Table 11-23: Assessment of Residual Impacts: Construction Phase

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
Route Section 1							
Surface water dependent habitat designated sites and chalk streams (West Beck [River Hull], Kelk Beck, Nafferton Beck)	High	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible/ Minor	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures. Emergency incident response procedure with appropriate remediation.	Negligible	Negligible/ Minor
	High	Runoff from the construction via trenchless techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible/ Minor	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures. Emergency incident response procedure with appropriate remediation.	Low	Negligible/ Minor
	High	Impacts from water abstraction.	Negligible	Negligible/ Minor	Where abstraction is necessary, permits will be obtained in agreement with the appropriate regulator in accordance with the Catchment Abstraction Management Strategy and be for less than a 28-day duration per water body.	Negligible	Negligible/ Minor
	High	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes	Negligible	Negligible/ Minor	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures. Emergency incident response procedure with appropriate remediation.	Negligible	Negligible/ Minor

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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	High	Temporary bridge crossings causing bed and bank disturbance.	Negligible	Negligible/Minor	Temporary bridges will be clear span, with no bed or bank reinforcements, and foundations set well back from the bank edge. The soffits should be >0.6 m higher than bank tops with no change to surrounding ground level profiles surrounding the crossing. They will be sited to avoid tree/root loss and cross at straight reaches, perpendicular to flow where practicably possible.	Negligible	Negligible/ Minor
	High	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible/Minor	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures. Emergency incident response procedure with appropriate remediation.	Negligible	Negligible/ Minor
	High	Outfall and headwall installation at Nafferton Beck will cause loss of natural banks within the drains could lead to reduced bank roughness, that may increase scour downstream of structures.	Negligible	Negligible/Minor	Implementation of embedded mitigation measures which includes no part of the outfall structure protruding beyond the line of the bank, this includes headwalls, wingwalls and protection aprons.	Negligible	Negligible/ Minor
Main rivers and ordinary watercourses - WFD designated and IDB maintained (Auburn Beck, Gransmoor Drain, Northfield Beck, Nafferton	Medium	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Medium	Runoff from the construction via trenchless techniques may lead to pollution due	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the	Negligible	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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Drain, Driffield Canal, Warren Drain, Burtons Drain, White Dyke, White Dyke Branch, Knorka, Earl's Dyke, Wanlass Drain and Yorkshire South Coastal WFD water body)		to increased sedimentation, fuel spills, oils and lubricants.			CEMP employing general pollution prevention measures.		
	Medium	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Medium	Installation of temporary culverts will result in the loss of natural banks, loss of bed, change in flow dynamics, erosion patterns and lead to destabilsation of banks resulting in fine sediment deposition within the channel. This may lead to loss of morphological features and spawning habitat.	Negligible	Negligible	Embedded mitigation as outlined in section 11.6.2 includes measures for culvert dimensions to accommodate the natural water regime, with the temporary culvert sat at hard bed level and orientated with flows to limit obstruction and potential for scour. These will allow free passage for fish and eels and be sited to avoid spawning habitat/morphological features where present. In some cases, temporary culverts may be sat above hard bed level, however this is limited to channels which are balanced systems with little flows so would be unlikely to be used by fish and eel. These will be determined on a case-by-case basis with the relevant stakeholder (EA, LLFA, IDB). All hard banks and bed added during construction will be temporary and the bankside will be returned to its original stabilised state after construction, including re-grading were required and re-vegetating/seeding to replace any lost habitat and vegetation or trees.	Negligible	Negligible
	Medium	Temporary damming of flow for open cut and culvert installations leading to fish and eel	Low	Minor	Impacts will be short term and normal flow conditions will naturally recover once works are complete and the obstruction is removed.	Low	Minor

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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		passage obstruction and altering the normal flow regime.			In addition, measures included in the CEMP include using fish friendly pumps where necessary and ensuring over-pumping flow rates are sufficient to ensure no upstream hydrological regime changes.		
	Medium	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
WFD designated and IDB maintained Drains (Auburn Beck, Earls Dyke, Burton Drain)	Medium	Outfall and headwall installations will cause loss of natural banks within the drains could lead to reduced bank roughness, that may increase scour downstream of structures.	Negligible	Negligible	Implementation of embedded mitigation measures which includes no part of the outfall structure protruding beyond the line of the bank, this includes headwalls, wingwalls and protection aprons.	Negligible	Negligible
Standing Water Bodies and Minor Drains	Low	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from the construction via trenchless techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from the haul and access road surfaces	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is	Negligible	Negligible

