWS in Banthorpe Lodge garden and resident contact details.	No response received. Follow up call on 27/07/2022.
RCC and SKDC registered PWS: Banthorpe Lodge; Bowthorpe Park Farm; Glen Lodge; Hales Lodge; North Lodge; Spa Cottage; Spa House; Spa Lodge Farm; Tickencote Hall; and	14/07/2022	Issued second batch of letters where no response received.	Follow up where resident responses received. Properties visited during site visit on 01/08/2022 and 02/08/2022.



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Tickencote Warren Farm.			
Black Sluice IDB, Andrew Scott	18/07/2022	Confirmed that IDB consents required for work within watercourses.	Noted and will be considered as part of the Requirements.
Lincolnshire County Council, LCC Stage 2 Response	03/08/2022	Approach for SuDS agreed.	Best practice outlined in Appendix 11.6 Outline Surface Water Drainage Strategy.