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		may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes.			controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.		
	Low	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
Minor drains	Low	Outfall and headwall installations will cause loss of natural banks within the drains could lead to reduced bank roughness, that may increase scour downstream of structures.	Negligible	Negligible	Implementation of embedded mitigation measures which includes no part of the outfall structure protruding beyond the line of the bank, this includes headwalls, wingwalls and protection aprons.	Negligible	Negligible
People, property and infrastructure: surface water abstraction	Low	Reduced availability of water for abstraction within surface water bodies due to abstraction for construction activities associated with installation of the cable	Negligible	Negligible	Where abstraction is necessary, permits will be obtained in agreement with the appropriate regulator in accordance with the Catchment Abstraction Management Strategy and be for less than a 28-day duration per water body.	Negligible	Negligible
People, property and infrastructure: Floodplain	Low	Installation of temporary culverts included for haul road watercourse crossings and paths caused by haul roads. May result in change to the existing flow regime and potential increase of	Low	Negligible	No further specific mitigation. Embedded mitigation includes the inclusion of a pre-installed culvert of suitable size to accommodate the water volumes and flows necessary through agreement with the landowner and LLFA.	Low	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
		flooding to the surrounding land.					
	Medium	Placement of temporary bridge crossings (expected to be in place for maximum of four years) could affect existing flow regimes of watercourses as well as increase flood risk to surrounding land.	Low	Minor	**Embedded** mitigation includes the assumption construction of bridge soffit levels at least 0.6m higher than the top of the bank on both sides of the watercourse following standard guidance for flood risk activity permits.	Low	Minor
	Low	Crossing of field drains by the proposed cable route could cause flow to back up on surrounding field drains and in turn increase risk to people, property and infrastructure flood risk receptors.	Low	Negligible	Embedded mitigation includes the incorporation of a temporary drainage strategy following the removal or disruption of field drainage channels that were affected during the cable construction process.	Low	Negligible
	Low	Installation of below ground DC cables has the potential to cause severance, disturbance, or blockage to the underground field/drainage infrastructure.	Low	Negligible	No further specific mitigation. Embedded mitigation includes: the addition of temporary diversions during works where underground drainage infrastructure is directly encountered. The most appropriate method to be proposed for each field and any works is to be undertaken in agreement with the appropriate stakeholder.	Low	Negligible
	Low	Crossings of cable route through areas identified as being within Flood Zone 3.	Low	Negligible	No further specific mitigation. Embedded mitigation includes that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.	Low	Negligible
	Low	Three of the proposed construction compounds; compounds 1, 2 and 6	Low	Negligible	No further specific mitigation. Embedded mitigation involves the inclusion of temporary drainage systems to capture additional runoff	Low	Negligible

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		overlap with areas of high risk surface waterand thus may produce an increase on surface water runoff.			and to ensure the run-off rates and discharge to the surrounding water environment are maintained at the current greenfield runoff rate or as otherwise agreed. Numbers of attenuation ponds, storage areas and storage volumes will be subject to final design and compound configuration., If there are no nearby watercourses present the drainage solution will be agreed with the relevant stakeholder		
	Medium	Two HDD pit locations with the potential to be open cut are shown to partially overlap with areas of Flood Zone 3; the entry pit of HDD 3, and exit pit of HDD 4. Three pit locations are in Flood Zone 2, the entry and exit pits of HDD 1 and the entry pit of HDD 4. Additionally six HDD pits with the potential to open cut watercourses are in areas at high risk of surface water flooding; the exit pits of HDD 1 and HDD 4, both the entry and exit pits of HDD 6, the entry pit of HDD 13 and the exit pit of HDD 17. Two are at medium risk, the exit pits of HDD 9 and HDD 19 Four committed HDD pits overlap Flood Zone 3; the	Low	Negligible	No further specific mitigation. Embedded mitigation includes that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.	Low	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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		exit pits of HDD 14 and HDD 15 and bot the entry and exit pits of HDD 21. Two HDD pit locations overlap Flood Zone 2, the entry pits of HDD 12 and HDD 14. Two of the committed HDD pits are in areas at high risk of surface water flooding, The entry pit of HDD 14 and the exit pit of HDD 21. Two are at medium risk, the exit pit of HDD 20 and the entry pit of HDD 21.					
	Low	One of the proposed joint bays within Section 1 is located within Flood Zone 3. Additionally, two of these bays are within areas of medium surface water risk, and two in areas of low risk.	Low	Negligible	No further specific mitigation. Embedded mitigation includes that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.	Low	Negligible
Route Section 2							
Ordinary watercourses - Minor drains	Low	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from the construction via trenchless techniques may lead to pollution due	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the	Negligible	Negligible

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		to increased sedimentation, fuel spills, oils and lubricants.			CEMP employing general pollution prevention measures.		
	Low	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Installation of temporary culverts will result in the loss of natural banks, loss of bed, change in flow dynamics, erosion patterns and lead to destabilsation of banks resulting in fine sediment deposition within the channel. This may lead to loss of morphological features and spawning habitat.	Negligible	Negligible	Embedded mitigation as discussed in Section 11.6.2 includes measures size to accommodate the natural water regime, with the temporary culvert sat at hard bed level and orientated with flows to limit obstruction and potential for scour. In some cases, temporary culverts may be sat above hard bed level, however this is limited to channels which are balanced systems with little flows so would be unlikely to be used by fish and eel. These will be determined on a case-by-case basis with the relevant stakeholder (EA, LLFA, IDB). All hard banks and bed added during construction will be temporary and the bankside will be returned to its original stabilised state after construction, including re-grading were required and re-vegetating/seeding to replace any lost habitat and vegetation or trees.	Negligible	Negligible
	Low	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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	Low	Outfall and headwall installations will cause loss of natural banks within the drains could lead to reduced bank roughness, that may increase scour downstream of structures.	Negligible	Negligible	Implementation of embedded mitigation measures which includes no part of the outfall structure protruding beyond the line of the bank, this includes headwalls, wingwalls and protection aprons.	Negligible	Negligible
Standing Water Bodies	Low	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from the construction via trenchless techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Low Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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Main rivers and ordinary watercourses - WFD designated	Medium	Indirect runoff from construction of open cut cable, haul road and construction compounds may lead to pollution due to increased sedimentation.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
People, property and infrastructure: surface water abstraction	Low	Reduced availability of water for abstraction within surface water bodies due to abstraction for construction activities associated with installation of the cable	Negligible	Negligible	Where abstraction is necessary, permits will be obtained in agreement with the appropriate regulator in accordance with the Catchment Abstraction Management Strategy and be for less than a 28-day duration per water body.	Negligible	Negligible
People, property and infrastructure: Floodplain	Low	Installation of temporary culverts included for haul road watercourse crossings and paths caused by haul roads. May result in change to the existing flow regime and potential increase of flooding to the surrounding land.	Low	Negligible	No further specific mitigation. Embedded mitigation involves the Inclusion of a pre-installed culvert of suitable size to accommodate the water volumes and flows necessary through agreement with the landowner and LLFA.	Low	Negligible
	Low	Crossing of field drains by the proposed cable route could cause flow to back up on surrounding field drains and in turn increase risk to people, property and infrastructure flood risk receptors.	Low	Negligible	No further specific mitigation. Embedded mitigation includes the incorporation of a temporary drainage strategy following the removal or disruption of field drainage channels that were affected during the cable construction process.	Low	Negligible
	Low	Installation of below ground DC cables has the potential to cause severance, disturbance,	Low	Negligible	No further specific mitigation. Embedded mitigation includes the addition of temporary diversions during works where underground drainage infrastructure is directly	Low	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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		or blockage to the underground field/drainage infrastructure.			encountered. The most appropriate method to be proposed for each field and any works is to be undertaken in agreement with the appropriate stakeholder.		
Route Section 3							
Surface water dependent habitat designated sites (River Derwent SSSI and Barn Hill Meadows SSSI)	High	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible/ Minor	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures. Emergency incident response procedure with appropriate remediation.	Negligible	Negligible/ Minor
	High	Runoff from the construction via trenchless techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible/ Minor	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures. Emergency incident response procedure with appropriate remediation.	Negligible	Negligible/ Minor
	High	Impacts from water abstraction.	Negligible	Negligible/ Minor	Where abstraction is necessary, permits will be obtained in agreement with the appropriate regulator in accordance with the Catchment Abstraction Management Strategy and be for less than a 28-day duration per water body.	Negligible	Negligible/ Minor
	High	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes.	Negligible	Negligible/ Minor	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible/ Minor

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
					Emergency incident response procedure with appropriate remediation.		
	High	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible/ Minor	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures. Emergency incident response procedure with appropriate remediation.	Negligible	Negligible/ Minor
Main rivers and ordinary watercourses - WFD designated and IDB maintained (Back Delphin/ Market Weighton Canal, River Foulness, River Ouse, Egremont Drain, Holme Main Drain, Dunns Drain, Featherbed Drain, Carr/Bishopsoil, Black Dyke, New Drain, Asselby Marsh Drain, Asselby Marsh Main Drain,	Medium	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Medium	Runoff from the construction via trenchless techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Medium	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Medium	Temporary bridge crossings causing bed and bank disturbance.	Negligible	Negligible	Temporary bridges will be clear span, with no bed or bank reinforcements, and foundations set well back from the bank edge. The soffits	Negligible	Negligible

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						Magnitude	Significance
Seave Carr Drain, Lowfield Drain, Bank Field Lane Drain)					should be >0.6m higher than bank tops with no change to surrounding ground level profiles surrounding the crossing. They will be sited to avoid tree/root loss and cross at straight reaches, perpendicular to flow where practicably possible.		
	Medium	Installation of temporary culverts will result in the loss of natural banks, loss of bed, change in flow dynamics, erosion patterns and lead to destabilsation of banks resulting in fine sediment deposition within the channel. This may lead to loss of morphological features and spawning habitat.	Negligible	Negligible	Embedded mitigation as outlined in section 11.6.2 includes measures for culvert dimensions to accommodate the natural water regime, with the temporary culvert sat at hard bed level and orientated with flows to limit obstruction and potential for scour. These will allow free passage for fish and eels and be sited to avoid spawning habitat/morphological features where present. In some cases, temporary culverts may be sat above hard bed level, however this is limited to channels which are balanced systems with little flows so would be unlikely to be used by fish and eel. These will be determined on a case-by-case basis with the relevant stakeholder (EA, LLFA, IDB). All hard banks and bed added during construction will be temporary and the bankside will be returned to its original stabilised state after construction, including re-grading were required and re-vegetating/seeding to replace any lost habitat and vegetation or trees.	Negligible	Negligible
	Medium	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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	Medium	Outfall and headwall installations will cause loss of natural banks within the drains could lead to reduced bank roughness, that may increase scour downstream of structures.	Negligible	Negligible	Implementation of embedded mitigation measures which includes no part of the outfall structure protruding beyond the line of the bank, this includes headwalls, wingwalls and protection aprons.	Negligible	Negligible
	Medium	Temporary damming of flow for open cut and culvert installations leading to fish and eel passage obstruction and altering the normal flow regime.	Low	Minor	Impacts will be short term and normal flow conditions will naturally recover once works are complete and the obstruction is removed. In addition, measures included in the CEMP include using fish friendly pumps where necessary and ensuring over-pumping flow rates are sufficient to ensure no upstream hydrological regime changes.	Low	Minor
Standing Water Bodies and Minor Drains	Low	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from the construction via trenchless techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
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		and wear from tyres and brakes.					
	Low	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
Minor Drains	Low	Outfall and headwall installations will cause loss of natural banks within the drains could lead to reduced bank roughness, that may increase scour downstream of structures.	Negligible	Negligible	Implementation of embedded mitigation measures which includes no part of the outfall structure protruding beyond the line of the bank, this includes headwalls, wingwalls and protection aprons.	Negligible	Negligible
People, property and infrastructure: surface water abstraction	Low	Reduced availability of water for abstraction within surface water bodies due to abstraction for construction activities associated with installation of the cable	Negligible	Negligible	Where abstraction is necessary, permits will be obtained in agreement with the appropriate regulator in accordance with the Catchment Abstraction Management Strategy and be for less than a 28-day duration per water body.	Negligible	Negligible
People, property and infrastructure: Floodplain	Low	Installation of temporary culverts included for haul road watercourse crossings and paths caused by haul roads. May result in change to the existing flow regime and potential increase of flooding to the surrounding land.	Low	Negligible	No further specific mitigation. Embedded mitigation involves the inclusion of a pre-installed culvert of suitable size to accommodate the water volumes and flows necessary through agreement with the landowner and LLFA.	Low	Negligible
	Low	Placement of temporary bridge crossings	Low	Negligible	Embedded mitigation includes the construction of bridge soffit levels at least 0.6	Low	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
		(expected to be in place for maximum of four years) could affect existing flow regimes of watercourses as well as increase flood risk to surrounding land.			m higher than the top of the bank on both sides of the watercourse following standard guidance for flood risk activity permits.		
	Low	Crossing of field drains by the proposed cable route could cause flow to back up on surrounding field drains and in turn increase risk to people, property and infrastructure flood risk receptors.	Low	Negligible	No further specific mitigation: Embedded mitigation includes the incorporation of a temporary drainage strategy following the removal or disruption of field drainage channels that were affected during the cable construction process.	Low	Negligible
	Low	Installation of below ground DC cables has the potential to cause severance, disturbance, or blockage to the underground field/drainage infrastructure.	Low	Negligible	No further specific mitigation. Embedded mitigation includes the addition of temporary diversions during works where underground drainage infrastructure is directly encountered. The most appropriate method to be proposed for each field and any works is to be undertaken in agreement with the appropriate stakeholder.	Low	Negligible
	Medium	Crossings of cable route through areas identified as being within Flood Zone 3. These intersections are located within predominantly rural areas away from major population centres though there are isolated farms within near proximity to these crossings. The intersections are, in some locations, extensive and	Low	Minor	No further specific mitigation. Embedded mitigation includes that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.	Low	Minor

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
		include the entire width of the planning boundary					
	Low	One construction compound, compound 13 is located within Flood Zone 3. Another construction compound, compound 14 is located within Flood Zone 2, meaning there is a potential risk of flooding to these areas.	Low	Negligible	No further specific mitigation. Embedded mitigation includes that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.	Low	Negligible
	Medium	Eight HDD pit locations with the potential to open cut watercourses overlap with Flood Zone 3, the entry pits of HDD 29, 37, 39 and 40. Four of this type of HDD pit are located in Flood Zone 2, the exit pit of HDD 28, the entry and exit pits of HDD 33 and the entry pit of HDD 35. potential to open cut Additionally, 10 of these type of HDD pits are at risk of flooding from reservoirs Six committed HDD pit locations are located in Flood Zone 3, the exit pit of HDD 27, the entry and	Low	Minor	Embedded mitigation includes that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible. **Project specific mitigation includes:** Supervisory personnel of the construction compound should sign up to receive advance flood warnings from reservoirs in case of a flood incident.	Low	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
		exit pits of HDD 30, and the entry pits of HDD 31 and HDD 41. Three committed HDD pits are located in Flood Zone 2, the entry pit of HDD 27 and both the entry and exit pits of HDD 34. Additionally eleven committed HDD pit locations are shown to be at risk of reservoir flooding.					
	Low	Seven of the proposed joint bays within Section 3 are located within Flood Zone 3 with three within Flood Zone 2. Additionally, the two of the bays are within areas of low surface water risk. Seven of the joint bays are in areas at risk of surface water flooding	Low	Negligible	No further specific mitigation. Embedded mitigation includes that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.	Low	Negligible
Route Section 4							
Main rivers and ordinary watercourses - WFD designated and IDB maintained IDB drains (River Ouse, Back Tom Drain, Unnamed	Medium	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Medium	Runoff from the construction via trenchless techniques may lead to pollution due	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the	Negligible	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
Drains, Back Lane Drain)		to increased sedimentation, fuel spills, oils and lubricants.			CEMP employing general pollution prevention measures.		
	Medium	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Medium	Installation of temporary culverts will result in the loss of natural banks, loss of bed, change in flow dynamics, erosion patterns and lead to destabilsation of banks resulting in fine sediment deposition within the channel. This may lead to loss of morphological features and spawning habitat.	Negligible	Negligible	Embedded mitigation as outlined in section 11.6.2 includes measures for culvert dimensions to accommodate the natural water regime, with the temporary culvert sat at hard bed level and orientated with flows to limit obstruction and potential for scour. These will allow free passage for fish and eels and be sited to avoid spawning habitat/morphological features where present. In some cases, temporary culverts may be sat above hard bed level, however this is limited to channels which are balanced systems with little flows so would be unlikely to be used by fish and eel. These will be determined on a case-by-case basis with the relevant stakeholder (EA, LLFA, IDB). All hard banks and bed added during construction will be temporary and the bankside will be returned to its original stabilised state after construction, including re-grading were required and re-vegetating/seeding to replace any lost habitat and vegetation or trees.	Negligible	Negligible
	Medium	Runoff from construction compounds may lead to pollution due to increased	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the	Negligible	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
		sedimentation, fuel spills, oils and lubricants.			CEMP employing general pollution prevention measures.		
	Medium	Outfall and headwall installations will cause loss of natural banks within the drains could lead to reduced bank roughness, that may increase scour downstream of structures.	Negligible	Negligible	Implementation of embedded mitigation measures which includes no part of the outfall structure protruding beyond the line of the bank, this includes headwalls, wingwalls and protection aprons.	Negligible	Negligible
	Medium	Temporary damming of flow for open cut and culvert installations leading to fish and eel passage obstruction and altering the normal flow regime.	Low	Minor	Impacts will be short term and normal flow conditions will naturally recover once works are complete and the obstruction is removed. In addition, measures included in the CEMP include using fish friendly pumps where necessary and ensuring over-pumping flow rates are sufficient to ensure no upstream hydrological regime changes.	Low	Minor
	Medium	Runoff from construction of the converter station may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
Standing Water Bodies and Minor Drains	Low	Runoff from the construction via open cut techniques may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from the construction via trenchless techniques	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site	Negligible	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
		may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.			management, and implementation of the CEMP employing general pollution prevention measures.		
	Low	Runoff from the haul and access road surfaces may lead to pollution due to increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
	Low	Runoff from construction compounds may lead to pollution due to increased sedimentation, fuel spills, oils and lubricants.	Negligible	Negligible	An appropriate drainage strategy as outlined in section 11.6.2 will ensure that runoff is controlled in quality, in addition to good site management, and implementation of the CEMP employing general pollution prevention measures.	Negligible	Negligible
People, property and infrastructure: surface water abstraction	Low	Reduced availability of water for abstraction within surface water bodies due to abstraction for construction activities associated with installation of the cable	Negligible	Negligible	Where abstraction is necessary, permits will be obtained in agreement with the appropriate regulator in accordance with the Catchment Abstraction Management Strategy and be for less than a 28-day duration per water body.	Negligible	Negligible
People, property and infrastructure: Floodplain	Low	Installation of temporary culverts included for haul road watercourse crossings and paths caused by haul roads. May result in change to the existing flow regime and potential increase of flooding to the surrounding land.	Low	Negligible	No further specific mitigation. Embedded mitigation includes the inclusion of a pre-installed culvert of suitable size to accommodate the water volumes and flows necessary through agreement with the landowner and LLFA.	Low	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
	Low	Crossing of field drains by the proposed cable route could cause flow to back up on surrounding field drains and in turn increase risk to people, property and infrastructure flood risk receptors.	Low	Negligible	No further specific mitigation. Embedded mitigation includes the incorporation of a temporary drainage strategy following the removal or disruption of field drainage channels that were affected during the cable construction process.	Low	Negligible
	Low	Installation of below ground cable (both AC and DC) has the potential to cause severance, disturbance, or blockage to the underground field/drainage infrastructure.	Low	Negligible	No further specific mitigation. Embedded mitigation includes the addition of temporary diversions during works where underground drainage infrastructure is directly encountered. The most appropriate method to be proposed for each field and any works is to be undertaken in agreement with the appropriate stakeholder.	Low	Negligible
	Medium	The entirety of the cable route within Section 4 intersects with areas identified as being within Flood Zone 3. These intersections are located within predominantly rural areas away from major population centres.	Low	Minor	No further specific mitigation. Embedded mitigation include that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.	Low	Minor
	Low	Both proposed construction compounds, compounds 18 and 19 within this section are within Flood Zone 3. Both are also in areas at risk of reservoir flooding. One of the compounds, compound 17 overlaps with an area of low surface water risk.	Low	Negligible	No further specific mitigation. Embedded mitigation includes: • Temporary drainage systems to capture additional runoff and to ensure the run-off rates and discharge to the surrounding water environment are maintained at the current greenfield runoff rate. Numbers of attenuation ponds, storage areas and storage volumes will be subject to final design and compound configuration .If there are no nearby watercourses present the	Low	Negligible

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
					dranage solution will be agreed with the relevant stakeholder . The scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.		
	Medium	HDD pit locations are wholly within Flood Zone 3. The exit pit of HDD 41 is an area of low surface water flood risk. All HDD locations are in areas at risk of reservoir flooding.	Low	Minor	No further specific mitigation. Embedded mitigation includes: • The scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible. • Additionally, there is a potential for temporary drainage systems to capture additional runoff and to ensure the run-off rates and discharge to the surrounding water environment are maintained at the current greenfield runoff rate.	Low	Minor
	Low	The single proposed joint bay within Section 4 is located within both Flood Zone 3, areas of low surface water risk and in an area of reservoir flood risk.	Low	Negligible	No further specific mitigation. Embedded mitigation includes that the scheme designs, where possible, have been located in areas at low risk of flooding so as to avoid flood risk where possible.	Low	Negligible
	Medium	Location for proposed converter station is within the modelled flood extents from nearby watercourses and is currently located within Flood Zone 3. Proposed ground raising at this location to ensure the Finished Floor Level (FFLs) are placed at 6.18mAOD), which is the maximum modelled flood level in the 0.1% + 50%	Low	Minor	SuDS in the form of an attenuation pond has been included in the design of the proposed converter station to manage surface water runoff and storage which would be adopted by the formal drainage strategy. Inclusion of compensatory flood plain storage is considered as not required as less than 1% floodplain storage is lost. However, policy compliant floodplain compensation storage estimates have been prepared. To compensate the scheme up to the 1% AEP event + 50% CC an estimated 63,254m^3 of floodplain compensation would need to be provided.	Low	Minor

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
		CC AEP event, and greater than the raising required to be above the level of the 1% + 39% CC AEP, as required by the EA. which has the potential to increase flood risk elsewhere by displacing flood water into other areas if not mitigated. This can result in an increase in local flood depths, Hazard, and time of inundation. The change in ground topography also has the potential to affect existing surface water runoff pathways and areas of pooling.					

11.8.2 Assessment of Residual Effects: Operational Phase

The residual impacts during the operational phase are shown in **Table 11-24**. Residual effects of with a significance of moderate or above are considered significant.

Table 11-24: Assessment of Residual Impacts: Operational Phase

Receptor Description	Value/ Sensitivity	Description of Potential Impact	Magnitude	Significance	Mitigation Measure(s)	Residual Effect	
						Magnitude	Significance
Route Section 4							
IDB maintained Drain (Unnamed Drainage channel of Back Lane Drain and Carr Lane Drain)	Medium	Runoff from the increased hard standing associated with the converter station and access road may lead to increased sedimentation, and pollution entering the watercourses.	Negligible	Negligible	Implementation of a SUDS compliant drainage scheme which will manage runoff volume and treat sediment and pollutant laden surface water. In addition, the platform will be partially permeable as stone chippings will be used as a base layer in some areas which will provide some mitigation through storage and filtration. Final layout and discharge rate is to be agreed with the LLFA and IDB.	Negligible	Negligible
People, Property and infrastructure: Floodplain	Low	The change in ground topography around the proposed converter station may affect the existing surface water pathways and areas of pooling thereby impacting on the existing level of surface water risk.	Low	Negligible	No further specific mitigation. Embedded mitigation SuDS in the design for the proposed converter station to manage surface water runoff and storage.	Low	Negligible

11.9 Combined and Cumulative Effects

This section considers the combined and cumulative effects of the English Onshore Scheme on water resources and hydrology in conjunction with other projects or developments.

11.9.1 Assessment of Intra-Project Cumulative Effects

As outlined in **Chapter 1: Introduction**, the English Onshore Scheme forms one element of the wider Project, along with the Marine Scheme and Scottish Onshore Scheme. Due to the distances of separation between the English Onshore Scheme and the Scottish Onshore Scheme, intra-Project cumulative effects to individual receptors will not occur, for example no property or ecological site would experience effects from both the English Onshore Scheme and Scottish Onshore Scheme. Similarly, although there is a slight overlap of the English Onshore Scheme and Marine Scheme in the intertidal area between Mean High Water Springs and Mean Low Water Springs (as shown in Figure 1-2), as the HVDC cable reaches the landfall site (part of the English Onshore Scheme) via HDD, the works which could give rise to environmental impacts are physically separated and hence no significant intra-Project cumulative effects to individual receptors are predicted to occur.

The separate EIA/EA reports produced for the English Onshore Scheme, Marine Scheme and Scottish Onshore Scheme provide an environmental assessment of each topic area for which potential environmental effects could arise from that element. Once the assessment of the other elements of the Project is complete, a Bridging Document will be prepared which summarises the main interactions of these three individual environmental assessments. The Bridging Document will be made available as soon as it is available, but as highlighted above, there are no significant in-combination impacts between the English Onshore Scheme, Marine Scheme or Scottish Onshore Scheme. This section, therefore, provides an assessment of the combined and cumulative effects relating to the English Onshore Scheme only. For full definitions of terminology and details of other projects considered in this assessment see **Chapter 17: Cumulative and In-Combination Assessment**.

Combined effects are those effects occurring in combination with the proposed DC and AC cable route, converter station, temporary construction works and access roads including cross-boundary/section impacts between Sections 1 and 2, Sections 2 and 3, and Section 3 and 4 where receptors within the study area overlap these sections. All impact pathways will be the same as identified in Section 11.6 however works will be completed transitionally across the route and therefore limiting activities surrounding each hydrology receptor. In addition, mitigation measures outlined within this chapter will be incorporated into the construction and operation of the components reducing or preventing impacts. Therefore, it has been determined that no in combination cumulative effects on water resources and hydrology receptors are likely and any potential effects will be not significant.

11.9.2 Assessment of Inter-Project Cumulative Effects

The approach to cumulative assessment is set out in **Chapter 17: Cumulative and In-Combination Effects**.

There are a number of proposed developments that have been granted or are pending planning permission. The construction dates of many of these other developments are unknown; therefore, it has been assumed that all developments have potential to be constructed simultaneously so as to present a worst case scenario:

- There are three large energy infrastructure projects involving the installation of onshore cables or pipelines that have been granted or have pending planning permission: Hornsea Project Four Offshore Windfarm and associated onshore export cables in Section 1, Continental Link Multi-Purpose Interconnector comprising an underground high voltage direct current (HVDC) electricity interconnector in Section 2, and Humber Low Carbon Pipelines by National Grid Carbon in Section 4. The construction of these would increase construction traffic locally, and there is the potential for adverse cumulative impacts to arise from runoff mobilising pollution (increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes) from the individual haul routes combining into the same surface water receptors. This would lead to reduced water quality within the local watercourses. It is assumed that each of these developments would be subject to an EIA or environmental assessment where impacts would be appropriately mitigated, and the projects will

have to comply with national and local planning policy and any specific conditions stipulated by statutory consultees. On this basis there are not considered to be any significant cumulative effects;

- There are six energy infrastructure projects that have been granted or have pending planning permission: Drax Bioenergy with carbon capture and storage in Section 4, EIA scoping opinion for a 50 mw battery storage system (BESS) on land off Barlow Common Road in Section 4, development of an energy storage facility (including battery storage containers; substations; power conversion systems; transformers and associated switchgear; HVAC equipment; communications and grid compliance equipment; temporary construction compound; CCTV; fencing; infrared lighting; access, drainage and landscaping works and associated development) in Section 4, construction of a battery energy storage system in Section 2, EIA Screening opinion request for five wind turbines in Section 2, and development of a secondary battery storage facility, associated infrastructure, access and grid connection in Section 4, may increase the hardstanding within the area. The construction of these would increase construction traffic locally, and there is the potential for adverse cumulative impacts to arise from runoff mobilising pollution (increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes) from the individual haul routes combining into the same surface water receptors. This would lead to reduced water quality within the local watercourses. It is assumed that each of these developments would be subject to an environmental assessment where impacts would be appropriately mitigated, and the projects will have to comply with national and local planning policy and any specific conditions stipulated by statutory consultees. On this basis there are not considered to be any significant cumulative effects;
- Demolition of Drax Power Ltd Flue Gas Desulphurisation (FGD) plant and associated restoration works, which will not result in a notable increase in the hardstanding within the area as this comprises demolition of an existing development. This project will have to comply with national and local planning policy and any specific conditions stipulated by statutory consultees. On this basis there are not considered to be any significant cumulative effects;
- eight residential and holiday developments are currently in planning; construction of 28 chalets at South Shore Holiday Village, change of use of land for siting of 46 static caravans, erection of 40 dwellings and associated access, parking, landscaping and infrastructure, erection of holiday park, artisan workshops with associated retail, artisan bakery, delicatessen, boulangerie, offices, craft pods, workshop, café/tearooms, farm shop, tackle shop display, exhibition and fishing lake, 470 dwellings in Kingsgate, 175 dwellings at Howden Parks, 600 dwellings near Goole and 45 dwellings at Camblesforth. The construction of these would increase construction traffic locally, and there is the potential for adverse cumulative impacts to arise from runoff mobilising pollution (increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes) from the individual haul routes combining into the same surface water receptors. This would lead to reduced water quality within the local watercourses. These projects will have to comply with national and local planning policy and any specific conditions stipulated by statutory consultees. On this basis there are not considered to be any significant cumulative effects;
- Four solar farms with associated infrastructure are currently in planning. The construction of all of these developments will increase the hardstanding in the area. However, it is highly likely that the respective projects will undertake a detailed assessment of potential impacts of the proposed development and provide appropriate mitigation to reduce the risk of any significant impacts, including respective surface water management strategies. The projects will have to comply with national and local planning policy and any specific conditions stipulated by statutory consultees. On this basis there are not considered to be any significant cumulative effects;
- There are two commercial developments in planning: the development of an existing horticultural facility for indoor farming and agri-tech, including the construction of three halls with associated process, service and administration buildings which will not result in a notable increase in the hardstanding within the area as this comprises alteration of an existing development, and construction of a HGV park and welfare building and warehouse to serve existing Sedamyl UK Ltd plant in Section 4. The construction of these would increase construction traffic locally, and there is the potential for adverse cumulative impacts to arise from runoff mobilising pollution (increased dust, fuel spills, oils, lubricants, soil and wear from tyres and brakes) from the individual haul routes combining into the same surface water receptors. This would lead to reduced water quality within the local watercourses. These projects will have to comply with national and local planning policy

and any specific conditions stipulated by statutory consultees. On this basis there are not considered to be any significant cumulative effects;

- EIA scoping for excavation to Barlow Ash Mound in Section 4. It is likely this will lead to additional traffic in the area. However, it is highly likely that the respective projects will undertake a detailed assessment of potential impacts of the proposed development and provide appropriate mitigation to reduce the risk of any significant impacts, including respective surface water management strategies. The project will have to comply with national and local planning policy and any specific conditions stipulated by statutory consultees. On this basis there are not considered to be any significant cumulative effects;
- The planning application for the extension of excavation area to Gransmoor Quarry was approved in September 2020. The construction of this project has the potential to increase pollution through the mobilisation of sedimentation and from runoff from the haul roads. This development is hydraulically linked to the English Onshore Scheme, located 400m downstream. An Environmental Statement with mitigation has been provided with this committed development and concluded no significant effects to water receptors. Therefore on this basis, there are not considered to be any significant cumulative effects; and
- The planning application for the creation of access from Driffield Canal and a marina for mooring leisure boats with access and car park is pending consideration. The construction of this project has the potential to increase pollution through the mobilisation of sedimentation and pollution from runoff from the haul roads. This development is hydraulically linked to the English Onshore Scheme, located 2 km downstream. It is highly likely that this project will undertake a detailed assessment of potential impacts of the proposed development and provide appropriate mitigation to reduce the risk of any significant impacts, including respective surface water management strategies. The project will have to comply with national and local planning policy and any specific conditions stipulated by statutory consultees. On this basis there are not considered to be any significant cumulative effects

It has been determined that no cumulative impacts on water resources and hydrology receptors are likely from the remaining committed developments identified within the study area, as there is either no pathway from the proposed developments to either the proposed landfall, the DC cable route, the converter station, the construction compounds, or the potential impacts will be mitigated within the planning process.

It is assumed, these developments will run in accordance with the NPPF and Planning Practice Guidance ID7 – Flood Risk and Coastal Change and therefore any new development is required to attenuate surface water run-off, where practicable, to the greenfield runoff rate and provide appropriate management techniques to treat potentially contaminated run-off prior to discharge into the local drainage network.

Any works undertaken within close proximity to a watercourse/flood defence or Flood Zone 3 will require consent from the EA, LLFA and/or IDB's. They will be required to demonstrate that the risk of flooding during the lifetime of the development could be mitigated to a level acceptable. Therefore, the cumulative impacts on water resources and hydrology are predicted to not be significant.

11.10 Summary of Assessment

There are a total of 100 surface water features proposed to be crossed by the English Onshore Scheme, which are a mixture of main river and ordinary watercourses, WFD designated, IDB maintained channels and minor drains. These surface water courses all have an overall WFD status of Moderate. EA records also indicate three Chalk Streams and numerous surface water abstraction and discharge licenses present within the study area. There are a number of SSSIs present within the study area, two of which are proposed to be crossed by the English Onshore Scheme (West Beck SSSI and Kelk Beck SSSI).

Parts of Section 1 of the English Onshore Scheme are located within areas of high surface water risk, parts of Section 2 and 3 within areas of medium surface water risk and parts of Section 4 within areas of low surface water risk.

Parts of Sections 1, 3 and 4 of the English Onshore Scheme are within areas of Flood Zone 2 and 3, the overall flood risk from groundwater, residual sources, historic risk and sewers to the English Onshore Scheme is low.

The main potential impacts relating to construction include increased surface water runoff and changes to existing runoff rates through increases in impermeable areas. There are also temporary impacts to local hydromorphology, impacts from the mobilisation of fine sediment to water features effecting water quality through run off or scour, and mobilisation of oils, cement or other chemicals effecting water quality. Impacts during construction also include severance or disturbance to underground field/land drainage infrastructure, changes to the existing flow regime of watercourses as a result of crossings and potential increase in flood risk elsewhere due to available compensatory land storage being displaced.

The main potential impacts relating to operation include increased surface water run off through increases in impermeable areas, severance or disturbance to underground field/land drainage infrastructure and mobilisation of oils, cement or other chemicals effecting water quality contained within run off.

With the incorporation of embedded design mitigation and operational specific mitigation for flood risk, the significance of residual effects for the English Onshore Scheme are a defined as minor to negligible adverse and therefore not significant.

In addition, the ground level at the proposed converter station (the only permanent above ground infrastructure proposed for the English Onshore Scheme) in Section 4, in SDC, is to be raised to ensure that the FFL is at a level of 6.18 mAOD. This is to ensure that the structure remains outside the modelled flood extents and depths from nearby watercourses to the 0.1% + 50% CC AEP event, although the EA only require the converter station to be free from flooding in the 1% + 39% CC AEP event. Compensatory storage is not anticipated to be required. Any requirement for compensatory storage will require consultation and agreement with the EA.

With the incorporation of appropriate mitigation measures, the significance of residual effects for the English Onshore Scheme are defined as minor to negligible adverse and therefore not significant.

11.11 References

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Ref 11-19 Environment Agency. Humber Tributaries Model 2020

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